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The last Talmudic demon? The role of ritual in cultural transmission

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Recent work on the evolution of religion has approached religions as adaptive complexes of traits consisting of cognitive, neurological, affective, behavioural and developmental features that are organized into a self-regulating feedback system. Religious systems, it has been argued, derive from ancestral ritual systems and continue to be fuelled by ritual performances. One key prediction that emerges from this systemic approach is that the success of religious beliefs will be related to how well they are connected to rituals and integrated with other elements of the religious system. Here, I examine this prediction by exploring the rich world of Jewish demonology. As a case study, I briefly survey the historical trajectory of demonic beliefs across Jewish communities and focus on one demon, a *ruach ra'ah*, that has survived the vicissitudes of Jewish history and maintained its relevance in contemporary Jewish communities. I argue that it has done so because of its linkage with a morning handwashing ritual and its effective integration into the core elements of Jewish religious systems.

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

1. Introduction

During years of conducting ethnographic fieldwork among observant Jews in Israel (e.g. [1,2]), demons were not regularly discussed. However, there was one particular demon, a *ruach ra'ah*, that was mentioned occasionally in conversation. It is only recently that I recognized that this fact was curious. A plethora of demons once inhabited Jewish religious imaginations [3,4]; how did this demon survive while others did not?

Before exploring this question, two matters require attention. First, I must explain why the near-complete disappearance of demonic beliefs among observant Jews presents a significant puzzle. After all, secular theorists (e.g. [5]) could reasonably point to the Enlightenment and the spread of scientific and secularist worldviews to dismiss this query as easily resolved. While secularism may explain the weakening of many religious beliefs, in this case, such a position would be misguided. As I describe below, the Babylonian Talmud contains extensive discussions about demons, including their activities and the threats they pose to humans. If the Babylonian Talmud were simply a book of history, the disappearance of demons would hardly be noteworthy; the puzzle, however, is that the Babylonian Talmud has been the focus of ritualized study for nearly a thousand years [6]. One of the first things that an observant Jew recites upon waking is that the study of holy scriptures is one of four precepts for which there are no prescribed limits. Within contemporary observant Jewish communities, especially those characterized as Ultra-Orthodox,¹ most men spend hours every day in diligent religious study, and the Babylonian Talmud is the focal text of engagement. In other words, Talmudic demons have not been forgotten; rather, they have been denuded of their power. How a *ruach ra'ah* survived provides a constructive historical case study for both the role of ritual in the cultural transmission of religious ideas and the merits of a systemic approach to religion.

Second, I need to justify the importance of such a parochial inquiry about forgotten or flourishing ancient demons. As will be clear below, the questions I raise

about Talmudic demons are able to shed light on broader research questions concerning the evolution of religion, cultural transmission and the role of ritual² in creating and sustaining social worlds. Furthermore, these questions about Talmudic demons offer an opportunity to evaluate competing evolutionary hypotheses on the transmission of cultural concepts. While cognitive scientists of religion have focused on how successful religious ideas exhibit particular forms that are memorable [10], cultural evolutionists have emphasized the importance of local socioecology in explaining the transmission of particular beliefs [11]. Below I will describe a third approach, in many ways complementary to cultural evolutionary theory [12], which suggests that the success of religious traits, such as beliefs, values, meanings and practices, will be related to how well they are integrated into the religious system. Religious commitments, such as beliefs in demons, cannot be understood in isolation; they are only one element within a complex system [13]. Their emergence and maintenance are the product of cultivation and the interaction of multiple elements within the religious system in which they are embedded. Thus, interrogating the questions raised above will allow us to evaluate these alternative perspectives, advancing our understanding of how religions change and adapt, and the role of ritual in these processes.

2. Religious systems

Over the past decade and a half, I have proposed with my colleagues Candace Alcorta, Benjamin Purzycki, John Shaver, Jordan Kiper and Connor Wood (see [14] for review and references) that religion may best be understood as an adaptive complex of traits incorporating cognitive, neurological, affective, behavioural and developmental elements. We have argued that these traits derive from pre-human ritual systems and were selected for in early hominin populations because they contributed to the ability of individuals to overcome ever-present ecological challenges of resource acquisition and production. By fostering cooperation and extending the communication and coordination of social relations across time and space, these traits served to maximize the potential resource base for early human populations. The religious system, we have suggested, is a complex adaptation that serves to support extensive human cooperation and coordination, and social life as we know it.

Here, I draw on this construction of religion to address the questions raised above. Before turning to these historical considerations, however, I offer a brief sketch of religions as adaptive systems. Further details about the structure, operation, complexity and adaptability of religious systems can be found in Sosis [14,15] and references therein.

The systemic approach posits that religious systems typically maintain eight core elements: authority, meaning, moral obligation, myth, ritual, sacred, supernatural agents, and taboo. Each of these elements is most usefully conceived of as a unique category that may have an independent phylogenetic history, but within religious systems they are inherently interconnected to the other elements within the system. These elements are likely universal across religious systems, but they are not core elements because of their universality; there are other universal features of religions that are not core elements (e.g. the creation of alternative worlds, symbolization, etc.). Rather, these features are core elements and universal because they each appear to play a distinct and integrative

role within religious systems. Other features of religion are common, such as music, spirit possession, afterlife beliefs, prophecy, superstition and pilgrimage, but they are not *essential* to the working of the religious system; they are better understood as secondary forms of one of the fundamental components identified above.

The core structure of religious systems consists of interactions between these eight core elements. While all elements may not interact with each other directly, they do all interact with and through ritual, which lies at the centre of religious systems. Recent efforts have modelled how these core elements interact [16], but our understanding of these interrelationships remains limited.

Religious systems are born from a group of socially engaged individuals. Like all communities, religious groups are influenced by external factors including the social, political, economic, ecological and socio-religious environment in which the group is situated. Notably, however, religious groups are not simply influenced by their external conditions, they actively shape them [17,18]. These external factors, as well as the internal social dynamics of the group, motivate human action in the form of ritual behaviour. Like all systems, religious systems require energy and information to function. Ritual performance introduces social information about the state of performers [9], as well as energy in the form of calories, into the religious system. All systems transform energy and information [19]; likewise, the religious system transforms the energy and information of human ritual behaviours into human cooperative and coordinated behaviours.

Once energy and information enter the religious system through ritual behaviours, the elements that constitute the system interact with ritual behaviour in feedback loops. For example, ritual behaviours become associated with supernatural agents, such as demons. Supernatural agents can take on various roles in ritual performance, such as the recipient of aromas or the object of petitionary prayers. But whether supernatural agents are seen as receivers, creators, enforcers or targets of a ritual performance, once such agents become linked to a ritual, desires to please or thwart the agents can proximally motivate the ritual performance. Indeed, the human action that emerges from the social group, which provides the seeds of the system, will be transformed into what we recognize as religious ritual once it interacts and incorporates the elements of the religious system.

While religious systems generate diverse social norms through ritual, the norms that sustain religious systems involve community-level cooperation and coordination, which is ultimately the energetic output of these systems. It is worth bearing in mind that religious systems are a stunningly convoluted way to produce such behavioural responses. Other social organisms have devised ways of achieving collective goals that are less complicated and mysterious. Selection, however, operates on available traits and the religious system was built on the existing cognitive and behavioural foundation. Also, human language has necessitated complex solutions for sustaining cooperation and coordination. As Rappaport [9] observes, the symbolic nature of language means there is always the possibility of deceit and lying since the relationships between signs and their significata are arbitrary. Thus, ultimately, actions (i.e. rituals) speak louder than words [20].

Ritual performance, within religious systems, can be understood as a barometer for the health of the community. Rituals that are well integrated with the core elements of the system

are more likely to be performed, supporting the religious system with the necessary energy and information it needs to be sustained. However, when rituals are not well integrated, there is little proximate motivation for performance, which will drive the system towards either extinction or religious revitalization. Obviously, most religious systems spend much of their existence fluctuating between periods of success, stasis, failure and revitalization. But ultimately, religious systems either die or transform beyond the recognition of the old system.

3. Content, context and integration: alternative theories about cultural transmission

As mentioned above, here I consider three distinct theories about the survival of a surprisingly enduring and potent demon, a *ruach ra'ah*, which I describe in more detail below.

Minimally counterintuitive (MCI) theory, from the cognitive science of religion, posits that agents such as *ruach ra'ah* have survived across generations because they are MCI, thus endowing them with a memorability advantage. That is, successful religious concepts elicit a fundamental ontological category but violate an expectation of that category, enhancing the likelihood that the concept will be remembered [10]. *Ruach ra'ah*, for example, likely elicit the 'person' mental category,³ but their invisibility violates expectations about the physical nature of humans. Such MCI violations have been shown to increase memorability over intuitive concepts (e.g. [22]; but see [23]).

Cultural evolutionists, however, argue that counterintuitiveness cannot fully explain the cultural success of religious ideas because humans encounter many counterintuitive religious ideas yet they maintain beliefs in a very limited set of those ideas, specifically the ones that are adhered to in their own religious communities. This issue has been dubbed 'The Zeus Problem' in recognition that Western school children can learn about Zeus, a MCI religious concept par excellence, yet none of these children becomes committed to Zeus or believes that he is real [11]. Rather, cultural evolutionists emphasize the importance of context, that is, the social environment, in explaining the transmission of particular religious beliefs. Accordingly, cultural evolutionists contend that agents, such as *ruach ra'ah*, have survived because of conformist learning biases [24] in which individuals generally learn to believe what others in their community believe.

Alternatively, a systemic approach suggests that religious concepts that are transmitted across generations are those that are best integrated into the religious system. Specifically, religious beliefs that are interconnected to other elements within the religious system, especially ritual, are more likely to endure than religious beliefs that are not connected, or lose their connection, with other elements within the religious system. The systemic approach thus predicts that belief in a supernatural agent, such as a *ruach ra'ah*, has survived because of its connections to the other core elements—myth, ritual, taboo, moral obligation, sanctity and authority—of the religious systems in which it is embedded.

These approaches are not mutually exclusive. All three factors—content, context and integration—undoubtedly play a role in understanding why some religious concepts are more successful than others. However, cultural evolution and cognitive science accounts typically study religious beliefs in isolation [25], without reference to the religious system in

which the examined beliefs exist. The systemic approach is built on such reductionist studies but demands a holism that unifies this research, and thus can easily incorporate the insights of cultural evolution and cognitive science into its framework. Indeed, the systemic model engages all four levels (function, phylogeny, ontogeny, and mechanistic causation) of Tinbergen's analysis [26], although the focus here is on phylogeny, that is, understanding the historical trajectory of Jewish beliefs in demons.⁴ In other words, it is the most comprehensive of the three approaches and offers a promising model for advancing our understanding of the evolution and transmission of religious concepts.

4. Babylonian demons⁵

In modern Judaism, the Babylonian Talmud (*Talmud Bavli*) is the central text of Jewish ritual study, even superseding the Torah in hours of commitment, if not sanctity and authority. Its breadth, covering the gamut of human activities, and length, consisting of over 2700 double-sided folios in 63 volumes, are massive, and its meandering arguments, use of multiple archaic languages, lack of punctuation, and inclusion of the opinions of more than a 1000 rabbis, often in disagreement, yield a text that demands a lifetime of study to master. The Babylonian Talmud was redacted around 500 AD, but it was preceded by the Jerusalem Talmud (*Talmud Yerushalmi*) by about 200 years, which receives much less attention in modern Judaism. These two talmuds developed from different academies and local traditions in Babylon and Palestine, respectively. For our purposes, what is interesting is the almost complete absence of demons in the Jerusalem Talmud and extensive reference to demons in the Babylonian Talmud. The rabbis of the Babylonian Talmud acknowledge this disparity and the difference even resulted in divergent Biblical translations in these respective academies (*Gittin* 68a).⁶

The Babylonian Talmud (*Berachot* 6a) maintains that humans are constantly surrounded by demons:

Abba Binyamin says: If the eye were permitted to see them, no creature could endure the demons. Abaye says: They are more numerous than we are and they surround us like the ridge around a ditch. Rav Huna says: Everyone among us has a thousand on his left and ten thousand on his right.

The Babylonian Talmud refers to dozens of demons by name, including numerous stories about the king and queen of the demons, Ashmodia and Argat bat Machalat, respectively. Some demons are benevolent, but others are harmful, and the Talmud offers various defences, including incantations, amulets, psalm recitation, Torah study, light, and placing one's thumb in the opposite hand (*Pesachim* 109a).

Talmudic demons share characteristics with both angels and humans (*Chagigah* 16a):

In three ways they are like angels: they have wings ... they fly from one end of the world to the other ... they know what the future will be like ... And in three ways they are similar to humans: they eat and drink ... multiply ... and die.

Yet the Talmud relates that demons can take many forms and also possess animal features. Indeed, demons are invisible but one way to detect their presence is to sprinkle ashes around one's bed before retiring at night. Upon awaking, one will find footprints like those of a rooster, which are the footprints of demons (*Berachot* 6a). This rabbinic advice also highlights that demons were not understood figuratively in the Talmud; they were experienced as real beings.

This experience was apparently not limited to the Talmudic period as archaeological evidence demonstrates the persistence of demonic beliefs among post-Talmudic Jewish communities. Most notably, nearly 400 incantation bowls dated between fifth and seventh CE have been unearthed, primarily in Nippur, Iraq (see [21] for a more complete discussion). The bowls were placed in the corners of homes and they were used as protection; demons, it was believed, would become entrapped underneath the bowls. The bowls were decorated with protective texts in Aramaic, Syriac, Persian and Mandaean, and some texts are non-sensical, presumably written by illiterate scribes. Many bowls contain drawings of demons, which is testament to the perceived demonic threat since such imagery would under normal circumstances be forbidden by rabbinic law.

There is also considerable evidence that beliefs in Talmudic demons continued well beyond this period and geographical region. For example, although there is little discussion of demons in the Jerusalem Talmud, there are abundant references to demons in the later Palestinian (as well as Babylonian) *midrashim*, that is, rabbinic exegetical stories that interpret scriptural narratives. Some of these *midrashim* were essentially canonized owing to their inclusion in major commentaries that are typically studied with Jewish sacred texts. For example, drawing on *Bereshit Rabbah* (31:13), Rashi, the renowned eleventh-century French rabbinic scholar, notes in his Torah commentary that demons were present on Noah's ark.

By the twelfth century, however, there was evidently a shift in demonic beliefs. Several prominent and philosophically oriented rabbis, such as Maimonides and Ibn Ezra, openly denied the existence of demons [27].⁷ There is considerable evidence that by the Middle Ages, anxieties about the power of Talmudic demons had waned, although it is unlikely that the declarations by these rabbis were the cause. The Tosafists, medieval Talmudic commentators, note the limited geographical mobility of many demons, presumably acknowledging the diminishing influence of such demons in Europe (e.g. *Yoma* 77b). It seems that when Jews populated European lands, they recognized that the demons familiar to Christians were more powerful than those in Palestine and Babylon, and these demons readily became objects of concern. As historian Joshua Trachtenberg notes, 'It was not that the belief in demons was weakening; rather, a host of modern spirits had displaced the ancient ones' ([4, p. 36]). For example, the most common demons discussed in twelfth and thirteenth-century Jewish writings, in books such as the German *Sefer Hasidim*, were estries, broxa and mares. As mentioned earlier, Jewish demons were not forgotten because Talmudic study made them ever-present. Nonetheless, Trachtenberg [4] comments:

Those few [demons] who in Talmudic times were sufficiently personalized ... survived into the Middle Ages, but in attenuated form. The tendency was to repeat the Talmudic characterizations, but with a mechanical air, as though rehearsing a lesson rather than describing a living, terrifyingly contemporaneous phenomenon.

By the modern era, even Christian demons would disappear from the religious imagination of Jews. Yet one particularly undistinguished demon, a *ruach ra'ah*, would survive.

5. Ruach ra'ah

If the rabbis of the Talmud had been asked which demons would most likely survive into the twenty-first century, *ruach ra'ah* would have been among the least likely of

responses. *Ruach ra'ah* is mentioned only several times in the entire Talmud and all of them are brief references. Moreover, it appears that even though *ruach ra'ah* literally means 'evil spirit', *ruach ra'ah* are not considered a malevolent or vicious class of spirits when discussed in the Talmud. Rather, *ruach ra'ah* would more accurately be characterized as part of a miasmatic theory of disease which was accepted at the time [28]. For example, *Niddah* 17a contends that if a person eats a peeled egg that has been left under his bed overnight, 'his blood is upon his own head', meaning that if he gets sick, it is his own fault for eating such food. Elsewhere, *ruach ra'ah* appear to be characterized as a sort of depression (*Shabbat* 29b) or madness (*Eruvin* 41b).

But years of ethnographic fieldwork within Israeli religious communities (e.g. [1,2]) indicate that these conceptions are not how *ruach ra'ah* is understood among many contemporary observant Jews, who typically refer to it as 'the' *ruach ra'ah* and believe it is an impurity that remains on one's fingertips after an evening of sleep (also see [28,29]).⁸ This impurity, it is maintained, can only be removed through ritualized handwashing that should occur immediately upon awakening. The *ruach ra'ah's* attachment to this morning handwashing routine, I contend, is its primary reason for survival.

(a) Ritual handwashing

Handwashing has evidently been a prominent ritual in Jewish life for a long time and has often distinguished Jews from other religious communities, including Christians. There are hundreds of references to handwashing in the Torah and Talmud, and the Talmud is quite clear on its importance (*Shabbat* 108b). The Talmud discusses many occasions for handwashing, including in the morning (*Berachot* 60b).⁹ The morning washing was traditionally understood as preparatory for morning prayers, or possibly symbolizing the ritual handwashing of the priests before their morning sacrifices (*Tanna D'vei Eliyahu* 15; *Sefer HaChinuk* 106). The necessity of removing the *ruach ra'ah*, however, has replaced these meanings and motivations. How did this transition occur?

Judaism's central mystical text, the Zohar, offers the first comprehensive explanation of how the *ruach ra'ah* remains on the fingertips of those who have slept. The Zohar was traditionally believed to have been authored by Shimon bar Yochai, a second-century rabbi, but modern scholarship places its origins in thirteenth-century Spain. For our concern, the critical passage in the Zohar (*Parashat Vayeshev* 184b) is:

There is no person who does not experience the taste of death at night ... For the holy soul leaves, and an impure spirit^[10] comes to rest on the body. When the soul returns to the body, the uncleanness disappears. But it is taught that one's hands retain the contaminating uncleanness. Hence a man should not touch his eyes before washing them. When he has washed them, he becomes sanctified and is called holy.

The association between sleep and death draws on the Talmudic statement that 'sleep is 1/60th death' (*Berachot* 57b), but the sense of impurity that is central to the Zohar's conception of sleep is absent in the Talmud [28]. The above passage in the Zohar continues by prescribing a precise ritual handwashing formula for removing the *ruach ra'ah*, consisting of taking a vessel in the right hand, filling it with water, transferring it to the left hand to pour on the right hand and then reversing the process three times. This ritual may also have some precedence in the Talmud (*Shabbat* 109a), but the compulsion that emerges from the Zohar, in which one should not walk

four *amot* (roughly two metres) without washing one's hands upon awaking, is not present in the Talmud. Indeed, a novel practice of sleeping with a water basin and washing cup by one's bed, a practice adhered to in many Ultra-Orthodox communities today, emerges from this discussion in the Zohar.

Thus, to summarize this brief historical outline, at the time when Jews throughout Europe were abandoning their fears of Babylonian demons, one previously unremarkable demon hitched a ride, so to speak, on a handwashing ritual, which carried it into the modern era. The systemic approach, however, anticipates that successful religious ideas will not just be associated with ritual activities, they are also predicted to be integrated with the other core elements of religious systems.

(b) Integration into the religious system

Association with a ritual is not sufficient for a demonic belief, or any supernatural belief, to survive within a religious system. After all, ritual protections, such as reciting incantations, carrying amulets, and knotting ropes were used in Talmudic times to defend against demons [3], yet the demons and these associated practices did not endure. The systemic approach suggests integration is necessary. Here, I briefly examine how the *ruach ra'ah* has been fully integrated into observant Jewish religious systems through its interrelations with all of their core elements.

First, while the *ruach ra'ah*-handwashing complex (RRHC) obviously represents a link between a ritual and supernatural agent, the complex is further connected to the form of other handwashing rituals (e.g. preceding meals, prayer, etc.) and the primary supernatural agent in Judaism: God. Specifically, after ritualized washing Jews are obligated to recite a blessing thanking God for the handwashing commandment (*Berachot* 60b). Second, the Zohar prohibited walking, talking, and touching food or oneself before washing one's hands in the morning. Third, these taboos became normative and achieved authority when instituted in Judaism's central code of laws, the *Shulchan Aruch* (1563), notably authored by kabbalist Yoseph Karo. Fourth, over time, the RRHC has acquired various meanings, including recognizing the sanctity of one's hands since they are used to perform mitzvot, the importance of washing away sin, and awaking as a new creation each morning (see [31]). Fifth, with the authority of the *Shulchan Aruch*, the moral obligation of the RRHC became weighty; *karet* (one's soul is understood to be removed from the community) is the punishment for non-compliance. Sixth, the profane-sacred distinction is underscored by the impurity of the *ruach ra'ah*, emphasizing the sanctity of one's hands after they are ritually purified. Seventh, traditional mythical narratives about the importance of handwashing (e.g. *Chullin* 106a) gained renewed relevance and meaning, and new stories developed, especially among Chasidim, about the sacrifice that some have endured to follow the mitzvah of morning handwashing (e.g. *A Father's Love, The Negel Vasser Miracle*).

The lack of integration also likely explains why a particular *ruach ra'ah*, Shivta, is no longer of concern to Jews, even though Shivta was evidently associated for a brief time with ritual handwashing before breaking bread. Shivta is mentioned in the Talmud on several occasions, but its meaning is contested. The eleventh-century Talmudist Chananel describes Shivta as a medical elixir (*Taanit* 20b), whereas his contemporary, Rashi, understands Shivta as a demon (*Yoma* 77b). Several generations later, the Tosafists

acknowledge Rashi's interpretation, but comment that Shivta does not exist in Europe (*Yoma* 77b). It appears that a Shivta-meal handwashing complex failed to integrate within Jewish religious systems. Although there were certainly links between Shivta-meal handwashing and some core elements (e.g. sanctity and supernatural agents), unlike the RRHC, there is no mention of Shivta in the laws of handwashing before meals in the *Shulchan Aruch*. More importantly, unlike the Zoharic development and elaboration of the RRHC, there is no cosmological elucidation of Shivta's relation to meal handwashing offered in any authoritative text. This would have been particularly important for its survival because it is unclear how Shivta could become attached to one's hands, especially since any *ruach ra'ah* should have been removed via morning handwashing. Thus, in contrast with the RRHC, the Shivta-meal handwashing association lacked both the authoritative backing and meaningful explication needed to endure.¹¹

(c) Contemporary opposition

It must be emphasized that various halachic authorities claim that *ruach ra'ah* no longer exist.¹² But the power of a religious practice can sometimes be assessed by the opposition it elicits from authorities, and that is certainly the situation with the RRHC. Modern Orthodox Jews adhere to traditional Jewish law (*halacha*) yet they do not isolate themselves from modern life, as most Ultra-Orthodox Jews do [8]. To the dismay of some Modern Orthodox leaders, many Modern Orthodox Jews accept the removal of the *ruach ra'ah* as the rationale for morning handwashing. Rabbi Marc Angel [27], for example, urges Jews to return to Maimonides' understanding of this ritual and his explicit rejection of the demonic world. He contends that Jews 'are not obliged to believe or inculcate a belief in *ruach ra'ah*' ([29, p. 18]), but as is evident from his need to revisit this topic in various writings,¹³ it is an uphill battle. Indeed, as the systemic approach would anticipate, a belief that is so well integrated into the religious system will not easily be overturned, even by a respected religious authority.

(d) Alternative explanations

While I have made the argument that the *ruach ra'ah* has survived within observant Jewish religious systems because it has been fully integrated in these systems, it is worth considering two alternative explanations. First, maybe the RRHC has simply endured because handwashing rituals are culturally persistent. Ritual handwashing is practised in many religious communities and maybe there is something fundamental about such rituals that make them enduring. On such an account, then, it is not the integration of the RRHC into religious systems that explains its endurance; rather, belief in the *ruach ra'ah* is simply a byproduct of its association with a successful ritual form. The disappearance of Shivta, discussed above, suggests otherwise. Moreover, while it is true that handwashing is likely a stable ritual—handwashing before meals, for example, has persisted—the loss of numerous handwashing rituals throughout Jewish history would indicate that handwashing alone cannot explain the survival of the *ruach ra'ah*. Jews, for example, used to wash hands prior to consuming vegetables (*Pesachim* 115a), between meal courses (*Chullin* 15a) and before feeding a child (*Yoma* 77b), none of which is performed today.

Second, and alternatively, maybe the RRHC has endured because rituals associated with demons are culturally persistent. But this explanation is quickly dismissed as many rituals motivated by demonic fears were abandoned when these demons were no longer salient and threatening. For example, in the Middle Ages, prior to collectively entering the synagogue in the morning, Jews ritualistically knocked on the door of the synagogue three times to alert any demons who might have been praying in the synagogue that it was their turn to use the sacred space [4], a practice that has long been forgotten.

Lastly, it is worth reiterating that while I have advocated the systemic approach here, cognitive science (content) and cultural evolution (context) theories also partially explain the cultural success of the *ruach ra'ah*. However, MCI theory cannot explain why the *ruach ra'ah* rather than the dozens of other Talmudic demons survived since they all possessed MCI features. Likewise, while cultural evolution models (e.g. [32]) provide important insights on why Jews would adopt Christian demons when settling in Europe, given the relative status and power of Christians, a systemic approach seems necessary to explain why beliefs in these demons were not sustained. Presumably, as foreign demons, they were not fully integrated into the Jewish religious system.

6. Conclusion

In this article, I have aimed to demonstrate the utility of a systemic approach to religion for understanding the survivorship and mortality of religious concepts, and the role of ritual in this process. I have focused on a brief case study of demonic beliefs among observant Jews. Further examination of this case study is certainly required, but it is hoped that the forgoing analysis can serve as a model for future work on other religious systems. Cross-cultural experiments, ethnography, and phylogenetic methods will continue to be essential tools in advancing the evolutionary study of religion, but the research presented here also highlights the critical importance of historical analyses.

Religious systems share features with complex adaptive systems, most notably for our discussion, non-linearity, amplification of random fluctuations, and historical contingency [14]. The systemic approach, in other words, not only recognizes the significance of history for understanding religion, it suggests that historical work is indispensable to explaining the evolution of religion. While many religious beliefs and practices confer adaptive benefits [33], the specific details of many religious acts, such as why one religious garment is worn instead of another, are simply the result of arbitrary circumstances. Why Jews, for instance, adopted European rather than Chinese demons, has little to do with the relative adaptive qualities of these respective demons; rather, it is a consequence of historically contingent factors. As others have noted [26], the necessity of historical analyses for the systemic approach suggests it has the potential to offer

that elusive bridge from the sciences to the humanities. It is hoped that the work presented here has taken a small step in that direction.

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Endnotes

¹See Heilman [7,8] on the varieties of Jewish Orthodoxy.

²Throughout this article, I take ritual to be 'the performance of more or less invariant sequences of formal acts and utterances not entirely encoded by the performers' (19, p. 24).

³Historically, some Babylonian demons took amalgamated animal forms [21] and thus possibly elicited the animal category.

⁴Note that the argument here is not that belief in *ruach ra'ah* is adaptive or provides functional benefits. Rather, *ruach ra'ah* beliefs endure because of their integration within an adaptive system.

⁵In the discussion that follows, I use the term demon broadly to include what the Talmud refers to as *shaidim*, *ruchim* and *mazikin*, but do not include *ayin ha'ra* (evil eye).

⁶In Babylon, *shidah* and *shidot* are male and female demons; in Palestine, they refer to carriages.

⁷Some earlier rabbis, similarly engaged with Greek philosophy, also openly rejected demonic beliefs, such as Sa'adia Gaon (*Emunot veDeot*, 10 CE).

⁸Among observant Jews, *ruach ra'ah* is occasionally also mentioned as a reason for handwashing upon leaving a bathroom or cemetery. The history of such beliefs is unclear and requires further research. Purported Talmudic support for such beliefs is inaccurate since there is no mention of *ruach ra'ah* with regard to these activities in the Talmud (e.g. see *Niddah* 17a). It is possible that once the *ruach ra'ah* became embedded within Jewish religious systems, for some, it became a cognitive attractor [30]. In other words, *ruach ra'ah* was easier to conceive and represent than complicated Jewish notions of *tumah*, typically translated as impurity, which were associated with bathrooms and cemeteries.

⁹Foreshadowing Zoharic conceptions, the Talmud (*Shabbat* 108b) prescribes washing three times to remove a *bat chorin* (free spirit). The Talmud, however, understands this as a matter of hygiene, not demonic impurities [28]. It is a later commentator, Rashi (eleventh century), who claims that the *bat chorin* is a *ruach ra'ah*.

¹⁰Here, the Zohar refers to a *rucha mesa'ava*, understood as a *ruach ra'ah*.

¹¹This, of course, begs the question why cosmological elucidation of Shivta's relation to meal handwashing never developed. A full exploration of the issue is beyond the scope of this article, but it seems that the performance of handwashing did not require further supernatural support to bolster its performance. Meals ritualistically commence with a blessing over bread, which invokes God, and handwashing prior to the recitation of the prayer is part of this formal routine. The connection between handwashing and the blessing is further strengthened by a taboo on speaking after washing until the blessing is recited and bread consumed.

¹²The Vilna Gaon, for example, held that the martyrdom of an alleged eighteenth-century Catholic convert diminished the power of the morning *ruach ra'ah* (*Peninei Halacha, Tefillah* 8:3).

¹³Rabbi Angel's [29] article has remarkably been republished three times in his own journal, *Conversations* (issues 3, 6, 24).

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