

Review



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Ritual as resource management

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This paper argues that rituals are mechanisms of resource management. The argument is based on four observations: (i) over the course of hominin evolution, fitness became contingent on psychological states; (ii) these psychological states can be understood as ‘resources’, not unlike material resources such as energy, food or fuel; (iii) ritual ‘manages’ these psychological resources—meaning that it cultivates, builds and directs them; and (iv) ritual management can be analytically decomposed, providing a new descriptive tool for understanding rituals and predictions about ritual survival.

This article is part of the theme issue ‘Ritual renaissance: new insights into the most human of behaviours’.

1. Hominin interdependency: fitness contingent on psychological states

Humans are unique in their degree of interdependency [1]. This interdependency probably began around the time of late *Homo erectus* when cooperative foraging became obligatory. In an environment where survival depended on cooperation, a potential partner’s attitude was as important as size or skill. The aloof and bellicose had to be avoided, as they may prove unwilling to fairly share the rewards of cooperation. The temperate and empathic were favoured. Thus, did psychological states become fitness relevant. Ritualized gestures, such as grooming, embracing and kissing, served as signals of a cooperative attitude. However, our ancestors did more than just passively watch for good partners. They actively cultivated them. The same ritualized gestures that signalled the presence of pro-social sentiments could also build, rejuvenate and direct them. By using ritualized gestures to ‘manage’ pro-social sentiments, partnerships could endure; thus, better ensuring one’s future.

In time, cooperatively foraging groups probably competed with one other for limited resources [1]. Better organized, more tribally minded groups tended to win these encounters. ‘Tribally minded’ meaning groups where individuals were more intensely committed to shared norms of self-sacrifice and cooperation. Thus, once again, fitness depended on the presence and depth of a certain tribalistic psychological state [2]. This state must also be ritually managed—that is, induced, reinforced and sustained using group-wide celebrations, initiations, taboos, scarification and trance-induction [3].

2. Defining psychological states

This paper takes a functionalist view of psychological states, similar to that described in [4]. In this view, psychological states are cognitive/affective combinations (thoughts and feelings) that have causal connections to other psychological states and to behaviour. These states probabilistically predispose or motivate an organism to engage in certain behaviours rather than others. For example, if I hear footsteps in a darkened hallway and interpret them as those of an unstable business associate to whom I owe money (thoughts), I will probably become fearful (feelings), thus raising the probability that I will take evasive action. (Note: this example is not meant to imply any commitment regarding the sequencing of events—feelings could just as easily precede thoughts or the two could be simultaneous.)

Ultimately, these states reduce to certain patterns of brain and neuro-chemical activity. For example, beliefs about safety, such as thinking that a parent or supernatural agent will offer protection, activate the ventromedial pre-frontal cortex, which in turn modulates amygdala activity in response to a perceived threat, moving one from an anxious, fearful state to one of greater confidence (see summary in [5, pp. 131–135]). Conversely, opposite beliefs, such as thinking that one has been abandoned by parents or supernatural agents, activate the dorsomedial pre-frontal cortex which in turn amplifies amygdala activity intensifying one's fearful state.

Different psychological states motivate behaviours congruent (or intended to be congruent) with the state. Thus, when one is motivated by a psychological state of fear, one runs away. When one is motivated by loyalty or commitment, one does acts of fidelity. When one is motivated by trust or goodwill, one extends patience or charity to another. However, as will be discussed in more detail shortly, another important property of psychological states is that they are often subject to fatigue. Over time or when stressed, these states have a tendency to weaken, causing the behaviours they support to diminish. Thus, one's tendency to act out of loyalty, commitment or trust can wane, especially when those acts are costly in terms of time, effort, money or lost opportunities.

3. Psychological states are resources

The dictionary defines a resource as: (noun) 'a source of supply, support, or aid, especially one that can be readily drawn upon when needed' (definition 1, source: <https://www.dictionary.com/browse/resources>). Cognitive science has a long history of conceptualizing psychological states as 'resources'; attention being a well-known example [6]. As with material resources, attention is limited, can be narrowly focused or broadly spread, can be depleted with extensive use or conserved for later use. More recently, Baumeister *et al.* [7] have applied the resource analogy to another mental state, self-control. As with muscular strength, self-control depletes with use, can be increased with training or conserved for later expenditure. Self-control has important pro-social implications. Restraining anger, being diplomatic, sharing resources, fulfilling obligations and a host of other cooperative acts require varying degrees of self-control. Very likely, our self-control capacity evolved to allow us to reap the long-term benefits of cooperation while forgoing smaller short-term gains.

Criticisms have been levelled at the notion of self-control as a limited, domain-general resource; an idea referred to as *ego-depletion*. Ego-depletion has typically been assessed using sequentially presented, presumably unrelated tasks of self-control. For example, resisting sweets (task 1) followed by the Stroop test (task 2). The fact that task 1 appeared to significantly impair task 2, suggested that they were drawing from a single, limited, domain-general source. However, studies showing ego-depletion effects have been called into question ([8,9]; however see [10] for reply).

The ultimate outcome of the ego-depletion controversy, however, is not central to the resource analogy as it is being employed here. Instead, it is the far less controversial notion of cognitive fatigue resulting from time-on-task or processing overload that is important [11,12]. Variants of this effect have been demonstrated across many contexts such as: (i) students' standardized test results being poorer when

tested late in the day as opposed to earlier or after a break [13]; (ii) students' performance on a memory test declining significantly after about 50 min of continuous work on the test [14]; (iii) healthcare workers becoming increasingly likely to neglect obligatory hand-washing as their shifts wear on [15]; (iv) doctors becoming increasingly likely to prescribe questionable medications to insistent patients later in the day [16]; (v) parole board members becoming less likely to grant parole the longer they have gone without a break [17]; and (vi) the selective impairment of deliberate, system 2 judgments after performing tasks requiring mental effort [18].

Thus, for present purposes, psychological states are resources, not necessarily in the sense that there is a single, limited, domain-general supply of 'psychic energy' upon which they all draw; but instead in the sense that any particular state is subject to fatigue or depletion when extensively used or put under stress. These states can, however, be regenerated through rest or other active strategies including ritual. Indeed, numerous pro-social psychological states appear to function in exactly this fashion, that is, they are limited, exhaust-able, yet replenish-able resources. For example, people experience compassion 'fatigue' when overexposed to suffering. Various coping strategies, including ritual behaviour such as meditation, can help restore compassion 'reserves' [19]. Commitment between marriage partners often wanes over time and/or when put under stress, but may be rejuvenated by counselling or retreats [20]. Finally, trust and goodwill can be 'lost' through cheating or exploitation, but can also be 'reconstituted' through remorse and restitution.

4. Ritual manages psychological resources

As with material resources, in 'raw' form, psychological resources have potential, but little actual value. For actualization, these resources must be cultivated or processed somehow, thereby making them suitable for use. For example, a tree does little for a freezing human. But it represents a potential resource from which a product, heat, can be derived. To produce heat, however, work is required. The tree must be 'processed'—felled, cut into pieces and dried into firewood.

Similarly, humans possess a wealth of communal, pro-social sentiments, but these sentiments must be harnessed and directed to make them useful. For example, loyalty and goodwill must be directed towards something. One must be loyal to certain values or groups. One must have goodwill for a specific other or group. It is when these pro-social sentiments have identifiable objects that they create the social capital necessary for cooperative action. Ritual is the means by which these pro-social sentiments become object-directed. Below I describe a simple analogy between the physical processing of material resources and the ritual processing of psychological resources.

(a) Material resource

Start with raw material (trees). Physically process the raw material (cut and cure the wood) creating a useable resource: firewood. Burn firewood to yield a valuable product: heat.

(b) Psychological resource

Start with a raw psychological state (e.g. loyalty). Ritually process the state (e.g. an initiation ritual) creating a useable

resource: loyalty to the group and its values. Actualize the resource yielding a valuable product: group stability (achieved by virtue of the fact that loyal members are more likely to follow group norms, contribute to group endeavours, behave altruistically towards group members, etc., all of which strengthens and stabilizes the group).

More than a decade of research has shown that ritual activity increases levels of pro-social psychological states such as goodwill, empathy, trust, liking, perceived unity and similarity [21,22]. Increased ritual participation is associated with greater generosity and in-group normative behaviour [23–26]. Ritual does not just generate pro-social sentiments; it replenishes them as well. For example, ritual behaviour, such as meditation or prayer, has been shown to restore dwindling reserves of self-control [27,28]. Ritual activities, such as prayer or offerings at shrines, have been shown to revitalize levels of commitment, trust, goodwill and the tendency to forgive after offence [29–31].

Ritual's effects stem from the physiological and neurochemical changes it induces producing positive emotions. For example, grooming releases endogenous opiates precipitating a relaxed state conducive to social bonding [32]. Embracing and kissing reduce blood pressure and the stress hormone cortisol, while increasing endorphin and dopamine levels [33–35]. Endorphin release, increased pain tolerance and entrainment of autonomic nervous system functions (breathing and heart rate) occur when moving in synchrony with others [36–38]. It is unsurprising then that these gestures have evolved to be ritualized signals of affiliative intentions among primates and other species [39–41]. Ritualized gestures evolved to have the particular psychophysical effects that they do because these effects were adaptive. Responding to an affiliative gesture, such as grooming, with (say) a surge of testosterone or an increase in cortisol would prepare the body for aggression, which would be more likely to thwart, rather than promote, the creation of a cooperative, fitness-enhancing bond.

Consider then, the potential psychophysical effects of engaging in an ordinary, everyday ritualized act: saying goodbye. By way of example: in the midst of her morning rush, a daughter takes the time to say goodbye to her father with an embrace and European-style kiss on each cheek. In doing so, she induces positive affect in him by momentarily reducing his blood pressure and encouraging the release of dopamine and endogenous endorphins. This positive affect reminds him of their mutual love and concern, abating his many frustrations with her. Goodwill is restored. As with foraging partners in the ancestral past, sustaining reserves of goodwill guards against future uncertainties. Thus, if daughter's car unexpectedly breaks down, she may need to 'draw upon' her father's goodwill. A ritualized goodbye earlier that fateful day ensures those reserves are well stocked.

5. Ritual

My definition of ritual is based on [21, p. 261]: '(a) predefined sequences characterized by rigidity, formality, and repetition that are (b) embedded in a larger system of symbolism and meaning, [and] (c) contain elements that lack direct instrumental purpose'. Parts (a) and (c) refer specifically to how *ritual actions* differ from instrumental ones, while the inclusion of (b) is necessary to make something a *ritual*. Ritualized actions can happen outside of rituals. For example, geese have ritualized

mating dances, but they do not have weddings. Note also that part (c) uses the phrase '*direct instrumental purpose*'. This refers to the causal opaqueness of ritual—meaning that it is often difficult for observers to detect any practical effect the ritual might be having. While some rituals have instrumental functions (such as ones described later in this article), they are often obscure. Finally, parts (a) and (c) are also relevant to the use of ritualized behaviours for hazard protection, such as recited prayers when facing threat or, in extreme cases, as part of obsessive/compulsive symptomology [42].

Part (b) of the definition references ritual's social or cultural context. Relevant to this is the fact that group rituals have been shown to have a number of important social functions, including: (i) the facilitating the identification of in-group members, (ii) ensuring individual commitment to the group and cementing social cohesion among its members, and (iii) solidifying cooperation among members [43]. Furthermore, different types of groups rituals produce different forms of identification with the group [44]. Low frequency but highly emotive rituals, such as stressful initiations, tend to produce identity fusion—a powerful unity of the self with the group (an example might be Navy Seals). Higher frequency but less emotional rituals, such as a regular religious service, tend to produce social identification—where one considers oneself a member of a certain social category (an observant Jew). Many of the social functions of rituals have been demonstrated in both adults and (cross-culturally) in children [45,46]. Interestingly, children, but necessarily adults, treat object-based rituals differently from social rituals [47].

6. Ritual builds social capital: case study

If rituals are mechanisms of resource management, then we should find examples where introducing ritual yielded measurable products by cultivating and directing psychological resources towards specific aims (i.e. it made those resources object-directed). The original study introducing the notion of 'social capital' to the scholarly lexicon provides an example [54].

As the West Virginia State Supervisor of Rural Schools in the early twentieth century, Lyda Hanifan was instrumental in bringing about tangible improvements in educational facilities and student outcomes. Achieving these improvements, however, required community investment. That investment, Hanifan realized, would only be supported if strong bonds of shared interests and values were developed among parents and community members. In other words, *social capital* needed to be cultivated. Hanifan [48, p. 130] defined social capital as: 'good will, fellowship, mutual sympathy and social intercourse among a group of individuals and families who make up a social unit'.

To create social capital, Hanifan required teachers to hold recurrent schoolhouse meetings designed to build rapport with parents, families and community members. A sample agenda from one of the meetings is below [48, p. 133]:

- Song, led by the school choir.
- Devotion.
- Address, by the teacher.
- Reading, by a pupil.
- Current Events, by a pupil.
- Essay, by a pupil.

Song, led by the school choir.

Reading, by a pupil.

Vocal Solo, by a local soloist.

Reading, by a pupil.

Debate.

Cornet solo, by a citizen.

Social half-hour.

Note how ritualized the meetings were. Indeed, with the exception of a closing prayer, they followed a script not unlike a rural Sunday church service—an opening hymn, prayer, readings interspersed with music, an address (sermon) by the meeting leader (teacher/pastor) and informal socializing afterwards. Meetings were formalized and scripted, with repetitious, performative, attention-getting elements—traits commonly found in rituals [49]. Furthermore, Hanifan described how other meetings included storytelling by community elders and patriotic activities such as placing flags at schoolhouses and singing the National Anthem. Hanifan credited these meetings with creating the social capital necessary for producing important educational improvements, such as: a 14% district-wide increase in student attendance, the establishment of evening literacy classes and fundraising for upgrading local libraries.

It is important to note that the pro-social psychological states (goodwill, commitment, community concern, etc.) from which social capital was generated were present prior to the introduction of the ritual activities; but in a ‘raw’ not-yet-usable form. Ritual did the work of ‘processing’ those resources so that they could be directed towards creating valuable products. In brief, the sequence was as given below.

Start with raw psychological states (various pro-social sentiments). Process these states using ritualized community meetings yielding a useable resource: social capital. Actualize social capital to produce valuable products: measurable improvements in educational facilities and outcomes.

7. Analytically decomposing rituals

As tools of resource management, rituals can be analytically decomposed revealing exactly how they do their work. For this analysis, four questions are posed: (i) what is the resource being targeted? (ii) from whom is the resource required? (iii) to whom is the resource directed? and, (iv) what product results from the resource?

Thus, in the previous case study, the resource being targeted was social capital (question i). This resource was rendered by individuals to the community at large (questions ii and iii). The product of this resource was improvements in educational facilities and outcomes (question iv).

Diagrammatically, it looks like this:

RP (community members) → social capital → G
→ educational improvements.

This reads: **Ritual Participants** (the individual community members who attended ritualized schoolhouse meetings) offered psychological resources (their goodwill, mutual sympathy, community concern, etc., which collectively created social capital) to the **Group** (the school community) yielding the product: measurable improvements in educational facilities and outcomes.

8. The work of many rituals

Table 1 analytically decomposes different rituals. The purpose of table 1 is not to propose any new taxonomy of ritual types. Indeed, the table borrows from other sources [50,51]. Instead, the point is to show the usefulness of the present framework for describing the function of a wide range of rituals. Though the table is not an exhaustive list, I believe the sample is large enough that the patterns observed are credible.

Two patterns emerge: (i) rituals address two problems perennially confronted by human communities—combating social entropy (disintegration) and quelling future anxieties. Ultimately, these two concerns may reduce to one: quelling future anxieties, because group disintegration is a harbinger of future uncertainty. The human brain has evolved to treat uncertainty and lack of control as safety and survival threats [52–54]. Strong social support systems provide security from these threats [55]. Thus, ritual may well be an evolved strategy for increasing ‘social security’ against the threat of future uncertainty and lack of control; and (ii) rituals address these threats by cultivating largely three psychological resources—commitment to communal values, goodwill (both of humans and supernatural agents) and social support. It may be that these three resources also reduce to one: social capital.

(a) Row 1: communal recommitment

Recommitment rituals are collective celebrations, religious and secular, that commemorate important moments in a community’s history. Easter, Passover, Fourth of July (for Americans) or Bastille Day (French) would be examples. At these celebrations, communities recall a shared historical event and important (sacred) associated values and beliefs. The event’s heroic virtues are embodied in ritualized actions, words and symbols designed to compel participants to recommit to its moral lessons.

For example, a religious person attending Easter worship service is reminded of the values of forgiveness and redemption and may, therefore, be inspired to commit more fully to them and to the institution (the church) representing them. Similarly, with someone attending Fourth of July celebrations, only here the values are freedom and bravery and the ‘institution’ is the USA. Personal commitment to communal values is the resource being ritually cultivated. If successfully cultivated, this resource produces greater group cohesion and cooperation. The resource flows from the individual to the group (last column table 1).

(b) Row 2: individual recommitment

While overlapping with communal recommitment rituals, these rituals are distinguished from them by increased frequency as they are typically conducted on weekly or daily basis. Doctrinal rituals, such as daily prayer, meditation, church services, club or corporate staff meetings provide potential examples [56]. At these, individuals are regularly reminded of the institutional values and teachings that are supposed to guide their actions. As with communal recommitment rituals, the resource being cultivated is individual value commitment. The product of this resource is greater group stability.

(c) Row 3: communal tension management

Tension management rituals (aka rituals of reversal or inversion) involve the community seemingly violating the values

Table 1. Each row summarizes the different ritual types in terms of: the problem that the ritual addresses, the psychological resource being cultivated and how that resource is put to work to produce an end state that addresses the problem (the ritual work).

ritual type	example	problem	resource	ritual work: resource and product
1. communal recommitment	Easter, Fourth of July	social entropy	value commitment	RP → G → Group stability (read as: Ritual Participant(s) render resource (commitment to cultural values, previous column) to the Group producing Group stability (inhibits social entropy))
2. individual recommitment (doctrinal rituals)	regular worship service, regular corporate rituals	social entropy	value commitment	RP → G → Group stability
3. tension management	New Years, Mardi Gras	social entropy	acceptance of social order	RP → G → Group stability
4. traditional communal transitions (calendrical)	Harvest festival, summer solstice	future uncertainty (group)	goodwill of supernatural agent (SA); value commitment	RP (SA) → G → future confidence (read as: Supernatural Agent renders goodwill to Group producing greater confidence in future) RP → G → future confidence
5. communal transitions (non-calendrical)	coronations, peace-war-making, renewal	future uncertainty (group)	goodwill of SA; value commitment	RP (SA) → G → future confidence RP → G → future confidence
6. personal transitions	birth, marriage, military discharge	future uncertainty (individual)	social support	G → RP → future confidence (read as: Group renders social support (resource) to Ritual Participants (individuals undergoing transition) producing greater confidence in future)
7. personal transition: initiation	fraternity, military, adulthood	future uncertainty (group)	goodwill of SA; commitment and competence	RP (SA) → G → future confidence RP → G → future confidence

that sustain it. New Year's Day, Mardi Gras, Oktoberfest (possibly Halloween) are modern examples. Historical examples would include the Roman Saturnalia festival and Medieval pre-Lent and harvest season celebrations [57,58].

It has been argued that these rituals serve an important 'stress-relieving' function [59,60]. Good citizenry requires constant self-monitoring. Communal virtues—altruism, delay of gratification, the restraint of emotional and sexual impulses—take effort, and over time can lead to a dangerous 'build up' of frustration. Inversion rituals dissipate this pent-up energy under ritualistically regulated circumstances so that it reinforces rather than threatens the established order.

Thus, by 'letting loose' at New Year's, we are more able to resume normal productivity, post-holiday. 'Letting loose' generates positive emotions among ritual participants, promoting social bonding. [24,61]. Furthermore, these positive emotions can generalize to the culture at large. The community allows individuals to indulge in transient bouts of freedom, generating goodwill towards one's society and renewed acceptance of the prevailing order. Thus, goodwill is the resource being ritually cultivated and its product is cultural stability.

(d) Row 4: communal seasonal transition

Transition represents another threat to cultural stability. Such events as the change from planting to harvest season, the first

frost, the first salmon run etc., represent calendric changes affecting work-related activities. Community festivals celebrated these changes and prepared members for the anticipated work ahead. In modern times, these seasonal festivals have lost much of their transitional function and have become communal recommitment rituals—celebrating a community's past and encouraging commitment to its historical values. County fairs, spring festivals, blessings of fishing boats and other similar activities provide examples.

In their traditional form, calendric rituals often involved seeking supernatural goodwill to help ensure future work-related success. For example, in England, the first working day after Christmas was Plough Monday. Ploughs were blessed in church in hopes of a good harvest and fertile fields [58, pp. 25–32]. Midsummer (solstice) bonfire festivals were also common across Medieval and pre-modern Europe. A priest blessed the central fire and villagers would dance around it and leap over it. Leaping unburnt over the fire was thought to bring fertility, vitality, good crops and general good fortune [58, pp. 40–41].

These rituals were multifaceted. The merry-making of some calendric rituals made them (to some degree) inversion rituals. Nearly all of them were communal and contained religious elements. Thus, (to some extent) they were rituals of collective social bonding where a community also sought God's blessing upon them and their labour. In resource

management terms, the rituals sought to build communal and supernatural goodwill (the resource) in order to produce well-being and social stability through the success of their labours (farming, fishing, hunting) and avoidance of misfortune (disease, drought, war, etc.).

(e) Row 5: communal status transition

Calendric transitions arise from seasonal changes. Other transitions are rooted in social changes. These include changes of power (inauguration or coronations) and changes in inter-group relations (alliance-building or war-making). Ancient rituals of renewal could also be included here. In all these transitions, the society faces an uncertain future. Its very existence could be threatened. Transition rituals typically addressed this concern in two ways: (i) by seeking supernatural blessing or goodwill for a successful transition, and (ii) by engaging in collective acts of recommitment to a common identity and set of values. Thus, supernatural goodwill and individual value commitment are the resources being cultivated while confidence in the society's future is the product. This is a highly diverse ritual category with many possible examples. Space limitations allow for discussion of only a few.

Example: coronations. American presidential inaugurations include a parade, patriotic songs often accompanied by a military band, prayers, oath-taking on a Bible, and a formal Presidential address. Similarly, an English monarch is invested at Westminster Abbey by the archbishop of Canterbury. The sovereign takes an oath, is anointed with holy oil and invested with the Sword of State, the Orb and the Crown Jewels. Traditional religious and patriotic songs are sung. Acts of homage by clergy and others are performed, with the ceremony culminating in a final procession as the National Anthem is played. Note how in both of these coronation rituals, supernatural blessing or goodwill is sought (through oaths, prayers, anointing, etc.) combined with acts of commitment to communal values (parades, processions, patriotic songs, acts of homage, etc.).

Example: war-making. On 2 August 1914, Tsar Nicholas of Russia declared war on Germany in a grand ceremony held at the Winter Palace in St Petersburg. Despite the sweltering heat, thousands gathered in the massive palace square carrying icons, banners and singing songs. Inside, the Tsar stood before an altar upon which sat the Vladimir Mother of God icon, said to have repulsed Tamerlane's invasion of Moscow in 1395. Facing the altar, Nicholas pledged to never make peace if an enemy of Russia was on her soil. Then he went out to the crowd. They knelt, but before the Tsar could speak, their frenzied cheering climaxed, making it impossible for him to be heard. He merely bowed as the masses spontaneously intoned the Imperial Anthem [62, pp. 277–278]. Again, note the actions designed to ensure supernatural goodwill (venerating an icon, swearing before it, crowds carrying icons) combined with acts of commitment to the Tsar and Russia (carrying banners, singing patriotic songs, kneeling before the Tsar).

Example: rituals of renewal. Many tribal and ancient societies believed that without periodic renewal, their civilization would unravel into chaos [63,64]. Thus, cultural renewal rituals were enacted to ensure that disorder and complacency did not overwhelm them. For example, in Babylonian mythology, the god Marduk created the universe from chaos. To prevent chaos

from once again engulfing the universe (taking Babylon with it), the king was required to regularly seek re-confirmation of his legitimacy. This he did twice a year at festivals held during the spring and autumn equinoxes [65]. The spring festival was especially dramatic, in that it included a ritual humiliation of the king.

The king and a large entourage processed to Marduk's Temple, the Esagila. Here, he was stripped of his royal insignia and other trappings of nobility. The high priest then dragged the king by the ears to the image of Bel, where the king knelt, confessed his sins and recited a list of vows that would guide his next year's rule. The priest then slapped the king hard across the face, hoping to elicit tears—thought to indicate Marduk's approval of the king's continued rule. Then the king's regalia and his power were returned to him. The ritual was not only political but personal. It served as a healing ritual for the king—preserving him from illness and restoring his mental and physical well-being. Note how confidence in the future depended on an indicator of ongoing supernatural approval (royal tears), which undoubtedly bolstered confidence in the Empire's future.

(f) Row 6: personal transitions: life cycle

Personal transitions occur over the course of one's lifetime: birth, maturity, marriage, death, graduation, military induction/discharge, etc. In all cases, the personal or familial order is altered by the addition, loss or status-change of members. A common pattern in these rituals is that of the community gathering to offer an important resource, social support, to the ritual participants. Birthing mothers, marrying couples and grieving families are all making life-altering transitions facing uncertain futures. Supportive rituals help them navigate these transitions and engage the future with greater confidence.

For example, among many Native American communities, the transition from warrior to non-warrior status was a ritually guided process. Among the Lakota Sioux, the sweat lodge ceremony played a prominent role [66]. A medicine man gathered with veterans in the lodge offering prayers and leading sacred chants and songs. The lodge's darkness and heat caused sensory deprivation and pain, inducing a trance-like state and a profound sense of solidarity. Emerging from the lodge, the veterans encountered an abrupt 'punch' of cold air, which was thought of as a re-birthing experience, invigorating and transformative. Cleansed and revived, the veterans joined the tribe in communal dancing.

The important theme present in Native American post-conflict rituals is that of the community re-affirming its commitment to the individual warriors. Community commitment to the warrior is the resource being cultivated which is designed to produce successful re-integration.

(g) Row 7: personal transitions: Initiation

While most life cycle rituals entailed a sympathetic community gathering around the transitional individual(s), traditional adulthood initiations varied somewhat from this. The transitional adolescent was often tested, trained and sometimes even tortured, to ensure that he/she was both committed to and prepared for responsible adult status [67]. All ancestral societies faced varying degrees of future uncertainty and inter-group conflict. Ensuring the tribe's future required that the next generation possessed the skills, character and knowledge to overcome hardship and uphold tradition.

Some initiation rituals required the demonstration of physical skills, which if lacking could mean the inability to perform adult responsibilities. Among the !Kung San (traditional hunter–gatherers of southern Africa), a young man is not considered eligible for marriage until he has demonstrated his hunting prowess and therefore can provide for a family [68]. Among the Hamar people, traditional pastoralists in southwestern Ethiopia, manhood initiation involves a ‘bull jumping’ ritual [69]. Successfully completing four ‘leaps’ means that the boy has crossed into manhood and is eligible to marry. By demonstrating his skill, agility and bravery, he proves his worthiness as a husband, herder and adult community member.

Adulthood initiation rituals often include the transmission of secret or sacred knowledge from elders to initiates. Exclusive, ‘secret’ societies within the tribe are frequently responsible for this. For example, among the Mende (traditional West African farmers and hunters), the Poro society initiates boys into manhood with physical labours, drumming and dancing, education in tribal law and customs, and training in practical skills. Similarly, the Sande society initiates girls instructing them in domestic skills as well as proper behaviour towards husbands, other men and their fellow-wives [70].

Thus, while initiation rituals did (and still do) involve social support being offered to the initiates, more often, they tested commitment and inculcated competence in the form of the character values, knowledge and skills necessary to be an adult tribe member. Thus, the resource being ritually cultivated was commitment and competence in the initiate, which was then rendered to the community producing confidence in the future.

9. From description to prediction

One pattern observable in table 1 is that most rituals entail individuals rendering psychological resources to groups (last column). By doing so, individuals gain certain returns, such as a sense of meaning and identity, and access to communally acquired resources. These returns, however, are often immaterial and/or delayed. Only in a subset of life cycle rituals (row 6) do groups provide tangible and more immediate resources to individuals in the form of emotional and material support. This leads to a prediction: individuals will actively defend their few ritual opportunities of securing important resources from groups. Thus, group encroachment on life cycle rituals, such as those in row 6, will be resisted.

A relevant case study may be the Soviet life cycle rituals imposed shortly after the Bolshevik Revolution (with attempted revitalization the 1960s and 1970s). For example, new christening ceremonies, called *Oktyabriny*, were introduced replacing religious baptisms. What traditionally had been a highly personal rite of transition became more of a political demonstration [71–73].

Rather than being conducted at the parents’ church or home, *Oktyabriny* were usually held at a workplace or party office and attendees were usually members of the parents’ work collective. Civil sponsors replaced godparents and party officials supplanted Orthodox clergy. In place of holy water, the infant was ‘blessed’ with ‘the legacy of slavery and darkness and with [the] red flag of struggle and labour’ [71, p. 93]. Parents were exhorted to raise their child to be a ‘faithful warrior’ for the toiling masses throughout the world, while a drum core of Young Pioneers chanted,

‘we are the young guard of workers and peasants’ [73, p. 111]. Practical gifts such as baby supplies were replaced by socialist gifts, such as an infant portrait of Lenin. Parents were required to make loyalty pledges promising to raise the child in the spirit of communism. In one case, a mother proudly proclaimed that her child was only physically hers; spiritually, the child belonged to the collective. After such pledges, the Young Pioneers wrapped the baby in a red banner and the Internationale was intoned.

Outside of a few politically zealous factory towns, *Oktyabriny* were never well accepted [72, pp. 68–69; 74, p. 107]. Even decades later, when attempts were made to revitalize modified forms of Soviet christening ceremonies, their success depended greatly on subduing political elements in favour of personal ones.

Certainly, there are many reasons why a ritual founders. However, that *Oktyabriny* faded long before the Soviet Union’s collapse suggests that it was ritual failure rather than the loss of the underlying social system that led to its demise. Furthermore, Soviet ritual specialists attributed its unpopularity to its inability to address the emotional needs of the mother and family [72, pp. 68–69]. It is also telling that despite official attempts to eliminate them, many pre-Soviet birthing traditions such as baptism, various folk taboos, and high levels of familial and community involvement endured through the communist era (and have resurged afterwards, see [74, pp. 74–89]). This suggests that what the *Oktyabriny* lacked was being covertly substituted by older ritual forms.

The same was generally true of the ‘Red Weddings’ and ‘Red Funerals’ which were introduced shortly after the Revolution in place of Orthodox Christian ones. Despite official condemnation, Stites [73, p. 112] estimates that in 1925, 75% of weddings were still held in a church. Even in industrial towns, Red Weddings were rare. As with *Oktyabriny*, Red Weddings and Funerals often clumsily interjected politics into a highly personal rite of passage [71, pp. 93–94; 73, p. 112; 74, pp. 181, 153–155]. For example, in Red Funerals, official protocol required emphasizing the deceased’s role as a loyal worker (so as to inspire the living to follow his/her example) with little acknowledgement of his/her familial role. The resentment this spawned often caused local officials to grudgingly permit the convert continuation of traditional funeral practices [74, p. 215].

Other potentially testable predictions emerge from table 1. For example, it might be predicted that groups will alter, replace or abandon rituals that no longer effectively extract important resources, such as commitment or loyalty, from members (that ineffectiveness being evidenced by the decline of the needed product: group stability). Relatedly, any ritual whose material costs (time, energy, money, etc.) exceed the value of the psychological resources it generates may also be ripe for abandonment or modification. Finally, the more a valuable product (group stability, future confidence) faces threat, the more effort groups will exert in ritually extracting necessary resources from individuals.

10. Conclusion

Impracticality often serves as a defining feature of ritual. For most of our history, however, ritual was work—as practical and essential as ploughing fields and gutting fish. In this paper, I have tried to describe the precise nature of that

work: rituals manage the psychological resources necessary for combating social entropy and future uncertainty. This management activity can be analytically decomposed, providing both a novel way of describing rituals and a means of deriving potentially testable predictions about ritual survival and abandonment.

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