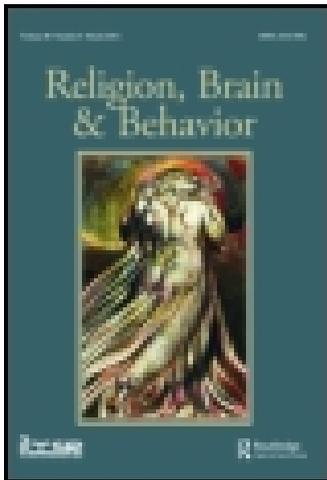


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The architecture of apophysis: exploring options for a cognitive scientific interpretation of the *via negativa*

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This article charts possibilities for discerning cognitive mechanisms that mediate apophatic cognition (and its purportedly self-transforming effects) in negative streams of Christian thought and practice. First, it tests the extent to which (1) Schjoedt's et al. "cognitive depletion" model (Schjoedt et al., 2013) and (2) McNamara's "decentering" model (McNamara, 2009) can explain, biologically and psychologically, why epistemic and existential loss is often said to precede and attend illumination in the *via negativa* – or negative way. While McNamara's theory proves more convincing than Schjoedt's et al. for shedding light on cognitive underpinnings of the negative way, neither theory is fully satisfactory because neither adequately accounts for the constitutive role of social and emotional dynamics at each step in the Christian apophatic journey. The final section introduces a cognitively informed account of the apophatic path consisting of four moments: *Resonance*, *Rupture*, *Reappraisal*, and *Repair*. This account is supported largely by a turn to neurocognitive, developmental, and clinical psychological research on relationality and emotion regulation.

Keywords: apophaticism; cognitive science; emotion; mysticism; neuroscience; psychology; relationality; spirituality

1. Introduction

"Take everything away."

Plotinus' famous imperative in *Ennead* V.3.17 showcases a defining phenomenological feature of apophysis – the negative way of unknowing and unsaying, which can be traced throughout many religious and philosophic traditions (although Western Christian traditions will be my focus here).¹ That feature is loss. In the mystic's quest to know and name the infinity eluding all determination, there is divestment of both certainty (graspable, namable meaning) and self (separable, personal identity). Displaying the dysphoric affective quality of this relinquishing, Nicholas Cusanus, in *De Docta Ignorantia* I.1, associates the *admiratio* (wonder) of learned ignorance with hunger and monstrosity, and in *De visione Dei* IX.37, goes so far as to link it with self-violence. But apophatic loss can also be linked to positive emotion – passionate love, for example, or unitive stillness. Thus does St. John of the Cross, in *The Dark Night of the Soul* II.XI, speak of the "fire of love" that takes hold of the soul even in the midst of its "night of painful contemplation."

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Why is loss so often said to be the thoroughfare to salvific illumination in negative streams of Christian thought and practice? Until recently, reflection on this question has been limited mostly to philosophical modes of investigation and explanation. But advances in the cognitive scientific study of religion over the last fifteen or so years have opened new interpretive possibilities, ones that may allow for more embodied, scientifically plausible understandings of the negative way and its enduring appeal.

In the interest of pursuing such possibilities, this article tests the extent to which two recent theoretic proposals in the cognitive scientific study of religion can explain, biologically and psychologically, why epistemic and existential divestment is so consistently said to precede and attend divinizing transformation in the Christian *via negativa*. To do so, it engages (1) Uffe Schjoedt et al.'s (2013) "cognitive depletion" model of religious interaction and (2) Patrick McNamara's (2009) theory of "decentering" in religious experience. These theories appear initially promising with respect to the *via negativa* because both posit loss of knowledge and/or agential selfhood as a crucial element in religious experience and interaction. In both models, such loss corresponds with a deactivation of the brain's executive network, which subsequently paves the way for other cognitive processes to fill meaning apertures created by temporarily reduced executive activity.

Yet, for reasons both phenomenological and scientific, I shall argue that McNamara's theory proves more convincing than Schjoedt's et al. for shedding light on cognitive underpinnings of the negative way. Furthermore, in the end, neither theory proves fully satisfactory for this task because neither theory accounts for the constitutive role of socio-emotional dynamics at each step in the Christian apophatic journey. Thus, building on McNamara's framework but supplementing it with neurocognitive, developmental, and clinical research on relationality and emotion regulation, I limn the broad contours of a cognitively informed account of the negative way. Consisting of four "moments" (*Resonance, Rupture, Reappraisal, and Repair*), the proposal echoes the implication, drawn from engagement with Schjoedt's et al. and McNamara's theories, that apophatic loss and subsequent illumination has likely to do with modulations in executive processing. However, these modulations are said to stem principally from relational cognitive dynamics rather than from cognitive depletion (Schjoedt et al.) or cognitive conflict (McNamara).

2. The *via negativa* and Schjoedt's et al. theory of cognitive depletion

In a recent target article in *Religion, Brain & Behavior*, Uffe Schjoedt (Aarhus University) and colleagues (2013) set out to explain the cognitive mechanisms whereby religious rituals transmit meaning-laden symbolic and narrational content. Rituals, Schjoedt et al. argues, demand much of practitioners. First, they greatly rouse the mind and body, even though practitioners are usually supposed to refrain from showing emotion. Second, they involve complicated action sequences that are supposed to be performed with precision and sustained focus, even though participants often do not know: (1) what the overall arc of the action sequence is supposed to look like; or (2) what it is supposed to mean.

According to Schjoedt et al. in such cognitively taxing circumstances, the individual's executive network (i.e., the brain's high-level integrative processing system, which relies largely but not exclusively on frontal cortical structures) is much busied with emotion suppression and low-level perceptual details. The result is that participants are deprived of the cognitive resources needed to: (1) form rich episodic memories of the event; and (2) attribute beliefs and meanings to the practice. Individuals are thus rendered susceptible to authoritative interpretations: "The powerful suggestions and meaningful narratives that are

provided by religious authorities and traditions ... seem likely to thrive in the wake of events that cause depletion” (Schjoedt et al., 2013, p. 42). Although high-demand religious practices drain meaning-making cognitive resources, and so prevent individuals from constructing their own account of their experience, the cultural transmission of collectively shared beliefs associated with the ritual still succeeds because charismatic authorities aid the exercitant in post-practice interpretation and appropriation.

Two recent studies are called upon as main evidence for the resource model. First, in a 2013 study, Xygalatas et al. (2013) found in ritualistic fire-walkers: (1) high arousal during fire-walking (as indicated by heart rate); (2) emotion suppression (as indicated by walkers’ reports of being calm during the ritual); and (3) amnesia (as indicated by post-ritual reports that participants barely remembered the fire-walking event). This study is taken to support the contention that rituals involving high arousal, emotion suppression, causal opaqueness, and goal demotion deplete executive resources for episodic memory coding and meaningful interpretation.

Second, in a 2011 study, Schjoedt, Stødikilde-Jørgensen, Geertz, Lund, and Roepstorff (2011) found that when Pentecostal Christians received intercessory prayers of healing from a person they believed to be non-Christian, neural activity increased in executive and social cognitive networks, whereas when the Christians received prayers of healing from a person they believed to be a Christian known for healing powers, neural activation in these same areas decreased. Schjoedt et al. concludes that, in Christians, prayer offered by a charismatic religious authority has the effect of down-regulating the executive network, while prayer offered by a non-Christian has the opposite effect. Christian prayer recipients are rendered more susceptible to the suggestions, expectations, and interpretations of the pray-er whom they believe to be Christian and to hold special powers, as compared to the pray-er whom they believe to be non-Christian. This study is marshaled as support for the hypothesis that attribution gaps created by cognitive resource depletion during rituals are filled after the fact by cognitive content supplied by charismatic authorities.

How might Schjoedt’s et al. model shed light on aspects of apophatic consciousness (and transformations thereof) in Christian traditions? The first and most obvious question is whether negative streams of Christian thought and prayer can be placed in the category of “ritual” alongside the phenomena that Schjoedt et al. seeks to explain. According to Tambiah’s (1979, p. 119) classic definition of ritual as practice, rituals are “patterned and ordered sequences of words and acts, often expressed in multiple media whose content and arrangement are characterized in varying degrees by formality (conventionality), stereotypy (rigidity) ... and redundancy (repetition).” Is apophatic unknowing and unsaying ritualistic in this sense? As historians Martin Laird (2005) and Sara Poor (2012) have demonstrated, mystical thinking in Christian traditions is profoundly rooted in embodied contemplative practices such as stilling the mind’s ratiocination; attending to the breath; repeating a sacred word; and reading, reciting, and copying manuscripts. There is an argument to be made that the “patterned and ordered sequences of words and acts” that constitute the *via negativa* indeed place it under the umbrella of ritual.

Several aspects of apophaticism appear to accord with Schjoedt’s et al. depletion theory. First, attention to basic perceptual details like breathing, recitation, reading, copying/writing, and icon gazing are, historically speaking, important elements of the negative way. It is not too far a stretch to suppose that such tasks might challenge the apophatic contemplator’s executive systems in some of the ways that Schjoedt and colleagues suggest. Second, in accordance with the depletion theory, the end goal of apophysis remains obscure (indeed, by definition), and authority figures are, often enough, the chief resource for interpretation. Third, in the theoretic background of Schjoedt’s et al. model is

the position, advanced by cognitive theorist of religion Harvey Whitehouse (1995, 2000, 2004), that whenever individuals are provoked to search for the symbolic/narrative meaning of a ritual, it is good for the group insofar as it nurtures shared meanings that contribute to collective cooperation and solidarity. In this connection, it is interesting to note that some of the most poignantly articulated and philosophically sophisticated expressions of the negative way in Western Christianity were written during times of momentous ecclesiastical and monasterial reform. For example, many of Nicholas Cusanus's apophatic writings rose directly out of his fifteenth-century reform ventures as Bishop in the Tyrol. So too, St. John of the Cross's well-known meditations on the "dark night of the soul" were birthed out of his dedicated efforts at reforming the Spanish Carmelite order. As Gerhart Ladner (1959) has shown, during such eras, Christian unity around Church teachings was fostered largely through an emphasis on personal renewal through spiritual practice.

But are these constructive concordances really warranted, or have we gotten ahead of ourselves? In a recent commentary article, neuroscientist Michael Spezio (2014a) sets forth two criteria for evaluating models in cognitive science that purport to explain neural and psychological bases of religious stages, states, or processes. First, the model must fit the phenomenology of the stage, state, or process as articulated by the religious tradition(s) itself. Second, the model must "propose an evidentially compelling theory" – in other words, an empirically well-backed account – of the phenomena that it seeks to explain. In view of these criteria, how well does Schjoedt's et al. theory of cognitive depletion stack up?

The main problem regarding the degree of phenomenological fit between ritual as treated by Schjoedt et al. (on the one hand), and (trans)formative illumination as figured in many Christian apophatic writings (on the other) concerns the fact that, as Candace Alcorta (2013) points out, Schjoedt's et al. model displays a "cognitive bias" that overemphasizes conscious, rational belief formation and transmission, and underplays the role of emotion, in shaping religious meaning. Relatedly, as Steven Brown (2013) notes, socio-emotional dynamics like empathy and perspective taking might explain loss-of-self as well as or better than cognitive depletion. Schjoedt's et al. theory, then, appears to downplay the roles of associational, symbolic, emotional, and second-personal forms of processing in determining the meaning and meaningfulness of religious rituals.

It is important to critically note this "cognitive bias." Christian apophaticism, while often highly philosophically rigorous, is at the same time usually shot through with affectively and relationally salient, ideational motifs and linguistic forms. Negative language (and thus, the corresponding apophatic contemplative mind) oscillates between the ecstatic and the agonistic as it tries to think toward – and, crucially, be united with – the unthinkable. The divine abyss, although unreachable, is nevertheless desired and loved, often being addressed appellatively and doxologically as "You." That Schjoedt's et al. theory underplays the roles of emotion and relation in shaping religious meaning in contexts of ritual practice renders the model less than ideal as a tool for better understanding the cognitive processes that underlie the *via negativa*.

There are scientific reasons, as well, to pause before enlisting Schjoedt's et al. theory to explain the cognitive architecture of the apophatic journey. First, as Inzlicht, Schmeichel, and Macrae (2014) have recently argued, resource depletion accounts of executive function may not be the best way to explain individuals' attentional and regulatory failures in increasingly cognitively and emotionally demanding environments. Second, as Spezio (2014b) notes, Schjoedt's (2011) intercessory prayer study falls prey to the problem of 'reverse inference.' This happens when neuroscience researchers base the claims they make about participants' mental states on neural activation patterns observed during

experimentation, while failing to acquire from participants thorough firsthand accounts of the mental states they experienced during testing. In this case, brain areas that previous neurological studies (with different test conditions) have shown to be associated with the management of cognitive conflict and critical thinking were activated in Christian participants when they received intercessory prayer from non-Christians (as compared with prayer from “Christians known for healing powers”). Schjoedt takes these results to indicate that the Christians showed decreased critical thinking when they believed they were listening to a charismatic healer. But an equally valid interpretation would be that “charismatic Christian participants engaged in increased critical thinking when trying to understand why a person described as non-Christian would give an impassioned intercessory prayer in exactly the same fashion as the ‘Christian with healing powers’” (Spezio, 2014b, p. 291). If this were indeed the case (and alas, we shall never know), then the comparison between the two test conditions would mean something very different. In all likelihood, the results would not as cleanly support the conclusion that Schjoedt goes on to draw.

The limitations of the depletion model with respect to apophatic Christian spirituality do not necessarily render it irrelevant to the task of searching out a cognitive scientific interpretation of the *via negativa*. They do, however, prod us to look for other theories that might explain more compellingly the cognitive processes that support efforts to think and name toward (and seek union with) the divine darkness. In particular, we are urged to search for a model that attends more explicitly and consistently to the import of social and emotional cognition in registering the meaning and transformative value of religious ideas and practices.

3. The *via negativa* and McNamara’s theory of decentering

Boston University neurologist Patrick McNamara (2009) argues that religious experiences assist individuals in forming a strong, centralized, integrated, executive Self. This happens via a four-stage mechanism that McNamara calls the “decentering” process.

First, some challenge or conflict serves to temporarily decouple the agentive Self from control over executive cognitive functions. McNamara emphasizes that this initial decentering event is often itself instigated by religious language, rituals, and/or practices – especially ascetically oriented ones. The inhibition of agency in stage one is negatively valenced, frequently involving a sense of inward intrapersonal discord, along with a feeling of anguish brought on by a perceived loss of personal identity and personal power.

The second step is transitional. It consists of the launch of an offline search through semantic memory to identify an “ideal Self” that more closely matches the needs, goals, and values of the individual. Here, the agentive Self is placed in a “suppositional space” that contains a “stock of existing identities stored in semantic memory” (McNamara, 2009, p. 50). Drawing on Nichols and Stich’s (2000) cognitive architecture of pretense, McNamara also calls this space a “possibility box.”

The actual quest for this “ideal Self” (who often corresponds with an ancestor, saint, spirit, or god) is carried out in stage three. Narrative grammars that hold rich symbolic meaning abet the search process.

Finally, after an ideal Self is identified, the old, conflicted Self who had “suffer[ed] a defeat” (McNamara, 2009, p. 52) is now knit or “bound” to the new Self. The result is a larger, more complex, more unified, and more self-regulated identity.

In support of his theory, McNamara points to several bodies of neuroscientific literature. The first is research on neurological dysfunctions that involve breakdowns in

individuals' sense of self and agency (e.g., alien hand syndrome, multiple personality disorder). McNamara marshals evidence showing that damage to the right frontal and anterior temporal cortices often results in deficiencies in individual inhibition and/or first-order identity, and argues that these brain areas are therefore crucial in supporting the central executive Self, the locus of individual intentional agency. Next, McNamara examines clinical psychiatric and neurological literature on hyper-religiosity in persons with brain disorders such as temporal lobe epilepsy and schizophrenia. Here he finds that:

the limbic system (particularly the amygdala), portions of the basal ganglia, the right temporal lobe (particularly the anterior portion of the medial and superior temporal lobe), and the dorsomedial, orbitofrontal, and right dorsolateral prefrontal cortex are ... crucial nodes in a brain circuit that mediates religiosity. (McNamara, 2009, p. 105)

Finally, McNamara references the few extant studies examining neural correlates of religious experiences in healthy adults. Although he is careful not to draw too-confident conclusions, he suggests that, summed together, these investigations point to the importance of the temporal and prefrontal lobes (especially in the right hemisphere), the limbic system, and the subcortical dopaminergic systems in mediating religious experience.

McNamara's tentative synthesis of these varied researches is that there is rough concordance between brain structures and systems that support the Self and those that mediate religious experience. His further constructive hypothesis, then, is that religion, inasmuch as it assists in decentering and reintegrating the Self, is an evolutionarily adaptive means by which individuals are transformed toward more intrapersonally harmonized and socially and emotionally regulated ways of being in the world.

There are some interesting points of possible connection between the ideational and experiential texture of apophysis and that of decentering. First, there is a distinct negation of will in many apophatic Christian traditions; one thinks of Meister Eckhart's *Abgescheidenheit* ("detachment"), or Simone Weil's *dépouillement* ("decreation"). Such negations are historically linked with ascetical strains in Christian spirituality (McGinn, 2008, p. 101), and may correspond with the McNamaran moment of initial decentering. Second, the dysphoric affective quality of decentering in McNamara's model would seem to match the pained timbre of many traditions of unknowing and unsaying God. Plotinus, for instance, whose *Enneads* are an important historic root of Christian apophysis, attests frequently to the "pangs" and "agony" that accompany the search for a true expression of the Supreme. Third, the apophatic theme of mystical union (*theosis*) through participation in Christ accords in obvious ways with McNamara's proposal for a cognitive mechanism by which the old, conflicted Self is integrated into the new, ideal Self. Fourth, intrapersonal unity or self-integration is at the center of both Western apophaticism and McNamaran decentering. Proclus, for instance, whose Neoplatonic theosophy significantly influenced later articulations of the *via negativa* in Western thought, teaches that because "the One" is not knowable or nameable, whenever we say "the One," what we really reference is our own sense of inward unity or harmony. Interior integration is, as Proclus puts it in *Commentarium in Parmenidem*, "an expression of the One in ourselves," and is thus the proper term of theological speech. McNamara's model, centered as it is on intrapsychic and neural integration, appears well poised to explain from a psychological and biological viewpoint why it might be that inward unity has so often been stressed in Western philosophic and religious traditions, especially apophatic ones.

Yet, let us pause to consider Spezio's twofold criteria for evaluating cognitive theories of religious experience: first, degree of phenomenological correspondence, and second,

degree of empirical persuasiveness. On both counts, I think McNamara's theory fares better than does Schjoedt's et al. when it comes to explaining the consciousness-transforming potential of the negative way from a biological and psychological standpoint. It is not without limitations, however.

Phenomenologically, although social and emotional cognition plays a larger role in McNamara's theory than in Schjoedt's et al., McNamara's decentering model still does not, to my mind, attend adequately enough to the constitutive role of second-person awareness in much religiously significant cognition – especially if the tradition being considered is Western Christianity and apophatic strains therein. Ann Taves (2011) hints at this very limitation in her review of McNamara's theory. She points to the growing body of scientific literature supporting the hypothesis that the human capacity for simulation, jointness, or “we-intentionality” is what underlies the distinctly human ability to imagine and embody alternative “selves” in alternative environments, and thus to form institutions and cultures. For Taves, inasmuch as religion is wrapped up in simulative and play processes, it carries potential to decenter and transform selves in some of the ways that McNamara describes. But it is second-person cognition, not religion as such, that is, for Taves, the more basic category.

Now McNamara (2011a, p. 100) will insist that, for him, mental simulation is a more fundamental cognitive capacity than is decentering. Yet, on his model, the decentering process begins with an individually experienced challenge, crisis, trauma, suffering, or conflict. It is only later on in the transformative process, in stages three and four, that a form of relational engagement with an (internal) “ideal other” transpires in earnest. By contrast, in much Christian apophysis, the ideal other (God or Jesus) is not searched for and found after the contemplator has already been “decentered”; rather, the alterity and love of the divine “Thou” is often what causes the decentering in the first place.

On the scientific front, McNamara's overall argument that religious experiences modulate self-referential processing in a way that ultimately enhances executive control appears reasonable and well supported. His model predicts increased neural activation in prefrontal, temporal, and limbic brain areas, as well as vital reward (dopaminergic and serotonergic) systems, during religious experiences as compared to other activities and states. A number of recent studies corroborate this general picture (Berkovich-Ohana, Dor-Ziderman, Glicksohn, & Goldstein, 2013; Cakmak, Ekinci, Afsar, & Cavdar, 2011; Hagerty et al., 2013; Travis, 2011; Wang et al., 2011). With respect to the behavioral and neural effects of religious experiences, McNamara's decentering account predicts that such experiences are positively correlated with increased cognitive performance (complexity of thought, speed and accuracy of processing) and emotion regulation, as well as fortification of brain areas that mediate these. Here again, the recent evidence is promising (Amihai & Kozhevnikov, 2014; Cakmak et al., 2011; Leung et al., 2013; Newberg et al., 2010; Peres et al., 2012; Prakash et al., 2010). McNamara's is one of the most compelling integrative theoretic proposals currently available for explaining key mechanisms and effects of certain experiences deemed religious.

That said, there are aspects of his model that appear to be in need of greater empirical support. For instance, McNamara's theory involves the claim that, in religious experience, self-transformative social and emotional processing (stages three and four of his model) is preceded by a temporary deafferentation/inhibition of prefrontal and anterior temporal cortices, along with corresponding negative affect (stage one of his model). This is the initial decentering event, which, neurochemically, McNamara says mimics the decreased serotonergic and dopaminergic activity in the prefrontal cortex brought on by the initial effects of psychoactive substances (McNamara, 2009, pp. 143–144). Again, it is only later in the decentering process that social cognition becomes really salient. Perhaps there is

neurological research supporting the notion that self-regulatory-enhancing social and emotional processing is preceded by functional deafferentation of the prefrontal cortex such as is found in the brain of a person who has just received a hit of LSD. If such research does exist, however, I am not aware of it, and unfortunately, McNamara does not make mention of it. Another drawback is that McNamara claims that the neural correlates of religious experiences are right-lateralized; however, more recent studies indicate the involvement of both brain hemispheres, and some show clear left lateralization (Neubauer, 2014; Peres et al., 2012). It might also be pointed out that the bilateral insular cortex – which appears to be important in neural integrative, self-regulatory, and socio-emotional processing – is regularly implicated in religious experiences (Berkovich-Ohana et al., 2013; Carrazana & Cheng, 2011; Landtblom, Lindehammar, Karlsson, & Craig, 2011; Neubauer, 2014; Wang et al., 2011), and may be vital to the integrative processes associated with such experiences (Butler, 2012; cf. Craig, 2009; Craig, 2010). However, McNamara’s model affords no essential place for the insulae.

I think new and potentially fruitful lines of interdisciplinary inquiry into the cognitive contours of apophatic spirituality should be pursued on the basis of McNamara’s theory – a theory that has been well received overall, and continues to undergo refinement. However, I also think that such engagement should be carried out with a willingness to bend, amend, and supplement McNamara’s ideas. In particular, I submit that his model should be brought into dialogue with theoretical and empirical research on human self-development and healing that highlights ways in which socio-emotional dynamics influence all dimensions of the change process, to greater or lesser degrees. McNamara (2009, p. 54) himself hints at something like this when he mentions (in passing) that “[t]he psychology of the emotional attachment process might ... illuminate parts of this [decentering and binding to a higher Self] process.” I agree with this suggestive comment and think that it should be pursued.

4. Toward a cognitive interpretation of the negative way that accounts for the constitutive roles of social and emotional processing

In this final section, I want to propose that relating may be a more fundamental category than depleting or even decentering when it comes to understanding the cognitive mechanisms that mediate the *via negativa* in Western Christianity. In line with Schjoedt’s et al. and McNamara’s theories, I think the sense of epistemic and existential loss so important in negative spirituality likely has to do with modulations in executive processing that correspond with initial decreases in an individual’s sense of autonomous self-possession. I also think it reasonable to postulate that the (usually subsequent) sense of illumination or oneness corresponds with a strengthened executive system and corresponding new meaning, insight, and regulatory capacities. But all of this is so in a quite different way than Schjoedt’s et al. model, and a somewhat different way than McNamara’s model, would lead us to suppose. The overall experiential texture of the negative way in Christianity is more like the rhythm of rupture and repair described in relational and attachment-based developmental and clinical psychology than it is like cognitive depletion brought on by a deluge of attentional demands followed by socially submissive belief-acquisition (Schjoedt et al.) or even cognitive conflict and loss-of-(Self)-control followed by the discovery of a higher Self with whom one can merge (McNamara).

Phenomenologically, the process I propose can be broken down into four moments. First, *Resonance*: there is established, as a kind of presupposed affective backdrop, an affiliative emotional orientation to an inward mental representation of an idealized divine other – for example, the One, the Highest Principle, God, the Trinity, the Spirit, or Christ.

Second, *Rupture*: there is a complication and breakdown of this affiliation. The divine other to whom one is desirously related is now found to be unavailable because “he” (sometimes “you,” rarely “she”) is seen to be beyond all objectification. The divine beloved is somehow both there and not there. Third, *Reappraisal*: a search commences for a new meaning construct of oneself and the divine other – one that can abide the intense subject-object ambiguity. Here, apophatic linguistic strategies and thought experiments such as aphaeresis/abstraction, double proposition semantics, and subject-predicate fusion (Sells, 1994) assist the contemplator in thinking toward an experiential understanding of non-dual relationality. The painful feeling of alienation is slowly enfolded into a larger sense of attuned trust in loving Mystery despite ongoing ambiguity and unknowing. Fourth, *Repair*: the process culminates in the celebrated *unio mystica*, the oneness with the unsayable beyond being so often spoken of by peregrinators of the negative way. This is experienced as a reunion with the idealized divine other with whom one had originally resonated, but now in a qualitatively more profound sense.

This four-moment journey is not inflexibly linear and stage-like; rather, the dynamic is one of spiraling and deepening. It is also fluid enough to allow for moments to be sometimes reversed, sometimes skipped, sometimes merged. Readers will likely have already noticed that the model accords in basic ways with McNamara’s theory; however, it differs from McNamara’s in its persistent emphasis on social cognition in beginning phases.

What sorts of cognitive mechanisms might subtend this account? A full scientific explication and defense of the model is beyond the scope of this article. However, we can risk some exploratory first speculations that can pave the way for future development and assessment.

Moment one, *Resonance*, may correspond with mechanisms that serve to establish attuned relational bonds – bonds that allow a person to begin to safely “lose him or herself” so to speak, in the world of the other. Before saying more about this postulate, a brief excursus into dual process models of cognition is required. Social neuroscientists often distinguish between two functionally distinct (yet overlapping and non-oppositional) modes of social information-processing: first, a “direct” mode, which involves automatic affective evaluation and is mediated mainly by subcortical and cortical limbic areas, and second, a “reflective” mode, which involves effortful thought about self and other and is mediated mainly by medial prefrontal cortical areas (Fiske & Taylor, 2013; Vrticka & Vuilleumier, 2012; Zaki & Ochsner, 2011). This distinction is an outworking of a more general understanding of human cognition as dually structured: “system 1” operates in an intuitive and largely non-conscious manner, quickly evaluating environmental stimuli and producing approach/avoid behaviors, while “system 2” operates slowly and deliberately, relying on executive processing to produce reasoned judgments (Kahneman, 2003). Social cognition involves a complex mix of system 1 (direct) and system 2 (reflective) processes; the latter requires executive function, while the former does not. In any given socio-emotional circumstance, the accent can be placed on one system or the other.

I suggest that the moment of *Resonance* on the apophatic path corresponds principally with the direct mode of relational processing. Here, the activation of reward circuits associated with attachment and love (e.g., dopamine, oxytocin) elicits approach behavior and helps to establish, in Stephen Porges’s (1998, 2011) term, a “neuroception of safety” that makes way for further ongoing engagement with the inward representation of the divine other. In line with Schjoedt’s et al. and McNamara’s theories, the role of executive functioning is here attenuated. Crucially, however, this is due not to cognitive overload or conflict. Rather, it stems from a more positive, simulative mechanism that puts the accent

on affectively attuned immersion in the perceived world of the other. This mechanism is similar perhaps to what psychobiologist Colwyn Trevarthen calls ‘synrhythmicity’ between infant and caregiver – that is, closely engaged, cooperative ‘brain-generated rhythms of intentional and emotional movement’ (2011, p. 85). That such socio-emotional dynamics may be linked to executive deafferentation is supported by research suggesting that looking at pictures of loved ones deactivates executive brain networks (Bartels & Zeki, 2004).

The poetic, synchronous, interaction-oriented, and positively valenced language and imagery that we sometimes find at or near the beginning of apophatic treatises attests perhaps to this initial founding of relational *Resonance*. Consider Dionysius’ classic *Mystical Theology*, which begins with a laudatory hymn to the Trinity who is praised for guiding Christians up to the “wisdom of heaven” where there lie “treasures beyond all beauty.” So too, Meister Eckhart’s famous Sermon 53 (on detachment) begins by exhorting Christians to be formed into the good that is God, and to be mindful of God’s gifts. Such beginning expressions of gratitude and desire serve to draw the apophatic practitioner “out of him or herself” toward what D.W. Winnicott (1971/2005) calls the “transitional realm” in which harsh distinctions between inner and outer, subject and object, me and you, start to break down.

Following this affiliative founding, a *Rupture–Repair* sequence – the heartbeat, so to speak, of the apophatic way – comes into view. While the initial moment of *Resonance* involves a positively valenced self-relinquishment in the space of encounter, moment two, *Rupture*, is marked by a different, negatively valenced self-diminution. In other words, what McNamara calls the “decentering” process continues in moment two, but in a more agonistic tone. *Rupture* involves a breakdown of resonant relationality, for the apophatic contemplator realizes that because divinity can be neither conceptualized nor named, God cannot be “encountered” – at least in any normal sense. In Weil’s (2002, p. 109) poignant phrase: “He Whom We Must Love is Absent.”

Neurocognitively speaking, I propose that *Rupture*, like *Resonance*, corresponds predominantly with the direct mode of social processing, which is mediated by more implicit neurocognitive processing. Here it is important to remember that direct social cognition need not imply processing that is somehow “non-conceptual.” *Rupture* obviously involves thinking about divine inaccessibility (and the ideational binds this creates), so linguistically evoked conceptual representations are by no means *uninvolved*. As Kahneman (2003) points out, system 1 processing can be elicited by language and can deal with stored concepts – even ones that are quite complex in nature – even though the system itself is geared toward evaluative (emotional or hedonic) processes.

It is interesting to wonder about the possible role of the dorsal anterior cingulate cortex (dACC) in mediating the experiential impact of apophatic negation or *Rupture*. Richly interconnected with limbic and executive systems, this brain structure is involved in integrating affect, especially negative affect, and cognitive control (Shackman et al., 2011). The dACC has been shown to play an important role not only in cognitive conflict monitoring (Botvinick, Braver, Barch, Carter, & Cohen, 2001; Botvinick, Cohen, & Carter, 2004) and error detection (Critchley, Tang, Glaser, Butterworth, & Dolan, 2005; Orr & Hester, 2012), but also in physical pain (Peyron, Laurent, & Garcia-Larrea, 2000; Ploghaus et al., 1999; Rainville, Duncan, Price, Carrier, & Bushnell, 1997; Sawamoto et al., 2000), social rejection (Eisenberger, Gable, & Lieberman, 2007), and relationship loss (Gündel, O’Connor, Littrell, Fort, & Lane, 2003; Najib et al., 2004), as well as other negative affective states such as fear and anxiety (Etkin, Egner, & Kalisch, 2011; Shackman et al., 2011). Though conjectural, it is nevertheless plausible to suppose that the conceptual and

socio-emotional agonism of apophatic *Rupture* might correspond with activations in the dACC.

Let us consider the overall arc from *Rupture* to *Repair*, setting aside for the time being the moment between them – *Reappraisal*. The negative way consists in a (re)union with the divine other that has moved through the darkness of cognitive and relational breakdown, into the limpid light of intellectual clarity (deep ideational meaning) and loving concord (deep social/emotional connection). What cognitive processes might underlie this global *Rupture–Repair* sequence?

McNamara argues that movement toward the final “binding” stage in religious experience corresponds with gradually increasing activation (and ultimately a marked reinforcement) of prefrontal self-regulatory executive systems, along with an overall integration of the brain’s structures and networks. Although McNamara appears to sideline social-emotional cognitive processes in earlier stages of his model, he clearly makes them central in later phases. The Self-(trans)forming culmination of religious experience coincides with the concurrent “coming back online” of executive functions along with increasingly active socio-emotional circuits. Indeed, as mentioned above, at one point McNamara (2009, p. 54) hints that emotional attachment dynamics may play a part in the process of binding to a higher Self in religiously significant experience.

Relevant in this connection is theoretical and empirical work in developmental and clinical psychology suggesting that relational “rupture–repair” patterns play an important role in both the emergence of self-regulatory abilities in contexts of human development, and in the abatement of psychopathological symptoms in contexts of therapeutic treatment. For example, developmental neuropsychologist Allan Schore (2003a, 2003b) argues that an infant’s early experiences of being “self-attuned-with-a-regulating-other” produce dopamine and endogenous opiates that initiate and maintain neural development, especially in orbitomedial prefrontal and right brain areas. This, in turn, contributes to the emergence of a personality able to regulate emotion and form healthy attachments with others. But it is not merely experiences of interpersonal resonance that build up the young human brain’s self-regulatory architecture; negative moments of misattunement and dysregulation are also crucial. When, in such moments, connection is re-established and sociobiological synchrony returned, the child’s autonomic nervous system learns how to readjust and achieve regulatory recovery. Through these cadences of disengagement and re-engagement, the young person acquires cognitive resources that will help him or her manage his or her emotions and relate to others in adaptive ways throughout life.

Relatedly, psychologist Jeremy D. Safran and colleagues have researched “rupture–repair” episodes in therapeutic interactions – that is, tensions or breakdowns in the collaborative relationship between patient and psychotherapist, which are followed by alliance-restorative interventions. Safran has surfaced empirical evidence indicating that patients of therapists who have received rupture resolution training and supervision show statistically significant improvements over the course of therapeutic sessions as compared to patients of therapists who did not receive such training (Safran & Kraus, 2014; Safran, Muran, & Eubanks-Carter, 2011). This suggests that the process of moving with intentionality through a relational breakdown or misunderstanding, toward renewed connection and mutual understanding, is positively correlated with a desirable treatment outcome (viz., reduced severity of symptoms of both Axis I and Axis II psychological disorders).

The Christian *via negativa* stresses the morally and intellectually formative power of moving through absence and obscurity, to a more profound “*docta ignorantia*,” a deiform knowing-and-being-known. I think the phenomenology of this dialectical journey

resembles the rupture–repair sequence, described in several research programs above, which appears to cultivate and strengthen self-regulatory systems in persons. If I am right, this would imply that a key reason that apophatic spiritual practice has been pursued throughout Western religious and philosophic history as a kind of therapeutics of the soul is because it activates evolutionarily shaped social and emotional neurocognitive mechanisms by means of which individuals come to forge, in McNamara’s (2009, p. xii) terms, a more “healthy, unified, integrated sense of Self.”

Finally, let us circle back to consider possible mechanisms involved in the third proposed moment of the negative way – *Reappraisal*, the bridge between the agony of *Rupture* and the ecstasy of *Repair*. *Reappraisal* is in many ways like McNamara’s third stage, in which there is a search through semantic memory for an “ideal Self” with whom to unite. But in the case of Christian apophaticism, this “search” needs reframing. Since the ideal other is already inwardly identified (to some extent at least) early in the process of prayer or contemplation, the quest that commences in *Reappraisal* is for a new meaning of self, divine other, and the relation between – one that cannot only tolerate but also reinterpret positively the subject-object ambiguity that proved so disturbing in the moment of *Rupture*.

In this task, complex apophatic linguistic strategies and symbolic devices help give rise to inward perspective shifts. Examples include Augustine’s meditation in *Confessions X* on the faces of *memoria* within his own mind, or Cusanus’ contemplation of God’s infinite vision by means of a painting of an all-seeing face in *De visione Dei*. The mental acts of affirming and denying theological propositions, or juxtaposing and eliding transcendence and immanence, are also kinds of inner perspective alterations that generate “comforts” (*solacia*) that convince the reader/contemplator that the loss of knowledge and self implied in the *via negativa* is cause neither for evil nor grief (Führer, 1996, p. 230). Empathic identifications with exemplars also facilitate the *Reappraisal* process. One thinks of Gregory of Nyssa’s sustained reflections on Moses’ experience in the theophonic cloud in *Life of Moses*, or Simone Weil’s affinitive meditations on the aporetic abysses of Christ’s crucifixion in her *Notebooks*. The perspective shifts and empathic identifications found in the moment of *Reappraisal* assist the apophatic exercitant in coming to terms with, and finding new meaning in, the privation and uncertainty of the negative way.

Such inward movements seem to share phenomenological similarities with certain evidence-based clinical psychotherapeutic interventions. Douglas Mennin and David Fresco’s (2014) emotion regulation therapy (ERT) model has proven efficacious for reducing anxiety and depression symptoms in open and randomized control trials. ERT encourages client reappraisal through strategies like “distancing” (promoting observational separateness from the self, either temporally or spatially) and “reframing” (fostering alternative, positive interpretations of events in a way that cultivates “strength in the face of uncertainty” (p. 480)). ERT clients are also encouraged “to adopt a self-compassionate reappraisal stance wherein they can imagine telling a very caring, interested, compassionate individual about their difficult thoughts and feelings, and reminding themselves of their strengths and coping ability” (p. 480). Thus, both apophatic *Reappraisal* and ERT appear to encourage self-transformation by altering inward “viewpoints,” and nurturing a kind of intrapersonal “minding of the other.” It is reasonable to wonder whether both forms of healing reinterpretation might involve similar cognitive processes – more specifically, processes based in networks that mediate conscious “reflective” (Zaki & Ochsner, 2011) theory-of-mind cognition. This would accord with McNamara’s (2009, pp. 143–144) theory, which posits that the stage three search through semantic memory for an ideal Self coincides with the gradual “coming back online” of (prefrontal cortical) executive

functions, which is completed in the final “binding” stage. The increased activation and strengthening of executive systems that underwrite reflective, simulation-based processing about self and other is perhaps what corresponds with not only the ERT client’s journey toward healing, but also the apophatic contemplator’s quest to come to a newly reconciled and integrated understanding of self, divinity, and their relation. For said contemplator, such an understanding not only tolerates the absence and loss constitutive of the negative way, but reinterprets this absence and loss so that it becomes the requisite condition for the possibility of transforming insight and loving union.

5. Conclusion

Many have argued that the evolutionary roots of religion lie in its ability to foster meaning-acquisition in the face of the ambiguities and emergencies of life, and, relatedly, its ability to encourage the formation of emotionally regulated selves who can function well in community (Armstrong, 2009; Atran, 2002; Burkert, 1998; Guthrie, 1993; Riesebrodt, 2007; Rue, 2005). Whether adaptation or by-product, religion is often (although, as history shows us, certainly not always) beneficial for selves and for groups insofar as it helps people make life meaningful and get along well with others.

Schjoedt’s et al. and McNamara’s theories offer options for thinking about how, biologically and psychologically speaking, Christian apophaticism might contribute to the formation and transformation of meaning-imbued, emotion-regulated, selves-in-community, and might thus be wrapped up in a broader biocultural evolutionary story. Both models support the thought that moments in which the apophatic contemplator is overcome by a sense of unknowing and self-diminishment may witness to instances of temporarily decreased executive functioning, which serves to support the subsequent emergence of new, shared meaning structures and/or more integrated forms of self-understanding. This fits, I think, the general phenomenology of apophatic thought and practice, and is a promising trajectory for thinking about the evolutionarily shaped cognitive dynamics that underlie the *via negativa*.

Yet, while I affirm the proposal for an initial attenuation of executive function (and concurrent loss of sense of self-possession) in apophatic thought and practice, I submit that this is due *not* to cognitive depletion or conflict. It is attributable, rather, to the influence of a more direct (automatic, evaluative) mode of relational cognition in the early moments of the apophatic journey. This is a mode that: (1) supports the initial establishment of relational *Resonance* with the inward representation of the divine other; and (2) mediates the negatively valenced emotions associated with a breakage or *Rupture* of this connection. Following this, there is a shift toward a more reflective (controlled, effortful) mode of relational cognition. In apophatic *Reappraisal*, complex linguistic and symbolic devices generate new construals of the self, the divine other, and the relation between them. These reinterpretations do not obliterate epistemic, existential, or ontological ambiguity, but reinterpret these “darknesses” in such a way that they are not cause for grief, but rather, for joy. The culminating apophatic moment of *Repair* – the celebrated *unio mystica*, is experienced as a (re)union with comprehensible-incomprehensible, present-absent, divinity. In concord with McNamara’s main hypothesis, this is a reconciliation that, at a neurocognitive level, coincides with increased neural integration and corresponding strengthened executive functionality.

Thus, on the proposed “4-R” account (which, it should be kept in mind, does not describe “ritual” or “religious experience” in general as do Schjoedt’s et al. and McNamara’s theories, but rather Christian apophatic thought and spiritual practice more narrowly), social-emotional cognitive mechanisms are viewed as constitutive to the

entirety of the apophatic path. In other words, the model rests on the supposition that relational processes are ultimately what make the difference for the self-integration and self-transformation – in theological terminology, the deiform existence – so often linked to the negative way.

The final success of the proposal sketched in this article will prove dependent on a greater degree of evidential backing and neurobiological detail, for the empirical support is, as yet, under-constrained. It will also require broader engagement with negative theological and spiritual texts. Notwithstanding the need for further development, the 4-R account is promising, and for several reasons. First, it accords well with the overall phenomenological contours of the *via negativa* in Christianity. Second, it builds off of (and, in many ways, continues to operate within) McNamara's generally well-regarded neurological theory of religious experience, even though it amends and supplements that theory in key ways. Third, it is supported by empirically informed developmental and clinical psychological research on the formation of healthy, well-regulated selves within relational contexts. Fourth, it fits well with recent research suggesting that insecure attachment patterns (in adults) are positively correlated with propensity to experience mystical states, and that the latter may be a strategy of self-repair by which unresolved relational trauma and/or loss can be healed (Granqvist, Hagekull, & Ivarsson, 2012).

In sum, the model, like McNamara's, invites us to interpret the *via negativa* as a cultural expression of numerous evolutionarily shaped cognitive tendencies for furthering the development of a unified, regulated executive self. This is a self well equipped to live in community with others; a self whose life exhibits what St. Paul calls the "fruit of the spirit" (Galatians 5: pp. 22–23). Interpreting negative streams of Christianity in this manner links up nicely with what is emerging as a new emphasis in contemporary apophatically inclined theologians and philosophers of religion – namely, a stress on all things empirical, embodied, and material (Boesel & Keller, 2010; Caputo, 2013). It also connects well with at least one of the negative way's more ancient roots, namely, Greek philosophic traditions of *askesis* in which meditational dialectics were wrapped up inextricably with therapeutics of body and mind – what Pierre Hadot (1995) has famously called a "way of life." With such connections in view, we may indeed find that theorizing about the cognitive underpinnings of the *via negativa* brings us closer to both the historic and contemporary spirit of this perennial pathway to wisdom.

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Note

1. For the sake of constructive argument, this essay hazards generalizations about apophaticism in Christianity. It should be kept in mind, however, that there is tremendous diversity evident in the writings of apophatic thinkers within (and certainly outside of) Western traditions. For an instructive sampling, see Franke (2007). Also, negativity/apophasis in Christian discourse may be divided into several distinct forms. On this topic, see McGinn (2008). It is hoped that the constructive theoretic merits of my generalizations outweigh their occasional inevitable oversimplifications.

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