

# Do You Need Cognitive Neuroscience to Understand Religious Cognition, Experience and Texts?

Patrick McNamara<sup>1</sup>

Boston University School of Medicine and Northcentral University, USA  
Email: pmcnamar3@gmail.com

**Abstract:** In this article I review “Ritual Mourning in Daniel’s Interpretation of Jeremiah’s Prophecy” by Angela Kim Harkins; “Tours of Heaven in Light of the Neuroscientific Study of Religious Experience” by István Czachesz; “(Religious) Language and the Decentering Process: McNamara and *De Sublimitate* on the Ecstatic Effect of Language” by Christopher T. Holmes. I present an argument that we need neuroscience in order to understand religious cognition as it occurs today and as it was presented in these ancient religious texts. The reason neuroscience is not merely an optional item in the toolbox but absolutely necessary is because religious cognition is characterized by decentering and decentering cannot be understood in the absence of reference to its brain mechanisms. Decentering crucially involves a four-step process whose steps are united not by any inherent logic but rather by the brain processes that produced them in the first place.

**Keywords:** Decentering, neuroscience, religious cognition, religious texts.

I fear that most religious studies scholars and indeed most cognitive neuroscientists would answer “Obviously not!” or “Of course not!” to the question I pose in my title. In my commentary on the three excellent articles I have been asked to comment upon, I will show why the answer to the question has to be “Yes!” and what both the Religious Studies and Cognitive Neuroscience communities will gain by recognizing this fact sooner rather than later. In addition, I will discuss some of the insights on religious cognition developed by the authors of the three articles in this issue of the journal that are the focus of this commentary.

So first: why do we need to bring cognitive neuroscience to bear upon the problem of religious cognition, experiences and texts (RCET)? Most

---

1. Patrick McNamara is Associate Professor of Neurology at Boston University School of Medicine and Professor at Northcentral University.

scholars would agree that bringing in neuroscience approaches may help us to understand RCETs but few would argue that it is absolutely essential. Neuroscience is a nice addition to the toolbox that religious studies scholars have at their disposal but it is far from being an absolutely necessary tool. Referencing potential brain mechanisms that support and shape RCETs may help us to understand the phenomenology of some RCETs and perhaps their sources – and maybe even their effects on persons – but we need not reference brain mechanisms for any of this. After all, it is a simple fact that the brain contributes to and shapes *all* experiences so reference to these mechanisms may not tell us anything in particular about RCETs. Instead, all that we will get are general principles of brain-cognitive associations that apply to all other forms of cognition.

To argue that all forms of cognition and experience are produced by, or at least shaped by the brain and that therefore you need to study the brain in order to understand RCET, while likely true, is really only a trivial observation and therefore not particularly helpful. *No, the real reason cognitive neuroscience is needed to understand RCET is because there is something special about RCET and that something special cannot be adequately understood without reference to the relevant brain mechanisms.* So, what is that something special that is uniquely necessary for religious cognition? In my 2009 book (McNamara 2009), I argued that the something special was a four-step “decentering” process. All three papers under review here understood that central argument of the book and used decentering to significantly illuminate the ancient religious cognitions/experiences described in the texts they engaged.

Although this view of RCETs sits comfortably with the view that religious experiences are *sui generis* it does not necessarily entail that view. It may be that the only experiences that become candidates for being “deemed” religious in an attributional process, for example, are experiences wherein a process of decentering had already occurred. In this view decentering is a necessary but not sufficient condition for RCETs. The alternative view is that decentering is both necessary and sufficient for RCETs but ultimately this is an empirical issue – only the data will settle the issue. The important thing for the neuroscience argument above, however, is that decentering is absolutely essential to any experience if it is ultimately to be deemed religious.

It is important to note that the argument that decentering is the thing that most essentially characterizes RCETs does not logically entail that decentering occurs *only* within religious contexts. The argument is a more narrow one: decentering *necessarily* occurs in *all* RCETs and *optionally* in some *other* experiential types.

If my readers charitably grant me for purposes of argument that decentering or something like it is *the* key or active ingredient in RCETs, the next obvious question is why this fact should then require reference to the brain in order to understand RCETs? Decentering cannot be understood in the absence of reference to its brain mechanisms because decentering crucially involves a four-step process whose steps are united not by any inherent logic but rather by the brain processes that produced them in the first place. Decentering involves a simultaneous disengagement of executive control/diminution in personal agency *and* a subsequent entry (step two) of the disengaged self into a liminal state (what I call in the book a “suppositional space or possible worlds box”). In step three a narratively constrained search for an optimal self occurs and takes whatever time brain resources allow to “locate” or settle on a “new self” and which then facilitates step four or integration of the old into a new self that ends the liminal state. Each step in the process invites psychic danger given that derailment of agency or of entry of the diminished self into a liminal state or selection of or integration into a new self could lead to adverse outcomes for the individual. For example, prolonged times spent in the liminal state could lead to dissociative phenomena while integration of the old self into a less than ideal new self could eventuate in identification with a fanatical leader or highly entitatively defined and insular cultish group and so forth. Because of these sorts of dangers inherent to the decentering process religions everywhere created rituals to regulate the outcomes of the decentering process. Finally, I was at pains in the book to point out that decentering is unique to religious cognition and differs from related states like trance, dreaming or altered states of consciousness because of the brain-dictated logic of the process itself. Decentering surely contributes to the phenomenology of dreams, trance, altered states of consciousness and so forth but these other forms of cognition do not depend on decentering while religious cognition’s phenomenology derives from decentering. In decentering the self itself is up for grabs (again because of the brain dynamics involved – the process occurs in regions that mediate the sense of self) whereas in related states like trance no existentially momentous thing, like one’s very self, is necessarily put into question. This is the striking thing about religious cognition –that even in the most mundane everyday forms of religious cognition, one’s very self is brought into focus and questioned. It is placed in that liminal state and compared against ideal images of a possible self. The process is transient, brief and almost unnoticeable in routine, every day forms of religious cognition but it does occur.

There is no way to understand this decentering process without reference to the brain mechanisms which created it in the first place and which

sustain it whenever it occurs. Its logic is dictated by the ways in which the relevant brain processes operate and the brain regions in which they operate. The neurophysiologic and neurochemical mechanisms that give rise to each step in the process are described in my book and some of them are ably summarized in the articles in this issue of the journal (see especially “Tours of Heaven in Light of the Neuroscientific Study of Religious Experience” by István Czachesz).

Evolution likely had some good reasons for creating a decentering mechanism where agency can be temporarily diminished and computations concerning the self can occur transiently and off-line. I suggested in the book that one such reason might be that it facilitated physical healing – though many other reasons can be imagined. In any case, once agency is brought off-line the logical thing would be to get it back on-line as soon as possible in order to respond optimally to any environmental dangers or opportunities. This sort of cognitive correction does not happen, however, because of step two wherein the diminished self enters a liminal state. This step two following step one inevitably happens because of the inhibition of prefrontal networks associated with step one. Diminished agency results in a reduction in serotonergic activity which then automatically results in release from inhibition of subcortical sites like the limbic cortex and mesolimbic dopaminergic activity which then yields many of the phenomenologic properties of RCETs. But because of the release from inhibition of subcortical dopaminergic mechanisms step three then occurs involving the search for a more computationally adequate “self” that can restore proper inhibitory balance between prefrontal and subcortical sites and serotonergic and dopaminergic activity levels. When social ritual or private religious practices supports the process then balance can be restored via integration of old self properties into a more whole and better new self. Unfortunately, equilibrium can be restored via other routes as well. For example, a more fanatical self can transiently restore the balance and re-assert agentic control for a while. This may be one reason why religion can lead to cultish groups and sometimes great violence.

The important point here is that the logic of the decentering process is due to the ways in which the brain mechanisms involved operate and the regions in which they operate (right sided prefrontal-temporal sites) – as described in my book. You cannot predict or understand the steps involved in decentering without reference to the relevant brain mechanisms. Furthermore understanding the brain mechanisms leads to predictions that would be impossible to make if brain mechanisms were not understood. For example, entheogens which bind to serotonergic receptors in right-sided prefrontal regions will more likely produce RCETs than

drugs which do not bind these receptors and so forth. Many of the chapters in the book attempted to evaluate evidence for decentering in a range of religious phenomena including everyday forms of religious cognition, religious language, ritual behaviours, spirit possession, mystical states and entheogenically-induced extraordinary experiences. Phenomenologic analyses, furthermore, of narratives of everyday religious experiences have been found to be entirely consistent with the decentering account of RCETs (Wildman and McNamara 2010; McNamara et al., 2015).

Note that this account of a brain-dependent process like decentering does not necessarily involve a commitment to a reductionistic stance with respect to mind-brain relations. Although the sequential logic of the decentering process is dictated by brain mechanisms its content emerges from an interaction between the sequence of brain mechanisms involved and social context. Rebalancing of brain systems is radically contingent on context. That is one reason why religious cognition is so vulnerable to negative social influences. This seamless interactive process between the sequential logic set by operations of interacting brain systems and local social context is also one of the reasons why cognitive neuroscience should be interested in RCETs. They provide very clear examples of cultural shaping of outcomes of sequential brain operations involving the sense of self-itself a cultural construct.

At this point the reader might well protest “OK, Let us suppose that the something special in RCETs that make these things religious is decentering *and* that decentering requires reference to brain mechanisms to understand its dynamics and effects, what does all this do for me as a Religious Studies scholar? How can your account, or any neuroscience account for that matter, help me understand the most basic forms of religious cognition like belief in supernatural agents (SAs)? Surely I do not require decentering to account for SAs?”

Well, I would argue that you do – though this is an open empirical issue of course. Existing accounts of belief in SAs don’t cut it. Belief in SAs cannot be due to a simple misfiring of an agency detection device as humans can routinely correct for such misfirings and in any case SAs, especially religious SAs (rather than mere ghosts etc) exhibit many more properties than mere agency. For example, religious SAs tend to be more powerful than us and we tend to relate to them from a subordinate role. In addition religious SAs also tend to have full strategic access to our cognitions and mind states and we tend to ascribe ultimate values to them. Indeed, many SAs demand or require a response from us or full commitment or binding of ourselves to them. In short, in addition to the enhanced agency attributed to SAs we also ascribe to them inherent or even ultimate value and we tend to

relate to, placate, sacrifice to or bind ourselves to them. The asymmetric relations between us and them puts us in a subordinate role and therefore implies a diminution in agency in us when we relate to them. All of these properties require a decentering process in us for them to occur. Recall the phenomenology here: Our agency is diminished while theirs is enhanced, our selves are de-valued while ultimate value is placed in them – the SAs. To gain their favour and attain to the value we see as inherent in them, we seek them and while seeking them we place our diminished selves in a liminal state of seeking until yoking (religio) or binding of ourselves to them occurs – a quintessential decentering process.

The indulgent reader now asks once again: Even if decentering can account for many and perhaps most forms of religious cognition how can it possibly help to account for descriptions of religious practices or experiences in ancient or modern religious texts? The three articles under review here address that question beautifully it seems to me.

The first article, “Ritual Mourning in Daniel’s Interpretation of Jeremiah’s Prophecy” by Angela Kim Harkins, seeks to illuminate the meaning of chapter 9 of the biblical book of Daniel. “The chapter begins with Daniel consulting the books of the sixth century BCE prophet Jeremiah in the hopes of seeking an answer to the question of how long the exile will last. After engaging in highly-stylized funerary rites of fasting, sackcloth, and ashes, Daniel offers a prayer that includes a lengthy confession of sin that specifies not only his and the people’s sinfulness, but also that of every Israelite everywhere and at every time in history (9:5-8). Daniel’s confession of God’s greatness (9:15) underscores the people’s sinfulness, the just nature of their dire straits, and God’s righteous judgement to enforce the curses described in the Mosaic Law (9:4b; 9:7a; 9:14-16). The prayer concludes with a series of petitions pleading for God’s attention that refer to features of embodiment that evoke a sense of the deity’s presence (9:17-19). The prayer is then followed by a vision of the angel Gabriel who answers Daniel (9:20-23) and reveals an interpretation of the Jeremian prophecy (9:24-27)”.

Harkins points out that ancient petitionary prayer was a highly stylized ritual script that aimed not so much to attain some favour but to generate a vivid experience of the deity’s presence within the practitioner – suggesting to me a kind of spirit possession, though muted given the Hebraic religious context. In a decentering account spirit possession allows replacement of the old self with the self of whatever spirit is invited to possess the mind of the practitioner. In addition, Daniel engages in a reenactment of mourning rituals and the performance of petitions and confession of sins – all of which the author rightly points out likely lead to an experience of

self-diminishment (step one in the decentering account). The decentering account furthermore would predict transfer of the self into a liminal state and eventual integration into a higher more whole sense of self. The ritual reenactment of mourning seems congruent with the liminal phase and the fact that it directly causes the appearance of the angel Gabriel makes the whole sequence congruent with decentering it seems to me. The appearance of Gabriel indicates access to a higher sense of self and thus for reestablishment of balance and functioning but at a higher spiritual level for Daniel and his community.

In the article “Tours of Heaven in Light of the Neuroscientific Study of Religious Experience”, Czachesz attempts to shed light on ancient accounts of individuals who are taken up into heaven and then given a kind of tour of heavenly places and occasionally are given a glimpse of the throne of God. Czachesz notes that these “tours of heaven” experiences may be related to the notion of ecstatic *flight* as attested in many cultures, and *ascension* experiences, where people specifically visit places that are above the realm of the earth where the spirits dwell. Czachesz notes that the phenomenology of tours of heaven can be fruitfully compared to phenomenologies associated with out-of-body experiences (OBEs), near-death experiences (NDEs), sleep paralysis and decentering. An early christian text “the *Ascension of Isaiah*”, from the late first or early second century is exemplary. Czachesz notes, “At the beginning of the tour, an angel takes Isaiah’s hand and leads him upwards (7.2-3). It seems as though Isaiah has left behind his body, a clear indication of an out-of-body experience (7.5, 8.11, 14)”. Fair enough, but the decentering account would predict some indications of diminished agency at the start of the experience. Ceding initiative to the angel accords well with this prediction. But then a decentering account would predict feelings of fear or anxiety as the self is placed into a liminal state. Instead Czachesz reports that the ancient account reports “Feelings of joy, kindness, and peacefulness are emphasized (7.6-7)”. Here is one case where the decentering account appears not to work or at least predict well. In any case after entry into the liminal state a decentering account would predict a rejection of the older self and a search for integration into a higher self. Consistent with this prediction Czachesz notes that “Difficulties of rising higher are hinted at the ‘air of the seventh’ heaven, where a voice identifies Isaiah as an intruder (9.1: ‘alien’ in the Ethiopic, ‘living in flesh’ in the Old Slavonic). In the seventh heaven, Isaiah meets the saints and finally the Holy Trinity”. Later there is a “summary of Jesus’ life and crucifixion (11.1-22) indicating a renewed engagement with earthly reality, suggesting that the seer entered the final stage of the awakening experience”. While this bit of phenomenology may be considered as Czachesz apparently argues, to be



consistent with a literal awakening process from a state of sleep paralysis it is also consistent with the final step of the decentering process – integration of the old self into a new more whole self.

In “(Religious) Language and the Decentering Process: McNamara and *De Sublimitate* on the Ecstatic Effect of Language” Christopher T. Holmes examines the first century literary treatise *De Sublimitate* and argues that the concept of decentering provides insight into the meaning of the treatise’s central term *hupsos* or “sublime” rhetoric. Holmes argues that *De Sublimitate* describes why it is that ancient listeners to powerful speeches undergo experiences of awe, wonder and ecstasy. Rhetorical linguistic devices and the content of the speech can bring to mind awe inspiring thoughts or scenes as well as vivid experiences of ancestral heroes (who really were supernatural agents for ancients thus making the speech event a religious experience). *De Sublimitate* suggests that the speaker undergo a kind of spirit possession experience to improve performance. He should imitate heroes of old and identify with that ancestral figure and speak from that voice for example. When the speaker uses all the devices provided for by the rhetorical arts and speaks from his great soul the audience becomes enraptured as well. Both speaker and audience therefore undergo a transformative ecstatic experience during the speech. Everyone present moves closer to identification with these absent heroes. “The decentering process provides access to the ‘ideal Self’ much like sublime rhetoric restores one’s ‘greatness of soul’. Through emotion and imagination, imitation and sentence construction, sublime rhetoric moves the audience outside of themselves. The short-term effects of decentering – the momentary transcending of the world – leads to the long-term effects of existing in that world more effectively through new ways of knowing and a transformed sense of self”. To account for these profound transformations recourse to the emotions seems in order: “*De Sublimitate* attributes to the emotions a vital role in facilitating or accompanying the decentering process”. That suggestion seems sensible to me. Emotions must play a role at every step of the decentering process and empirical investigations like this one can guide us in how to understand the emotions at each step of the way.

Putting together the benefits these three articles have highlighted with regard to using neuroscience approaches to these ancient texts I think Holmes, the author of the paper on the *De Sublimitate*, captures the main benefit quite succinctly. Applications of neuroscience accounts to RCETs shift the focus of study of RCETs from mere explication of beliefs to an exploration of what the RCETs are meant to *do*. The neuroscience approach allows one to more easily adopt an enactive stance towards RCETs and to assume that RCETs (even mundane everyday forms of RCETs) are part of a



technology meant to transform selves and that is precisely what the decentering account provides.

## References

- Czachesz, István. 2016. "Tours of Heaven in Light of the Neuroscientific Study of Religious Experience". *Journal of Cognitive Historiography* 2.1: 33–52.
- Harkins, Angela Kim. 2016. "Ritual Mourning in Daniel's Interpretation of Jeremiah's Prophecy". *Journal of Cognitive Historiography* 2.1: 14–32.
- Holmes, Christopher T. 2016. "(Religious) Language and the Decentering Process: McNamara and *De Sublimitate* on the Ecstatic Effect of Language". *Journal of Cognitive Historiography* 2.1: 53–65.
- McNamara, P. 2009. *The Neuroscience of Religious Experience*. Cambridge: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511605529>
- McNamara, P., Minsky, A., Pae, V., and Gusev, A. 2015. "Cognitive Phenomenology of Religious Experience in Religious Narratives, Dreams, and Nightmares". *Archive for the Psychology of Religion* 37: 343–57. <http://dx.doi.org/10.1163/15736121-12341311>
- Wildman, W. J., and P. McNamara. 2010. "Evaluating Reliance on Narratives in the Psychological Study of Religious Experiences". *The International Journal for the Psychology of Religion* 20: 223–54. <http://dx.doi.org/10.1080/10508619.2010.507666>