Broken Dawn: Cognitive Science and the Failure of Akhenaten's Religious System

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Since the rediscovery of Akhenaten and his city at El-Amarna in 1892, there has been considerable scholarly output from Egyptologists attempting to reconstruct and interpret the novel but short-lived religious system the 'heretic pharaoh' developed around his singular god, Aten.[1] However, there has not yet, to my knowledge, been any reassessment of Akhenaten's religious system from a cognitivist perspective.

The cognitive science of religion (henceforth CSR) is a relatively new field, founded on the premise that "symbolic-cultural systems could be explained in terms of innate cognitive constraints".[2] Since its inception, CSR has established a number of theories, supported by experimental data, that have deepened our understanding of how religious phenomena arise in the mind, and consequently facilitated new and improved interpretations of a number of topics within the history of religions in particular.[3]

Recently, Hugh Turpin and Jonathan Lanman, building upon dual inheritance theory and the concept of 'ethnic psychology' have developed a working model for a 'religious system' within a cognitivist framework, in which a religious system is the product of two mutually reinforcing features: linked mental representations of social identities in the minds of individuals (e.g. "illness is caused by harmful demons"), and cooperative social behaviours amongst groups of individuals based on these representations (e.g. contributing towards the creation and maintenance of an institution for specialists who can exorcise these 'demons').[4]

From a cognitive perspective, in the Eighteenth Dynasty we are dealing with two distinct religious systems.[5] The "traditional religion" certainly emerges intact as discrete religious system: though we are faced with a plethora of mythological accounts (i.e. mental representations) and temple cults (i.e. cooperative social institutions based thereupon) that can seem logically irreconcilable to modern, Western eyes – the distinct 'Memphite', 'Heliopolitan' and 'Hermopolitan' cosmogonies being the most famous examples[6] – the Egyptians seem to have recognised these as both interlinked and complementary, and to have moved quite freely between them (what Hornung has called 'many-valued logic').[7] As such we can recognise these cults as religious 'sub-systems', collectively comprising one religious system.

Despite constituting a radically restricted and reconceptualised set of mental representations and socio-political institutions, the presence of Aten as a god-concept within contexts unrelated to Akhenaten and the royal family, allows us to speak of shared mental representations, and thus of a

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[1] For a recent and engaging analysis of the scholarship on Akhenaten and his world, see Ridley (2019).
[2] Geertz (2016) p. 98; cf. Lawson (2022) pp. 13-18.
[3] Lawson (2022) pp. 19-22; Geertz (2016) pp. 103-104.
[4] Turpin & Lanman (2022) pp. 304-305.
[5] Lloyd (2014) pp. 205-282 is a good overview of the Egyptian 'conceptualised environment', helpfully structured around a clear distinction between the shared mental representations (chpt. 7) and the socio-political behaviours that affirm those representations (namely participation in ceremonies, and the production of textual and visual media - chpt. 8).
[6] Wilkinson (2003) pp.16-19.
[7] Hornung (1982, [1971]) pp. 237-243; cf. Teeter (2011) pp. 3-15.

second, putative religious system of Akhenaten. A cognitivist reassessment therefore has the potential to establish clear scientific grounds for the failure of Akhenaten's religious system, or else to vitiate the criticisms levelled against his system in the Egyptological literature.

The Aten: A Deified Abstraction?

The ontological status of Aten within Akhenaten's religious system has been one of the major points of discussion amongst Egyptologists, and Hornung's argument that Aten should not be considered a god "in the traditional sense" is broadly representative of the Egyptological consensus.[8] Joyce Tyldesley argued that there was a problem with "the essential nature of the Aten itself":

> "He was both asexual and androgynous, had no anthropomorphic association and, by his very nature as the sole creator, could have no spouse. … He was a remote, characterless entity and his role as a fertile god was very much a theoretical one."[9]

This lack of 'anthropomorphic association', in particular, stands as a cornerstone of most arguments against the divinity of Aten. James Allen and Jan Assmann have argued that Aten is an abstract concept representing the light contained within the sun-disc.[10] They thus deny both Aten the status of 'god' and Atenism the status of 'religion', arguing that Akhenaten's beliefs are more akin to the natural philosophies of the Presocratics in Greece.[11] Meanwhile, Donald Redford and Nicholas Reeves have argued that there was a god within Akhenaten's religious system, but that it was Akhenaten himself; Aten is relegated to being merely "the hypostasis of divine kingship".[12] Naturally, if these arguments against Aten's qualifications as a deity are accepted, we have a clear answer to the question of why Akhenaten's religious system failed: it had no god to uphold it.

Nevertheless, these conclusions have been reached using an imprecise definition of what constitutes a 'god', largely rooted in modern Judaeo-Christian cultural understandings of divinity, or else on the perceived differences between Aten and other Egyptian deities in iconographic representations. One of CSR's earliest achievements was the identification of a number of apparent universal features of 'gods' which arise necessarily from human cognitive processes, and which can serve as a set of basic, cross-cultural criteria for identifying a god. On this understanding, gods "are powerful humanlike agent concepts that know and care about human affairs."[13]

The first, and most fundamental, trait of gods is that they are psychologically anthropomorphic – that they are beings with a mind that works in more or less the same way that our human minds work.[14] It is important to emphasise here that the form of the god (iconographically or 'literally') is irrelevant:

> "Though anthropomorphism implies that supernatural beings are represented has [sic] having human features and displaying human characteristics, the only absolutely critical and unquestionably ubiquitous human-like attribute ascribed to gods is that they have *minds*."[15]

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[8] Hornung (1982), p. 246.
[9] Tyldesley (1998), p. 78.
[10] Allen (1996); Assmann (2001, [1984]) pp. 198ff.
[11] Allen (1989) p. 90; Assmann (2001 [1984]) p. 213.
[12] Redford (1984) p. 178; cf. Reeves (2001) pp. 145-146.
[13] Purzycki (2022) p. 72ff.
[14] Tremlin (2006) pp. 97-102; cf. Purzycki (2022) p. 72.
[15] Tremlin (2006) p. 101.

Allen may be correct in identifying that the object of Akhenaten's worship is the light contained within the sun-disc.[16] But there are many examples of cultures who worship gods which are similarly disembodied cosmic forces, and which are still attributed all the features of a humanlike mind.[17] Ontologically, Allen's identification is irrelevant.

In addition to their humanlike minds, CSR has identified that gods are both more knowledgeable than human beings, and particularly interested in "socially strategic information" – i.e. information that allows us to regulate ongoing social interaction.[18] There is some disagreement over whether gods are "full-access strategic agents" – i.e., they have perfect knowledge of all socially strategic information – or whether gods merely have more knowledge than human beings, including "access to information that is otherwise immediately inaccessible".[19] Regardless, and despite the frequent assertions of theologians, divine knowledge remains constrained by the gods' psychological anthropomorphism: it is greater in scope, but gods understand matters in the same way that humans do. As Tremlin puts it: "Gods know as humans know, they just know more."[20] As such, like humans, gods seem to be especially interested in matters relating to moral conduct.[21] Finally, gods are typically powerful entities, and perhaps especially inclined to exercise their power over human beings where moral matters are concerned, whether that be through the issuing of rewards or of punishments.[22]

What, then, of Aten? Our understanding of the nature of Aten is derived from a small corpus of core textual sources.[23] The most significant of these is the so-called 'Great Hymn to Aten' recorded on the walls of Ay's tomb at El-Amarna (TA25). The speaker in the text is Akhenaten, and it is generally assumed that he was the author of the hymn; the Great Hymn to Aten therefore provides a glimpse into Akhenaten's own understanding of his religion. In addition, we have the 'Short Hymn to Aten', in reality a series of shorter hymns sharing the same basic structure but with meaningful differences between them, recorded in the tombs of a number of Akhenaten's courtiers from Akhetaten.[24]

There are several indications within the hymns of an explicitly humanlike mind at work. Consider the following extracts of the Great Hymn:

> "*You create the earth according to your wish,* … You set every man in his place, you make their requirements, each one having his food and the reckoning of his lifetime."
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> "Inasmuch as you made them for yourself, their lord entirely, *who is wearied with them*, the lord of every land, who rises for them".
>
> "(As for) all distant countries, you make their life: *You have granted* an inundation in heaven, *that it might come down for them* and make torrents upon the mountains, like the Great Green, to their fields in their locale(s)."
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> "*How functional are your plans*, O lord of continuity! An inundation in heaven, which is for the foreigners (and) for all foreign flocks which go on legs; … You make the

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[16] Allen (1996) p. 4.
[17] Purzycki (2022) p. 72.
[18] Tremlin (2006) pp. 109-121; Purzycki (2022) pp. 73-77.
[19] On the former, see Boyer (2000), cf. Tremlin (2006); on the latter, see Purzycki (2022) p. 73.
[20] Tremlin (2006) p. 101.
[21] Purzycki (2022) pp. 75-77.
[22] Purzycki (2022) pp. 77-79.
[23] Ridley (2019) pp. 125-134 presents a neat summary of the various textual sources.
[24] Lichtheim (2006, [1973]) pp. 410-412; Murnane (1995) pp. 157-159. Cf. Ridley (2019) pp. 130-133, in which Ridley is right to protest that the 'Short Hymn to Aten' is usually presented by modern scholars as a composite, and thereby "a text is presented which *never existed*" (original emphasis).

> seasons *in order to develop* all you make: the Growing season to cool them, and heat so that they might feel you."[25]

The italicised phrases in these extracts make clear that Aten was regarded as an intentional agent – a being with plans, wishes and goals, who acts in order to achieve those intended goals; this is a characteristic trait of psychologically anthropomorphic entities. Another psychologically anthropomorphic trait is the possession of emotional responses. In the Short Hymn(s) to Aten, Aten is described as being "content" in his new city of Akhetaten, and on the later boundary stelae Akhenaten is described as "truly effective on behalf of the one who made him, who satisfies him (i.e. Aten) with what pleases his *ka*.".[26] Whilst the emotional state of Aten is far less variable than that traditionally attributed to Egyptian deities, a state of peaceful contentment as the result of having one's needs satisfied is clearly a humanlike emotional state.

It is also worth considering the nature of Aten's plans, insofar as these can be determined. In all cases, it appears that the intentions of Aten are somehow relevant to the fate of humankind (i.e. Aten is interested in the socially bracketed world of humanity), and Aten is clearly prepared to exercise its power in pursuit of that interest. The "inundation in heaven" (i.e. the rains) and the seasons are both described as having been created by Aten *for the benefit of humanity* (and for Aten's other creations). Aten also exercises its power at the individual level – another passage reflects Aten's direct involvement to bring about new life, pregnancy and childbirth, all major activities within social life and therefore related to a dense cluster of socially strategic considerations.[27] The reference to Aten having wearied itself with its concerns and efforts for its creations is further testament to its active involvement in the lives of its creations.[28] Despite the assertions of some early Egyptologists, the frequent references to Ma'at – the cornerstone concept of Egyptian ethical thinking – in both hymns (and the wider context of tomb inscriptions in which they were found) attests to Aten's interest in the moral lives of his creations.[29]

Despite lacking a large corpus of texts that engage in theological reflection on the nature of Aten, a consideration of what we are told in the Great and Short Hymns to Aten presents us with more than sufficient evidence to recognise a psychologically anthropomorphic agent, with considerably increased access to information, who exercises superhuman powers in relation to its interests in human activity. Cognitively speaking, then, Aten is a god. The explanation for why Akhenaten's religious system failed must lie elsewhere.

Reciprocal Relations and the Role of the King

Within the Great Hymn to Aten, perhaps no single line has developed into a more significant point of discussion amongst Egyptologists than the following:

> "You are in my heart, and *there is none who knows you except your son, Neferkheprure-Waenre*, for you make him aware of your plans and your strength."[30]

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[25] All after the translation of Murnane (1995), pp. 112-116 (emphasis added).
[26] Murnane (1995) pp. 82, 158.
[27] Ibid. p. 114.
[28] Cf. Murnane (1995) p. 200, n.10.
[29] Ridley (2019) pp. 158-160.
[30] Murnane (1995), pp. 115 (emphasis added).

The king had always been the central figure within Egyptian religion, and would remain so for the duration of the pharaonic period.[31] But Egyptologists have rightly identified that under Akhenaten this concept seems to have reached its ideological extreme.[32] Redford summarises the issue neatly:

> "The king thus enjoyed the closest of relationships with his father. … Since he only was the one who that knew his father's mind and will, he alone could interpret that will for all mankind."[33]

One of the corollaries of CSR's identification of gods as having humanlike minds is that gods, like humans, are intensely social beings, who think in social terms, and are thus open to exactly the same range of interpersonal relationships that characterise human social life.[34] This includes the inclination to engage in reciprocal relationships of exchange – indeed, such a relationship with a god would seem especially attractive, since gods are powerful and have increased access to socially strategic information, which they might be persuaded to share.[35]

This is not an alien concept within Egyptian culture, nor is it a new point within Egyptological scholarship. The Egyptians frequently petitioned their gods to request their assistance with some issue or another, with various forms of votive offering made in thanks or expectation, just as might be expected in human interpersonal relationships.[36]

At the societal level, this reciprocity between Aten and his human creations continued; temples were constructed at which offerings to Aten were made as part of state religious practice, likely featuring some handpicked members of the elite beyond the royal family, and perhaps with large crowds at least tangentially involved.[37] But at the individual level, Aten could be accessed only through the intercession of Akhenaten himself.[38] To the extent that smaller shrines to Aten existed in private dwellings, these seem to have exclusively depicted the king and his family engaged in worship of Aten (indeed, it is perhaps unlikely that these were operative as sites of interaction with Aten at all).[39]

Nevertheless, Kemp is entirely correct to remind us that "people do not … convert all their ideas into symbols. Material culture is not a full guide to inner life.".[40] Outliers do exist in the system of royal exclusivity in access to Aten. We have already encountered the Short Hymn(s) to Aten, two of which are framed as speech of the tomb owner addressing Aten (rather than as a speech of the king, as in the other cases).[41] There are also letters preserved from a minor courtier within the royal orbit, Ramose the unguent-preparer, which seemingly attest to a personal interaction between himself and Aten:

> ""May Aten [provide] me with guidance," so I said. And so he (Aten) has provided [me with guidance …]".

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[31] Lloyd (2014) pp. 65-96.
[32] Redford (1984) pp. 178-179; Allen (1989) p. 100; Reeves (2001) pp. 145-146.
[33] Redford (1984) p. 179.
[34] Tremlin (2006) pp. 109-121.
[35] Larson (2016) pp. 40-47 explores reciprocity in an ancient Greek context. Much of what she writes can be considered applicable to Egyptian religion as well.
[36] Teeter (2011) pp. 76-103.
[37] Kemp (2012) pp. 89-93, 96-105, 110-117.
[38] Teeter (2011) pp. 187-190, 193-196.
[39] Kemp (2012) pp. 231-235.
[40] Ibid. p. 235.
[41] Lichtheim (2006, [1973]) p. 410; Murnane (1995) pp. 157-158.

> "Now here I am calling upon Aten, l.p.h., to keep you healthy each and every day, when he sets and when he rises, [and to …] knowledge of Aten, l.p.h.".[42]

The difficulty with interpreting these sources as reflections of Akhenaten's religious system is that it is very difficult to determine whether or not we are dealing with a case of 'theological incorrectness'. Within CSR, the dual-process theory of cognition suggests that humans think with two parallel cognitive systems – intuitive thought, and reflective thought – each of which is capable of producing parallel representations of the same concept.[43]

Reflective thought processes very slowly (by cognitive standards), and is conscious and controlled, producing mental representations in the form of explicit propositions that are potentially abstract, generally lacking in emotional content, and malleable upon reflection. Intuitive thought processes, by contrast, is extremely fast, occurring unconsciously and automatically, producing mental representations that inferentially rich, powerfully affective and often rigid.

The centrality of the king in Akhenaten's religious system is a clear example of a reflective belief: the idea has been processed into a form that can then be taught as an explicit proposition ('there is none who knows you except your son, Neferkheprure-Waenre'), which is then simply held as true. But since Aten is recognised by other Egyptians as a socially minded agent, assumed to be open to interpersonal relations, an intuitive assumption is produced that a direct relationship with Aten is, in fact, possible. This thought would occur to an Egyptian automatically, and since the intuitive processing system is the controlling system in social thought, it would take continued, deliberate effort to override that thinking and replace it with the 'theologically correct' position.[44] It is possible that our evidence for direct communication with/towards Aten from non-royal individuals is a record of cases where the 'theologically incorrect' position won out.

The question, however, is whether we regard the presence of theologically incorrect thinking as an example of Akhenaten's religious system failing. As Ridley notes, there is a "great latitude in theology" visible in texts from the Amarna period relating to Aten, though he interprets this as "evidence for religious and intellectual freedom under the reign of Akhenaten", rather than a feature of human cognition.[45] Clearly, the reflective belief in Akhenaten's theology that placed him as the sole intermediary between Aten and the rest of humanity failed to facilitate the direct interpersonal relationships that are a naturally assumed aspect interactions with gods, and it was thus simply circumvented.

However, we might take Ridley's point that, if Akhenaten knew of these examples of theological incorrectness he seems to have made no move to correct them. And the prevalence of theologically incorrect thinking in modern world religions would suggest that we can hardly retain it as a criteria by which to assert that Akhenaten's religious system was failing (though over a longer period of time it may have led to such variety of mental representations that we could hardly still describe them as 'shared'). A weakness we have found, but an explanation for the failure of Akhenaten's religious system remains elusive.

The Death of the Gods?

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[42] Wente (1990) pp. 94-96.
[43] Tremlin (2006) pp. 172-182; White (2021) pp. 39-41. The terms used for the two cognitive systems in dual-process models vary from one account to another ("off-line"/"on-line"; "reflective"/"intuitive"; "rational"/"experiential") – I follow White's use of "intuitive" and "reflective" processes.
[44] Tremlin (2006) pp. 179-180.
[45] Ridley (2019) pp. 133-134.

If there has been one debate amongst Egyptologists concerning the religious system of Akhenaten that has seen the expenditure of more ink and effort than the ontological status of Aten and the role of the king, it is the question of whether or not Akhenaten's religious system qualifies as a form of monotheism. Within Egyptology, at least, a cautious consensus finally seems to have formed that, with a few minor qualifications, Akhenaten's religious system was indeed monotheistic.[46]

This theological proposition had two logical off-shoots, which are the focus of this section. Firstly, Akhenaten's monotheism entailed the official rejection of the other gods around which the traditional religious system of Egypt had formed. The second logical outcome of Akhenaten's monotheism, having rejected the existence of the other gods, was the rejection of the mythico-religious world that they had created and within which they dwelled.

To all intents and purposes, then, Akhenaten had either announced or overseen not only the deaths of the gods but also the destruction of the world of the dead to which both gods and humans went upon their deaths. Research within the field of CSR into afterlife beliefs is not so well-established as the other areas of cognitive theory that I have employed so far, but there is sufficient theoretical research to produce a cautious interpretation of how the consequences of Akhenaten's monotheism might have been received by others.

One of the aspects of human social cognition posited by cognitive scientists is known as 'offline social reasoning'.[47] This cognitive process is what allows us to continue to track our mental list of social agents when we are not actively engaged in social interaction with them (which would be 'online social reasoning'). One of the intuitive beliefs that seems to arise from offline social reasoning is that when social agents are not 'here' interacting with us, they are necessarily 'somewhere else'. Like all intuitive processes, offline social reasoning is largely automatic and unconscious.

Cognitive research suggests that our mental list of social agents struggles to update quickly or effectively when someone in our social orbit ceases to exist (i.e. dies).[48] As such, our offline social reasoning automatically generates the belief that the deceased individual is actually in a location (somewhere other than 'here'), and remains a social agent, capable of all the usual interpersonal interactions that characterise human social relationships.[49] This is equally true of the gods: for all Akhenaten's claim that the gods had "ceased", his subjects would have retained the intuitive belief that their gods had merely passed on to the afterlife.[50]

Within the traditional religious system of Egypt, there was a shared mental representation of the netherworld which served as a location for the deceased (human or divine) to perform their social functions. In rejecting this mythological space, Akhenaten simultaneously removed the location in which his subjects had mentally located their deceased loved ones (the gods, as socially salient beings in a person's life, would have suffered the same fate). A failure to rapidly update their mental social registry will have produced a powerful and distressing affective response, generating a cognitive dissonance between the reflective belief that the gods/netherworld did not exist, and the intuitive belief that they must exist.[51] This dissonance would need to be reconciled.

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[46] Ridley (2019) pp. 168-169 provides a concise summary of over a century of intense theological wrangling.
[47] Hodge (2011) pp. 369-372.
[48] Ibid. p. 371.
[49] Ibid. p. 372.
[50] The mythological fate of Osiris certainly provided a cultural precedent for this belief in reflective thinking also.
[51] Hodge (2011) pp. 374-380.

Evidently, the response of many Egyptians was to resolve the cognitive dissonance by simply refusing to accept the belief that caused the problem in the first place, i.e. Akhenaten's assertion of the gods' cessation. Archaeological exploration at El-Amarna continues to reveal evidence of private religious practice which featured the gods of the traditional system.[52] The afterlife, too, seems to have continued to hold sway as a concept – numerous shabti have been found in Amarna tombs, the majority of them retaining the traditional Osirian formula.[53]

Here, we are not dealing with a case of theological incorrectness.[54] Here, we see an either/or choice between two separate reflective propositions: the monotheistic proposition of Akhenaten, or the polytheistic proposition of the traditional religious system. Offline social reasoning generated an intuitive belief in the continued existence of the dead which generated a powerful affective response driving individuals towards the latter option. At last, we have identified an aspect of Akhenaten's religious system – a fundamental aspect, no less – that the wider populace, at the cognitive level, simply could not accept.

It has previously been argued that Akhenaten's religious system failed primarily because it could not offer Egyptians an acceptable vision of future life.[55] In the final analysis, it seems rather that Akhenaten's religious system failed because it could not offer Egyptians an acceptable way to process their past.

Conclusions and Directions

Contrary to the consensus that seems to arise from Egyptological discourse, then, Akhenaten's religious system seems, from a cognitive perspective, to be viable in many regards. The modern reconstruction of Aten as an abstract, philosophical concept rests on a misunderstanding of how human minds recognise anthropomorphism in the minds of gods. The centrality of the king in his own religious system, though perhaps not entirely productive, is insufficient to invalidate the religious system at a cognitive level. It is rather in Akhenaten's exclusivist monotheism, more often than not lauded by Egyptologists from Judaeo-Christian backgrounds, that we can see one aspect of his religious system that presented his subjects with a considerable cognitive barrier to sharing in Akhenaten's mental representations.

But if monotheism alone were grounds for a religious systems rejection, some of the most widespread religious systems extant today would never have existed. The scope of this essay has not permitted a full cognitive reassessment of Akhenaten's religious system, but I can propose a few areas in which further exploration may be profitable.

The spread of religious ideas beyond the confines of the mind that first produced them is effected by the creation, dissemination and reception of 'public representations' of those ideas.[56] Within the cultural context of pharaonic Egypt, this would include texts, which could transmit ideas into the minds of readers, but it could equally well include visual media, especially statuary or iconography carved in relief in public places, as well as ideas heard in speech or implicitly communicated in the process of engaging with ritual activities. Building on research within CSR that explains how different ritual 'modes' can support the spread of religious ideas and the strengthening of social bonds, a

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[52] Kemp (2012) pp. 235-245.
[53] Ridley (2019) pp. 179-180.
[54] Though the 'hybrid' shabtis which begin with an Atenist formula before reverting to an Osirian formula without mentioning the latter god could perhaps be considered as such. Ibid. p. 180.
[55] Ridley (2019) p. 158.
[56] Tremlin (2006) p. 150.

consideration of rituals associated with Aten could identify deficiencies which undermined the spread of Akhenaten's religious system, and especially how it failed to take hold amongst his successors within the royal family.[57]

It should also be borne in mind that religious systems do not arise in isolation, and must compete with other religious systems in their local environment. A comparative study, applying the same cognitive principles I have employed here to a consideration of the "traditional religious system" may reveal that, whilst Akhenaten's religious system was not inherently cognitively deficient, the traditional system leveraged cognitive advantages that allowed it to prevent the spread of Akhenaten's religious ideas to new converts.

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[57] On ritual 'modes' see Whitehouse & Kavanaugh (2022).