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## Evoked culture, ritualization and religious rituals

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### Abstract

This study presents an attempt to integrate two theories about ritual: the theory that McCauley and Lawson developed in *Bringing Ritual to Mind; Psychological Foundations of Cultural Forms* and the theory that Boyer and Liénard presented in a target article in *Behavioral and Brain Sciences*, ‘Why ritualized behavior in humans? Precaution systems and action-parsing in developmental, pathological and cultural rituals’ and in another article published in the *American Anthropologist*, ‘Whence collective rituals? A cultural selection model of ritualized behavior’.

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### The two theories

Cultural rituals present vexing problems for psychology and anthropology. Why are these forms of human behavior so ubiquitous? Even more enigmatic are religious rituals. In fact, are there such things as *religious* rituals? If so, what are they? Lawson and McCauley (1990) define religious rituals as cultural rituals in which social agents with special qualities play prominent roles. These agents are regarded as special because of some purported ‘connection’ to postulated supernatural entities such as gods, spirits, ancestors and the like.<sup>1</sup>

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<sup>1</sup> For a thorough analysis of the notion of counterintuitiveness and its relationship to superhuman beings, see Pyysiäinen (2001).

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Although there is something particular about the actors and the actions performed in religious ritual, the basic structure of these special agents' actions does not fundamentally differ from that we find in ordinary actions. Ritual drummers ritually drumming on ritual drums are still drummers drumming on drums. The representational structure of these actions still has placeholders for agents (*doing*), instruments (implements for doing) and patients (entities *acted upon*).

In religious rituals the basic components of all actions are prototypically 'tweaked' in specific ways. This is accomplished by assigning special qualities to agents, instruments or patients involved in the religious acts and by postulating some kind of relationship to non-ordinary agents, so-called *Culturally Postulated Supernatural agents* (Lawson and McCauley, 1990) also more recently referred to simply as *agents with counterintuitive properties* (hereafter referred to as CI-agents).

Why this modification to the way some actions are represented? Furthermore, why are such religious actions widespread the world over? McCauley and Lawson (2002) address this problem by resorting to a *selectionist* argument.<sup>2</sup> Religious rituals, ideas about those rituals, relevant rules of conduct and habits accompanying those rituals, as cultural items, are transmitted within and among social groups and across generations. In the transmission process, they have to compete with other cultural information for attention. (The amount and type of information that can be processed, stored and recovered at any one time is inherently restricted, thanks to the limitations and features of human attention and memory). The more salient the information, the better it is transmitted. Furthermore, religious information is not just ordinary cultural information grounded in backgrounds of falsifiable beliefs. Religious beliefs and actions are much more stand-alone cultural information than information about more practical endeavors like cooking, building a house or hunting, for example. Failure in the latter has direct consequences; knowledge revision is essential and its reinforcement is guided by observable cues.

In the process of transmission religious items run a gauntlet orchestrated by the human cognitive apparatus. To be selected and adopted in cultural traditions, religious information must compensate for its lack of *direct* functionality or the absence of, so to speak, a *pragmatic sanction and reinforcement*. Therefore it might be said that the extant religious information is part of cultural packages because it has been and is still found attractive. It has been and is still more attention-grabbing and memorable than less salient, potentially competing, cultural variants. It is culturally successful because it has a selection advantage thanks to some of its features. Without that advantage, ideas about religious rituals are either quickly forgotten or else they are transformed into more salient, cognitively suited forms. McCauley and Lawson argue that particular cognitive constraints channel *ritual arrangements* towards a limited set of preferred stable forms. In sum, existing religious rituals are the outcome of a cultural selection process.

Specific cues signal the probable religious nature of a ritual. For example: particular people wear particular clothes on certain occasions; special words or languages are used to address peculiar interlocutors; specific instruments or objects must imperatively be used lest the actions performed are considered invalid. While such facts are interesting enough, this is not the whole story. According to McCauley and Lawson, religious rituals acquire specific stable forms because

<sup>2</sup> Selectionist arguments have become widespread in the cognitive science of religion. See, for example, Pyysiäinen (2001), Bulbulia (2004), Atran (2002), Bering and Bjorklund (2007), Sperber (1996), Whitehouse (1992).

in grasping those extra-ordinary actions people rely on their implicit knowledge of the structure of ordinary action.<sup>3</sup> Thus it is people's implicit knowledge about forms of ordinary actions that provides the primary conduit to the specific religious ritual forms observable the world over. In order to understand that assertion we need to examine the *ritual form hypothesis*.

The ritual form hypothesis is based on a set of fundamental tenets. First, people's expectations about ritual form go a long way towards explaining why religious rituals find the cultural success that they do (Barrett and Lawson, 2001). Second, religious ritual participants' knowledge partially arises from their implicit knowledge of ordinary action structure. Knowing that *drummers beating drums* is an action also involves knowing that *especially selected drummers ritually manipulating sanctified drums* is too. Third, knowledge of ordinary action structure takes a special form in the representations of religious ritual's structure. There is something about the actors and the actions involved that sets them apart from ordinary actions. For example, agents presumed to be involved in the action *are not physically present*. CI-agents are either associated with the agents who actually officiate in the ritual, with the instruments being manipulated or with patients being acted upon. Apparently the way the CI-agent is evoked in the ritual correlates systematically with another feature: the ritual's frequency of repetition.

- (1) When the agent with counterintuitive properties is directly associated with the person occupying the agent placeholder in the ritual representation, typically the ritual will not be repeated. Initiation seems to be a very good example of such religious ritual actions. Through a ritual, and by the mediation of a ritual official, a priest, a soothsayer, a collective of elder, the ancestors initiate once and for all the young boys into the first stage of the initiation process.
- (2) When the CI-agent is connected with either of the other placeholders, the instrument or the patient slot, the rituals seem to be repeated relatively more frequently. Many sacrificial rituals are prototypical examples of the latter.

The first kind of religious rituals, which McCauley and Lawson have called *special agent rituals*, are typically attended by high emotional arousal, for example, extreme joy, heightened fear, or stressed attention, and are marked by high sensory pageantry, for example, the wearing of elaborate garments, the playing of exuberant music or the consumption of choice foods. The installation of the archbishop of Canterbury Cathedral is an appropriate example. On the other hand, special patient and special instrument religious rituals involve comparatively less emotional arousal and sensory pageantry. So the ritual form hypothesis holds that aspects of the representation of ritual form predict the frequency of reenactment and the *comparative* levels of emotional arousal and sensory pageantry that religious rituals incorporate (and conversely).

The view of an *oriented selection process* originates in a competence approach to theorizing.<sup>4</sup> Such theories pay attention to human dispositions to act in particular ways in specific contexts. That is, on the basis of minimal information found in the cultural environment, given the poverty

<sup>3</sup> See Barrett and Lawson (2001) for an experimental study demonstrating the role that implicit knowledge plays in cultural judgments.

<sup>4</sup> Competence theorizing in various ways and to varying degrees has been adopted in the cognitive science of religion by a large number of scholars, for example, Pascal Boyer (2001), Ilkka Pyysiäinen (2001), D. Jason Slone (2004) and Todd Tremplin (2006).

of the information directly available, people demonstrate an amazing ability to act in relevant ways. As such, actual behavior, that is performance elicited in specific contexts, points to the operation of information-rich cognitive mechanisms underlying specific competences. So regarding religious rituals, according to Lawson and McCauley, knowing whether the CI-agent is directly represented through a ritual agent distinguished from other human beings (for example, a priest), or knowing that the CI-agent is connected to one of the other two main components of the religious ritual action structure, is sufficient for participants to make rich inferences about relevant courses of action, such as whether it is more important to act or to be acted upon. The previous point, of course, is descriptive and analytical; it does not actually explain the generation of CI-agent concepts and representations, it simply describes two prototypical configurations found the world over. In order to provide a deeper explanation we need to introduce a new notion: *attractor*.

Following a suggestion by Sperber (1996), McCauley and Lawson (2002) use the mathematical notion of attractor to explain the *oriented* evolution of complex religious ritual. Ritual representations gravitate towards particular positions in the space of all possible rituals. In such a space we will find that there is a tendency towards either of two relatively stable extremes: (1) more arousing and less frequently performed special agent rituals and (2) more mundane and more frequently performed special patient or instrument rituals. Hidden behind this notion of the attractor orienting the evolution of religious ritual forms, we find the CI-agent. Indeed what distinguishes special agent rituals from special patient or instrument rituals is *the fundamental role that agents with counterintuitive properties play in the representation*.

If a theory of religious ritual competence shows that there are two stable states that religious rituals tend to occupy and that such states are influenced by the role that agents with special qualities play in the representations of rituals, this does not mean that religious ritual participants have (or must have) any *explicit* representations of the involvement of CI-agents. However it does mean that *special agencies should easily come to participants' minds as logical presuppositions to representations of the ritual's efficacy*.

In our analytical context, attractors are analytical tools that provide the means for pointing to the result of the complex, collective impact of the myriad of inferences that people make when exposed to ritual material, given the limited information available to them and given their competence in grasping the structure of ordinary actions. At the theoretical level of analysis of religious ritual arrangements therefore, the attractor positions are precious implements that are postulated in order to make sense of the evolution of religious ritual forms, as this is instantiated in actual behavior. This is certainly not a situation in which 'anything goes'.

Ordinary action sequence structure specifies distinct components: agent, action, instrument and patient, and a structure of interaction among these elements. Lawson and McCauley claim that in religious ritual the action components are treated in special ways. But what about the remarkable features of rituals that make us grasp that we are not witnessing or participating in ordinary actions? What about unusual features such as redundancy and repetitiveness? Why would following typical ritual instructions—'Reenact thrice this phase (even if apparently not necessary)', 'Do this in *that particularly complicated way* (even if it appears particularly inefficient)'—ever be found compelling by so many people around the globe? And indeed the features of repetition, redundancy, scriptedness and goal-demotion are the hallmarks of ritual. McCauley and Lawson have not offered an account of the latter, nor did they intend to. A theory of ritualization would aptly

complete the ritual competence and ritual form theories. This leads us therefore to the second phase of analysis.

Focusing on what they call Hazard-Precaution Systems (henceforth HPS), Boyer and Liénard (2006) have posited a plausible, explanatory account of *ritualization*. They argue that the human mind is endowed with precautionary systems specifically dedicated to responding to *recurrent potential threats*. HPS also include broadly specified descriptions of relevant cognitive processes, such as disgust and avoidance of potentially contaminating substances, or specific behaviors, such as withdrawal in menacing social interactions.

HPS seem to be involved in individual ritualization, such as that observable in children's ritualistic behaviors, or that seen in parents' practices around childbirth, or that found in the pathology of patients with OCD. In all these distinct domains, it appears that ritualization is associated with a narrow range of particular intrusive thoughts about such potential threats as contagion, contamination, intrusion by strangers, predation, social offence and harm to offspring, kin and emotionally-bonded associates. Individual ritualization seems to be triggered by anxiety concerning Hazard-Precaution themes. Ritualization typically affects *relevant* Hazard-Precaution behaviors (washing, cleansing the environment, checking for signals of intrusion).

Any ethnographic text which focuses on ritual behavior cannot fail to call to our attention the frequency with which such themes of potential danger occur. Another hallmark of these kinds of ritualization is that behaviors are rigidly structured and their enactment is guided by sets of prescriptive rules. According to Boyer and Liénard, these complex rules might very well be mobilizing agents' attention, diminishing intrusive thoughts about Hazard-Precaution themes. Individual rituals would then be the result of an elaborate process of progressive thought suppression guided by levels of anxiety. That is, the more preoccupying the enactment of the actions, the less easy the access of the intrusive thought will be, and the lower the level of anxiety should be.

Boyer and Liénard claim that the HPS also play a role in explaining the form of *collective* rituals. In such rituals, cultural allusions to potential threats to fitness typically accompany ritual acts. This may be in the form of injunctions, warnings, common-sense sayings, or popular wisdom. 'Wash your face, hands and legs with this concoction three times, or accept the consequences ...!' 'Rotate the stick this way around that pot rather than that way, or accept the consequences ...!' 'Gobble this bitter medicine while standing on the skin of a sacrificed ox, or accept the consequences ...!' 'Wipe carefully the rim of this chalice between each participant or accept the consequences!' In other words, failing to comply with the requirements exposes the ritual practitioner to potential danger.

Potential threats may also be made manifest through various means: emotional markers, like elders' emotional responses to the presentation of a ritual artifact, or indexical items, like a headless sheep. Such warnings, emotional markers and indices seem to be recurrent features of collective rituals, so much so that they are usually part of the anthropological views of such collective endeavors. We also find many ritual acts that clearly overlap with the HPS precautions. Typically, for instance, collective rituals are about purifying, cleansing or washing. In collective rituals, these aggregates alluding to potential threats seem to elicit, albeit in a weaker way, Hazard-Precaution measures. Boyer and Liénard claim that rituals that include cues of potential threats to fitness and that mimic HPS precautions will inevitably be more attention-grabbing and compelling (even if ever so slightly so) than acts that do not. This could in turn explain why groups progressively select and adopt such acts more often than any other types and why those acts find success in

different cultural settings. Collective rituals are indeed the result of cultural selection, driven by deep intuitions about potential danger to fitness. Once more we can acknowledge that religious representations are direct by-products of quite ordinary cognition.

The purpose of this paper is to show that the account of ritualization suggested by Boyer and Liénard can be integrated with the explanation of the structure and dynamics of religious rituals advanced by Lawson and McCauley. We aim to show that such an integrated theory has consequences for an account of the evolution of religious systems in an epidemiological framework.

### Similarities, differences, and solutions

Both the Lawson and McCauley and the Boyer and Liénard theories employ cultural selection as an explanatory framework. The way memory is structured and operates plays a key role, although in different ways in the two theories. Both are generative systems explaining observable tendencies. Both explain why specific costly ritual behavior obtains and persists. Neither theory regards such behavior as random; both agree that we are dealing with *natural tendencies rather than adaptations*. Ritualized behavior is *the consequence of the combined elicitation of various systems devised for processing specific materials different from ritual information and it is not the outcome of dedicated ritual mechanisms*. Furthermore, it is to be expected that in specific conditions, ritualized behavior and ultimately religious rituals would have a high probability to be evoked. That seems to be what we encounter when we take the wealth of ethnographic reports into consideration, and what we observe when we study historical descriptions of what takes place in the world (Martin, 2004).

Although connected to each other, these two theories differ in their focus. In the case of the first theory, the focus is on the *recognition, memorability and motivational impact* of the cultural material. The synthetic concept of CI-agent defines the limits and the general orientation of the cultural selection process. Inferences about agents facilitate cultural items' *recognition* and hence *recallability*. This in turn affects ritual items' forms through the reconstructing process of memory, thus eventually enhancing their recognition even more.

In the case of the second theory, the focus is on the motivational aspects of a specific type of behavior: ritualized behavior characterized by a set of particular features as an essential component of many cultural rituals. Cultural ritualized behavior is selected, as indirectly the ritual in which it appears will be, because of its connection to themes and actions typical of Hazard-Precaution. The more it elicits those themes and precautions in a cultural context through mimicking those HPS items, the more it commands attention and so provides the motivation for its recall.

So Boyer and Liénard present an explanation for the motivational grounding of the ritual as a whole through particular behavioral components, ritualized behaviors, while Lawson and McCauley account for the grasping of the religious ritual acts as actions with agents (special ones, that is), instruments and patients and of the consequence that this has on their overall form. Here we have been presented with two interesting insights; however, we are faced with the problem of integrating the two positions. Especially, we may wonder *why ritualized behavior in some contexts may lead to religious ritual behavior*.

We have seen that both theories see as essential the introduction of minor variations affording certain items counterintuitive properties to standard representations. Ritualized behavior has



several features that clearly demarcate it from ordinary action. It is goal-demoted, that is, the typical goal of the enacted action is no longer the aim of the action. Cleansing with cow dung, washing with blood, smearing ghee on the body and butchering an animal not for eating but for ‘classifying’ social categories all clearly point to a fundamental alteration of the typical aim of the original actions (for example, killing for eating, cleansing oneself by getting rid of dirt and other contaminants). Note however that goal-demotion does not entail that the action is devoid of information. On the contrary, ritualized behavior is clearly laden with information from the typical act being *re-oriented* in the ritualized behavior. The act is still cleansing, washing, or butchering.

Another way of achieving goal-demotion is by repeating actions, hence decoupling them from their original goal. Contrary to what is typically the case in rituals, after the first or the second washing in ordinary life there is hardly any need to engage in more cleansing. Furthermore, ritualized behavior is also somewhat insensitive to the context. That is, people must more or less rigidly stick to the prescribed action scripts no matter what the external conditions. According to Boyer and Liénard, these features in combination with hazard themes have the potential to elicit the operation of HPS and to lead to compulsion, a feeling that acting in particular ways is essential. (‘I must do this or else!’)

According to Lawson and McCauley, the minor adjustments to the representation of action alter the easy attribution of *direct* ordinary agency inferred from the acts themselves. A man in *outdated* clothes pours water on a baby’s head in a Christian baptism ceremony. A senior male distributes choice cuts of meat following a particular order in a Zulu wedding ceremony. A person anoints another with oil in a Turkana blessing ritual. These actions are clearly under-determined by the information immediately available. We do believe though that participants, observers or actors are channeled into making inferences indirectly captured by universal attractors, easily and systematically reconstituted *because* of some of the features of the ritual actions. In the present case, the attractor is an S-agent, that is, an agent augmented by *necessarily inferred* hence *reconstructed* features.

Because of the under-determination of ritual behavior and therefore the inherent difficulty of readily grasping *tweaked* actions (that is, because cognizing this type of action is never straightforward!), the cognitive system’s inferences are led with a remarkable consistency to migrate towards a narrow range of possible epistemic values. Some of the time, the whole process of migration towards stable *religious* representations, as defined by Lawson and McCauley, becomes blocked for one reason or another. Given the right environmental, social, economic and political conditions, however, such a state should typically obtain. Before treating this specific point of the eliciting and facilitating conditions, we must clarify some of the implicit assumptions about the attractor on which we have based our arguments.

To support our model of *attracted* migration of representations, we must defend the view that the detection of agency in the environment is typically ranked higher in the range of specific adaptive problems to which our cognitive system is attuned. The concept of *Hyperactive Agent Detector Device*, the so-called HADD system, has been proposed to account for that possibility. Although in principle we do not reject the logic behind such a hypothesis, we do not think that calling it *hyperactive* is particularly illuminating. The human environment being what it is, the importance of detecting agents makes it relevant in evolutionary terms to have the system calibrated the way it is, biased towards firing more than would be strictly necessary *in an ideal world*. If it

were not for a species-specific preference for an *agency default assumption*, the system would not work properly. Much as in the case of smoke detectors, *false positives, identifying threats inadequately, are basically harmless while false negatives, not identifying actual threats, are potentially very dangerous, maladaptive and often fatal*. Humans need to monitor the environment for potential threats afforded by various types of agents, conspecifics or predators. The world being as it is, presupposing that unpredicted dangerous events are more likely to be the consequences of such agents is a powerful and adaptive assumption. Of course we know that lightning, floods or blizzards occur suddenly. But they are clearly not as frequent or as likely to occur as are threats from agents. Agents are always around! We believe that we should not be talking of a *hyperactive* system. The Agency Detector Device is just set so that it operates efficiently in the typical environment in which humans ordinarily roam.

In the case of smoke detectors, an indirect cue, the smoke, is used as a detection device for fire because of the habitual connection between the two *in the world we know*. It does however sound the alarm when exposed to a working smoke bomb when no fire is around. Human agent detection also often relies on indirect cues (for example, footprints, smell). In that regard, in the animal realm, we might be exceptional in the extent to which we are capable of inferring from various observable states the intervention of *not directly observable* agents.

Because of how natural selection engineered the human Agency Detector, and because of how it works, demonstrating a remarkable capacity to identify agency from indirect cues, it is inevitable that it will sometimes over-extend its reach. In any case, that would be an expected feature of a mechanism that is the product of natural selection. In fact these very qualities of the device are relevant for our problem. We believe that that feature of the human Agency Detector explains why people's inferences about ritual are so often oriented the way they are and why the abduction of agency is so easy to come by in such cognitive contexts.

The process of attraction we have in mind is even more specific. There are two aspects to that process we would describe as the construction of the CI-agent's niche. The first of these has been described above; the tweaked ritual actions enable the operation of the CI-agent as attractor. Intrinsicly linked to the first one, the second aspect concerns the contribution of the ritual behavior to the evocation of *specific* characteristics for the supernatural agents. That is, the efficacy of certain ritual acts rests on logically inferred characteristics that the supernatural agent must own if those acts are to achieve their stated goals.

We claim that the ritual acts provide the *reason* for the core properties of later-to-be instantiations of CI-agents. As has been previously defended, *ritual cognition*, so to speak, emerges out of ordinary cognition. As such, the assumptions and expectations of ordinary cognition's operation are preserved. But because of ritual actions' particular structure, in order to grasp the actions at hand, the cognitive system is forced to reconstruct and eventually to *assume* specific features for the *latent* agent that—as we have envisioned above—naturally occupies the attractor position. Those assumed features are, as it were, like photographic negatives of ritual actions' specifics. Imagine a religious ritual practitioner washing with great care a wooden post stuck into the ground while talking to it. The range of inferences arrived at would most certainly include ideas about a hidden agent (the practitioner talks to a *wooden post*) and its ubiquitous character (practitioners can address posts in different villages) or about its psychological nature (practitioners reason with it) and social relevance (practitioners engage in 'costly' behavior). Even an observer belonging to another cultural group and lacking



the necessary information to interpret what he sees would quickly proceed along those inferential lines.

We believe that the inferred features will constitute the *parametric* properties of a CI-agent.<sup>5</sup> So, in a strict sense, those features are not dependent on the prior putative existence of the counter-intuitive concept. Quite the opposite, the ritual act is the primary mould that provides, via inferential processes, basic *building blocks* for such representations. Of course, people are born into cultural contexts populated by all kinds of CI-agents. Cultural information about these agents will inevitably *meet up* with implicit ritual knowledge and *speed up* the whole process of acquisition and reconstruction. At the level of individuals' knowledge, the fact that the grasping of both dimensions, *behavioral* and *conceptual*, is aided by an explicit CI-agent concept once it is acquired, will certainly progressively enhance the graspability and the memorability of the information in question. This in turn will probably have an effect on the stabilization of specific religious forms.

However, we hold that the direction of causation is primarily the way we envision it, from the behavior to the special agent. Thus, the abducted agency takes on characteristics evoked behaviorally. It fits in the niche created by cultural ritual acts, themselves grounded through their ritualized components. Because those ritualized behaviors are *expressed* in specific cultural environments in particular, *relevant* cultural ways, they will obviously incorporate significant ecological and cultural traits. For example, performing a ritualized behavior focusing on the purification of one's body using sand rather than water is perfectly acceptable in a society in the Sahara where water is not always readily available. These lines of thought could provide a tantalizing avenue of inquiry for future investigations on the cultural variation we find in CI-agents.

As we have considered, there are two major alleys for articulating the two theories: the 'generative' and the 'evocation' routes. As we have seen, the first alternative only accounts for certain aspects of the problem. If notions of CI-agents are present in the cultural environment, they should typically conspire with inferred ritual knowledge to produce stable ritual forms. But what attracts these two kinds of representations to each other? What could explain that the association recurs frequently in different socio-cultural contexts? What motivates the connection? Why are CI-agent concepts so robust and, so often, end up playing such a powerful role in representations of ritual actions? To those questions, the *generative* solution brings only a partial response.

The 'evocation' route is much more powerful. It provides us with a model of how and why privileged abductions of certain types of agency occur in certain contexts. But at the same time, reversing the previous argument, the model opens a way for properly invoking a quasi-natural kind of category of 'religious items'. Given the right conditions, the category will probably emerge. However, it is *not* natural in the sense that it would be the outcome of an adaptation!

The attribution of special qualities (so often the hallmark of religious entities) is the recurrent outcome of a systematic process of attraction *naturally* enabled by ritual behavior, in turn grounded in HPS motivational states through ritualization. So the religious nature is delimited by the ascription of agency to a non-ordinary action. CI-agents recurrently emerge as 'mirror-images' fitting the evoked cultural niche. Agency, in fact, is defined by the 'contour' of the act. Agents thus have special qualities because they have to fit such contours. Agencies get their features as logical inferences from a background of intuitions and tacit knowledge about human precautions and about actions and agents.

<sup>5</sup> These parametric properties will obviously be most resistant to alteration as long as the ritual system is in favor.

If the above claims are on the right track then one logical consequence is that the manipulative act must be a *primitive*. If it were not for the tweaking of the action, no CI-agent niche would be constructed.<sup>6</sup> And CI-agents created outside of the religious ritual realm and devoid of any strong grounding in experiential dimensions would certainly be less successful. By ‘experiential dimensions’ we do not mean in a *Jamesian* sense that ‘mystical religious experience’ is in any way explanatory. Rather we are talking about the situations in which specific cognitive processes generate *captive* inferences because of exposure to particular behavior.

We have indirect evidence sustaining our claim of the action’s primitive character. Examining religious traditions around the globe, we find many situations in which people indulge in ritual actions with loose specifications of religious entities rather than participating in complex theological speculation (Barrett and Keil, 1996; Slone, 2004). The converse situations, in which we would have a profusion of complex theological elaborations without any ritual grounding, are clearly less frequent. The latter cases indeed exist but they are rather exceptional ones.

Furthermore, if we follow a child’s development, while he/she can be exposed to both religious representations and practices early on, it is most likely that the child will have an easier cognitive access to ritual information. Theological ideas are hard to acquire (Slone, 2004). ‘One is three and three is one’ is an idea pretty hard to come to terms with, as is ‘dependent origination’. However, addressing a statue while mumbling a string of words by rote is inferentially richer for most people. Ritual knowledge is more readily available to be tapped into in order to make sense out of usually rather complex theological ideas. Most likely a great deal of the child’s original representation of CI-agents will naturally spring out of his/her participation in rituals. This will have a profound effect on adults’ CI-agent concepts. The counterintuitive features strongly elicited through ritual participation will probably be the pivot around which those concepts are organized. They will also probably be the CI-agent’s most robust features.

## Consequences

We have argued for a typical migration of CI-agent representations towards certain niches. Once the migration triggered by special ritual arrangements reaches a certain threshold, people should probably find ‘complementary’ rituals relevant. As McCauley and Lawson might put it, if the original ritual arrangements facilitate either type of ritual representation, *special agent* or *special patient*, then the relevant matching ritual representations should become ‘attractive’ as well, leading to the relative stabilization or balance of the religious ritual system (McCauley and Lawson, 2002, chapter 5). But then why do we not find only highly stable end-state systems in the world religions? Furthermore, why do we find rituals that are not religious if the attraction is ‘natural’? *Specific conditions must block the evolution towards those stable systems.* What can those conditions be?

Before proposing a plausible explanation, we first need to present a model of how a religious quality becomes attributed to rituals. Given collective ritualized behavior’s grounding in the HPS, motivation to *do something in the world* should be primary and axiomatic. If precautionary

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<sup>6</sup> Following the same logic, tweaks of action countering ordinary use of tool cognition would then be particularly efficient triggers.

motivational aspects are strong enough and a feeling of compulsion is therefore satisfactorily evoked, then simple, *practical acts* should logically rapidly come to mind for use, tweaked, in ritual endeavors. And as such, acts involving artifacts are ready-to-hand candidates to fulfill various ritual functions. Indeed, having been designed for specific purposes, such items are intrinsically teleological; *they are all about doing things*. Furthermore, as artifacts are grasped essentially through their intended function, they lend themselves to easy and rapid *tweaking*. Function is indeed readily transformed through odd manipulations, therefore immediately countering expectations about the item's original intended use. Acts in which such manipulations appear should be salient and attention-grabbing, making them likely candidates for their cultural selection. It certainly is the case that artifacts are widely used in religions worldwide.

So far we have specified a facilitating condition, ritualization of specific acts, but it hardly suffices to explain why ritualized behaviors would not systematically become religious *given the strong tendency to migrate towards such a state*. Some ritualized curative acts could provide telling examples of such ritualized actions blocked in their 'natural' migration. Because representations of these actions are so strongly characterized by their *technical* aspects—even if we are talking of *tweaked* technical acts (a necessary condition if people are to be motivated to act as prescribed)—the power of the attractor is withstood, so to speak. Supernatural agency should then be much less operative in such situations. And even if, at some point, agency were entertained, representations would inevitably be drawn back to a *practical* level ('I must kill the animal this way in order to get the efficient substance I need to ingest in order to get better').

Consider, for instance, how priests in a Christian society and soothsayers in Turkana and Zulu traditional societies legitimate their respective roles. Even if those soothsayers might shield their expertise from criticisms with a veil of supernatural agency, when engaging in their craft they have to focus on actual problems to be solved and precautions to be taken. Why would this be the case? Turkana and Zulu soothsayers are members of the 'commons', slightly elevated in status. Most of these soothsayers' time is spent catering for their family and finding resources; in brief, soothsayers must work and provide for their own basic needs just like anyone else. The added benefit that they can legitimize is earned through actually engaging in practices—like divination, diagnosis or prognosis—directly exposing them to validation and contestation. What legitimates Turkana and Zulu soothsayers' position is the purported success they are perceived as having demonstrated while engaging in their craft. For those soothsayers it is then highly strategic to play out and insist heavily on the potential of incoming threats and their own subsequent power in countering them. The focus of Turkana and Zulu soothsayers' communication should then logically bear more effectively on the potential threats and the relevant ritual preventions than on the special connection to a supernatural agency (if there is a connection, it would be appraised by the success of the soothsayers' acts). In such cultural contexts, transgressions of moral and social standards would most probably be conceived of as increasing one's exposure to actual threats with serious *physical* consequences. That is what we typically observe. A common moral preoccupation, like having improper sexual relations with an affine, for instance, is most likely to have some direct and dreadful effect on people's health and life (for example, 'bloated stomach', 'knotted legs', 'attracting enemy bullets', 'being too visible').

Turkana and Zulu soothsayers do not face the kind of problem priests typically do. Although in critical moments they often resort to flagging potential threats and their *systemic* solutions, the rest of the time priests can hardly justify their status by constantly referring to their *direct utility* in

countering imminent threats. Engage for a moment in the following thought experiment. Ignoring the assumption of priests' proclaimed necessity as mediators (and thus the reference to supernatural agents), if we compute a rough cost/benefit analysis, the clique of priests appears much more costly to maintain in its *enduring* special position than would be an isolated soothsayer occasionally granted a benefit for his useful auspices. Because of their number, priests will not all be able to deal with purported actual threats most of their *compensated* time. In order to legitimate their *sinsecure*, the priests' cohort can thus hardly rely only on the unique assumption that they would be experts in *precautionary* endeavors (as we define it above), contrary to what the Turkana and Zulu soothsayers primarily do. Appealing to their ability to counter imminent potential dangers would clearly not be enough. Instead priests need to appeal to something else. They need to legitimate their position by appealing to 'something external' that they have the capacity and the special means to reach. However, it cannot be just anything external. In that sense justifications tapping into the notion of *delegation* or *sanction of expertise* bequeathed by special 'external' agents would be very salient. Supernatural agents should quickly come to justify ritual endeavors. For priests the most logical strategy would thus be to play out the risk of disrupting a proper interaction with the gods.

We explain those kinds of legitimation by natural tendencies, *given the obvious properties of social structure*, rather than by uniquely Machiavellian intentions. In any social group, it is inevitable that specialists will arise. Besides protecting oneself, the human agent encounters other adaptive problems, among which are securing resources and perpetuating him-/herself. The striving for some form of status and social recognition is an integral part of those endeavors. Furthermore, some people will be better at specific matters than others. Expertise and specialization, and the consequent social recognition, are part and parcel of the human social world. Agents must strive to make the best use of the social landscape they know. *Social niche building* or *fitting* is clearly part of that.

From a proximate perspective, as genuine, honest believers, agents might feel driven by their beliefs in counterintuitive entities. But why do they feel attracted to such types of entities, and why do they find them convincing? Ultimately, what drives agents are deep-rooted motivations and their connected affective states. Given certain conditions, specialists can coalesce and create, at first, small, temporary alliances, quickly leading to hierarchies if resources allow. Those cliques would likely appeal to supernatural agents to justify their sacerdotal office. Those representations meet the need of the clique, and as such are most likely to be adopted among a core of beliefs grounding the priests' role, rather than other types of representations. As such, we would expect priests to be much more inclined to proselytizing, while soothsayers would refrain from doing so. Both historical and ethnographical evidence support this claim. On the other hand, entertaining such representations of supernatural entities would also in turn reinforce the pre-existing deep-rooted motivations. In that sense we believe that contexts play an important precipitating role in the unfolding of the natural tendency.

For religious specialists to emerge in a society, there have to be available resources warranting such a development. Sustaining a clique of specialists is indeed costly. In many situations the *precipitation* does not occur for lack of available surplus. Many a hunter-gatherer society is simply incapable of supporting it. However, when such resources become available, the emergence of cliques is likely. Hence the migration towards the attractor is no longer blocked but can be realized in a full-fledged manner. CI-agents have now to be reckoned with as powerful forces for conceptual and behavioral control.

If resources do indeed play an evocative role, then the history and the evolution of religious institutions can be seen in a new light. We have proposed an overall trajectory for religious ritual systems: from *tweaked* acts needed to ‘achieve’ a stated ‘pragmatic’ goal to *tweaked* acts needed to ‘relate’ to some entity. In the former stage, the ratio of ritual *practitioners* to ritual participants should be greater than in the latter stage, where we should find more important ritual acts being performed by a few chosen practitioners, that is, special agents like priests. Between the two extremes, along the continuum of possible systemic states, various ritual arrangements at *local* equilibria can occur.

Furthermore, if the attractor’s power is unleashed, that is, the economic-social-political context precipitates religious cliques, castes of specialists devoted uniquely to their art, then stronger hierarchies should progressively emerge, depending on the increase of allocable resources. That is, internal differentiation within the cliques should occur, *if resources allow*, because of most people’s overall desire to better their status. More complex theologies should also emerge as supports for cliques’ different members’ *authority*. That is, those religious cadres should find such intricate ideas very salient and attractive owing to the fact that those representations match with a background of individual motivations. Furthermore, complex theologies entail the idea of orthodoxy and not just orthopraxy. For our soothsayers it is more likely to be primarily a matter of orthopraxy. Nevertheless, ordinary people will hang on for dear life to core properties *evoked by* their rituals. In fact those properties coalesce in people’s primitive notion of CI-agencies. Theology, of course, eludes most of people’s comprehension, sometimes because of the secrecy surrounding it, or because of its esoteric nature or, more simply, for its relative inaccessibility. In order for specialists to connect their own privileged knowledge to the *ritualistic* knowledge of ordinary people, they must preserve for themselves a central role in ritual endeavors. Ritual is then the hub around which everything revolves. Priests should have a tremendous stake in special agent rituals. They should be the *few chosen ones* necessary for handling ritualized behaviors. The laity should then strictly be excluded from becoming actual practitioners in decisive ritualized behaviors. On the contrary, practice by more participants should be the rule for Turkana and Zulu communities.

We may find evidence of the crucial importance of *exclusiveness* for a hierarchical religious group if we typically observe schisms that occur. To attract followers, leaders of religious *splinter* groups usually resort to the same strategy: bringing more participants to act as special agents in newly designed rituals.<sup>7</sup> These rituals in turn have a redefining effect on the core properties of supernatural agencies and the roles of practitioners and new cliques. That is to say, the new rituals alter the original niche occupied by those supernatural entities (giving them new core features) and as such they progressively evoke new positions and roles for laity and officiants.

## Conclusions

In our attempt to integrate the two theories we have obviously left gaps. Indeed, intentionally we have only focused on what we believe are those matters of most significance for the scientific study of religious manifestations: their ritualistic building blocks, the notion of a ‘religious’ attractor, the conditions of its elicitation and the probabilistic consequences for religious systems. While endeavoring to articulate *ritualized behavior* with *religious ritual* through the notions of *evocation*

<sup>7</sup> Again, leaders do not need to act with Machiavellian intentions. In fact, most of the time they act in good faith. It nevertheless would not change the general picture we are drawing above.

(*viz. evoked culture*), we have touched upon the emergence of religious systems and those representations that are at the core of such systems. We have argued that the migration towards the attractor is probabilistic rather than deterministic. Given the proper conditions the specific evolution should probably occur. We are not saying though that every ritual should migrate towards the attractor. Although the migration occurs time and time again, we are clearly not saying that the specific migration is inevitable. However, if those conditions obtain, its recurrence is probable.

Furthermore, our probabilistic model does not imply anything like a Hegelian continuum towards a final conclusion: an irreversible, religious, stable end-state. The evolution of religious ritual systems is made in fits and starts. Rituals are adopted, others are abandoned, some become religious, others do not, many are transformed or tweaked in the process. Even stable religious ritual systems are, at times, subject to thorough reorganizations (McCauley and Lawson, 2002). Indeed, what we observe in the history of religious movements fits the notion of punctuated equilibrium, in which you would also find reversals to previous stages (as, for example, in the emergence of splinter groups). Also we are not saying that religious cliques, as we have described them, would by themselves explain the emergence of the supernatural agent as center-stage ritual agent. We are claiming that given the right conditions—enough resources being freed up and a sympathetic political system—cliques of religious specialists would most probably emerge and in turn those specialists would naturally invigorate representations of supernatural agencies. Further, we are not arguing that complex religious systems with cliques and hierarchies would be present only in the history of Western societies; we find them also in other past and present societies. To us what seems to play a fundamental role is less what could be called purely cultural factors than the actual environment, understood at large. Living in drought conditions among sparse acacia establishes very different conditions than living in the Western world. In that sense we also claim that access to resources plays a primary role in easing or suppressing emerging complex religious structures. But note also that if the availability of resource is a facilitating condition for the emergence of complex religious structures, it is certainly not sufficient, as seems to be the case in certain respects in modern-day Europe where disaffection for those religious structures seems to have progressed importantly in the past half century or so.

We are not envisioning the processes of religious evolution as being in essence Machiavellian. Rather the *attracted* unfoldings are complex processes partially directed by the choices and decisions of agents most of the time *in good faith*. Religious ritual representations are nevertheless predictably evoked given agents' cognitive systems in specific decisional landscapes. Finally, we are not saying that rituals of religions with priests are not also eliciting HPS. Quite the contrary, the elicitation of HPS is as central in this case as in the soothsayers' case. We think that our model entails consequences for the investigation of well-known historical phenomena: the study of schisms, creation of new cults, recruitment of members, conversions, overall structures of particular religious systems, types of rationalizations, religious discourse, theology and orthopraxy. But that is another story.

## References

- Atran, S., 2002. In *Gods We Trust: The Evolutionary Landscape of Religion*. Oxford University Press, Oxford.
- Barrett, J.L., Lawson, E.T., 2001. Ritual intuitions: cognitive contributions to judgments of ritual efficacy. *Journal of Cognition and Culture* 1 (2), 183–201.



- Barrett, J.L., Keil, F.C., 1996. Conceptualizing a non-natural entity: anthropomorphism in God concepts. *Cognitive Psychology* 31, 219–247.
- Bering, J.M., Bjorklund, D.F., 2007. The serpent's gift: evolutionary psychology and consciousness. In: Zelazo, P.D., Moscovitch, M., Thompson, E. (Eds.), *Cambridge Handbook of Consciousness*. Cambridge University Press, Cambridge.
- Boyer, P., 2001. *Religion Explained: The Evolutionary Origins of Religious Thought*. Basic Books, New York.
- Boyer, P., Liénard, P., 2006. Why ritualized behavior in humans? Precaution systems and action-parsing in developmental, pathological and cultural rituals. *Behavioral and Brain Sciences* 29, 1–56.
- Bulbulia, J., 2004. Religious costs as adaptations that signal altruistic intention. *Evolution and Cognition* 10 (1), 19–38.
- Lawson, E.T., McCauley, R.N., 1990. *Rethinking Religion: Connecting Cognition and Culture*. Cambridge University Press, Cambridge.
- Martin, L., 2004. Ritual competence and Mithraic theory. In: Light, T., Wilson, B.C. (Eds.), *Religion as Human Capacity*. Brill, Leiden.
- McCauley, R.N., Lawson, E.T., 2002. *Bringing Ritual to Mind: Psychological Foundations of Cultural Forms*. Cambridge University Press, Cambridge.
- Pyysiäinen, I., 2001. *How Religion Works: Towards a New Cognitive Science of Religion*. Brill, Leiden.
- Slone, D.J., 2004. *Theological Incorrectness: Why Religious People Believe What They Shouldn't*. Oxford University Press, Oxford.
- Sperber, D., 1996. *Explaining Culture: A Naturalistic Approach*. Blackwell, Oxford.
- Tremlin, T., 2006. *Minds and Gods: The Cognitive Foundations of Religion*. Oxford University Press, New York.
- Whitehouse, H., 1992. Memorable religions: transmission, codification and change in divergent Melanesian contexts. *Man (NS)* 27, 777–797.