



# Religious Cognition as Social Cognition

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## Abstract

In this paper, I examine the relationship between social cognition and religious cognition. Many cognitive theories of religion claim that these two forms are somehow related, but the details are usually left unexplored and insights from theories of social cognition are not taken on board. I discuss the three main (groups of) theories of social cognition, namely the theory-theory, the simulation theory and enactivist theories. Secondly, I explore how these theories can help to enrich a number of cognitive theories of religion. The theories I discuss are Stewart Guthrie's anthropomorphism, Justin Barrett's hyperactive agency detection device, Jesse Bering's existential theory of mind, Pascal Boyer's minds with full strategic access and Tanya Luhrmann's porous theory of mind. Finally, I look at how enrichment with insights from social cognition can help to combine different existing theories of religious cognition into a unified framework.

**Key words:** cognitive science of religion, social cognition, theory-theory, simulation theory, enactivism

**Słowa kluczowe:** religioznawstwo kognitywne, poznanie społeczne, teoria teorii, teoria symulacji, enaktywizm

## 1. Introduction

In this paper, I aim to examine the relationship between social and religious cognition as proposed in a number of cognitive theories of religion, and suggest prospects for how cognitive theories of religion can be enriched by insights from theories of social cognition. Many theories propose such a relationship, namely that supernatural beings are believed to have mental states or be minded like humans, but without discussing this in detail. Philosophical and psychological discussion about social cognition is much older and further developed than the cognitive theories of religion. It is therefore likely that including insights from theories on social cognition will be helpful and enriching. Although the literature on social cognition is vast, three main (groups of)

theories can be distinguished: the theory-theory, the simulation theory, and enactivist theories. For our purposes, the cognitive theories of religion that propose a link between social and religious cognition can also be divided into two groups: those that consider supernatural minds to be similar to human minds, and those which see supernatural minds as being (very) different. Since arguing for one theory of social or religious cognition would require one or many more other papers, I will only discuss the main theories in each field and see how cognitive theories of religion can be enriched by theories of social cognition. I will argue that enriching the existing cognitive theories can result in a more accurate account of religious cognition and can help in combining different existing theories into an overarching framework.

This paper is structured as follows: in Section 2, I introduce the cognitive theories of religion that propose a link between religious and social cognition. I also propose a distinction between two groups of theories as to whether they consider supernatural minds to be different from human minds or not. I have limited the discussion to the most influential theories in the field and to their main proponents. In Section 3, I discuss theories on social cognition, namely the theory-theory, the simulation theory and enactivist theories. In the final section, I look at the question of which theory on social cognition fits best with which group of cognitive theories of religion, and see how the latter can be enriched by the former. I also make suggestions on how the enriched cognitive theories can be combined into one overarching framework.

## 2. Social cognition in cognitive science of religion

Many, if not most, cognitive theories of religion propose a link between religious cognition and social cognition. By social cognition, I mean the mental abilities and processes involved in gaining knowledge about other people's mental states. According to many cognitive scientists, religious cognition is somehow similar to, or a subpart of, social cognition. Stewart Guthrie claims that religious beliefs arise when methods of inferring people's mental states are applied to inanimate natural phenomena. For example, when people see clouds that resemble smiling faces, they will conclude to supernatural agency, just like they conclude to human agency when they see a smiling human face.<sup>1</sup> Justin Barrett argues for something similar when he claims that religious beliefs result from a hyperactive agency detection device. Because it was beneficial from an evolutionary perspective, the cognitive mechanism people use for detecting agents is prone to conclude to agency upon very limited evidence. As a result, natural phenomena like rustling of leaves or a stick that looks like a snake suffice to conclude to agency.<sup>2</sup> Jesse Bering claims that religious beliefs result from attributing meaning to meaningless events whereby meaning is associated with intentional acts by a god.<sup>3</sup> Pascal Boyer claims that the religious concepts people believe in are

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<sup>1</sup> S. Guthrie, *Faces in the Clouds: A New Theory of Religion*, New York–Oxford 1993.

<sup>2</sup> J.L. Barrett, *Why Would Anyone Believe in God?*, Oxford 2004.

<sup>3</sup> J. Bering, "The Existential Theory of Mind", *Review of General Psychology*, 2002, no. 6, pp. 3–24.

always agents with a firm interest in moral behaviour. These agents are different from normal human agents because they have full access to people's thoughts and desires.<sup>4</sup> Ara Norenzayan makes similar arguments.<sup>5</sup> Tanya Luhrmann suggests that forming religious beliefs depends on a porous theory of mind by means of which religious people believe that God interacts with them by implanting thoughts.<sup>6</sup>

All these theories hold that gods, or other supernatural beings, are believed to be minded or have mental states. However, all also hold that religious cognition is to some extent different from ordinary social cognition. According to Guthrie's and Barrett's theories, supernatural minds are believed to be invisible. In both Boyer's and Luhrmann's theories, divine minds are believed to be more powerful than human minds. Therefore all theories seem to agree that religious cognition is a particular subclass of religious cognition, but the difference with ordinary cognition appears to be stronger in Boyer's and Luhrmann's theories. For Guthrie, Barrett and Bering, gods are invisible, but there is no real difference between human minds and the minds gods are believed to have. In Guthrie's and Barrett's theories, supernatural minds have the same agential powers as human minds, and in Bering's theory both human and supernatural minds engage in intentional meaningful acts. According to Boyer, supernatural minds are clearly different since they have full access to people's mental states whereas human minds do not, while Luhrmann's argument suggests that supernatural minds have the ability to intrude on other minds but human minds do not.

If religious cognition can be considered a subclass of social cognition, religious cognition is in many ways similar to social cognition. Theories of religious cognition could thus benefit from insights into social cognition. This is, however, largely missing in most theories of religion. In order to fill this lacuna, we will look at three influential approaches to social cognition in recent philosophy of mind.

### 3. Theories of social cognition

In this section, I will discuss three influential theories of social cognition: the theory-theory, the simulation theory and enactivist theories.<sup>7</sup> I will lay out the theories and discuss the empirical evidence that their proponents refer to. Arguing for one theory over another would require several other papers, so I will not take a stance on this issue.

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<sup>4</sup> P. Boyer, *Religion Explained: The Human Instincts That Fashion Gods, Spirits and Ancestors*, London 2002, pp. 171–183.

<sup>5</sup> A. Norenzayan, *Big Gods: How Religion Transformed Cooperation and Conflict*, Princeton, NJ 2013.

<sup>6</sup> T.M. Luhrmann, *When God Talks Back: Understanding the American Evangelical Relationship with God*, Vintage 2012.

<sup>7</sup> I have omitted the older analogical theory (see A. Hyslop, *Other Minds* [in:] *The Stanford Encyclopedia of Philosophy* (Spring 2014 Edition), E.N. Zalta (ed.), <http://plato.stanford.edu/archives/spr2014/entries/other-minds/> [accessed: 24 June 2015]) because it has been largely abandoned. Some features of the analogical theory have been incorporated in the simulation theory.

Notable adherents of the theory-theory are Alison Gopnik and Peter Carruthers.<sup>8</sup> Carruthers defines his position as follows: “I believe that our understandings of mentalistic notions – of belief, desire, perception, intention, and the rest – is largely given by the positions those notions occupy within a folk-psychological theory of the structure and functioning of the mind.”<sup>9</sup> Gopnik illustrates what this folk-psychological theory amounts to by her metaphor of “the child as a scientist.”<sup>10</sup> She writes, “According to this position, our everyday conception of the mind is an implicit naive theory; children’s early conceptions of the mind are also implicit theories, and changes in those conceptions are theory changes. We refer to this explanatory position as the “theory-theory.”<sup>11</sup> The children’s naive theory functions in the same way as a scientific theory does for a scientist. Like scientific theories, the naive theory has content, namely ideas about other people’s mental states. On the basis of this content, children can make empirical predictions and these predictions are different from those of alternative accounts. When the predictions turn out true, the child’s theory is corroborated, and when they turn out false, the theory is in need of revision. Gopnik adds that this naive theory need not be explicitly formulated.<sup>12</sup>

Now what is the content that forms the basis of children’s theories and predictions? Carruthers writes,

It is in virtue of knowing such things as: the relationship between line of vision, attention, and perception; between perception, background knowledge, and belief; between belief, desire, and intention; and between perception, intention, and action; that one is able to predict and explain the actions of others.<sup>13</sup>

The main goal of naive theories is thus to explain the actions of others. Mental states are theoretical entities needed to do the explaining, much like the Higgs boson particle was needed to explain why some fundamental particles have mass. Both Carruthers and Gopnik stress that naive theories are underdetermined by the evidence; the evidence does not clearly show what mental states best explain it. As a result, multiple conflicting naive theories can coexist as long as they are not ruled out by falsified predictions.

As evidence, advocates of the theory-theory often refer to the false belief test.<sup>14</sup> In the original test, children under the age of 3 were introduced to a puppet who has a piece of chocolate and then hides it in a cupboard. The puppet leaves and a second puppet enters the scene. The second puppet hides the piece of chocolate in a box. When

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<sup>8</sup> P. Carruthers, *Simulation and Self-Knowledge: A Defence of Theory-Theory* [in:] *Theories of Theories of Mind*, P. Carruthers, P.K. Smith (eds.), Cambridge 1996; A. Gopnik, A.N Meltzoff, P.K. Kuhl, *The Scientist in the Crib: What Early Learning Tells Us About the Mind*, New York 2001.

<sup>9</sup> P. Carruthers, *Simulation and Self-Knowledge...*, p. 22.

<sup>10</sup> A. Gopnik, A.N Meltzoff, P.K. Kuhl, *op.cit.*

<sup>11</sup> A. Gopnik, H.M Wellman, *The Theory Theory* [in:] *Mapping the Mind: Domain Specificity in Cognition and Culture*, L.A. Hirschfeld, S.A. Gelman (eds.), New York 1994, p. 257.

<sup>12</sup> *Ibidem.*

<sup>13</sup> P. Carruthers, *Simulation and Self-Knowledge...*, p. 24.

<sup>14</sup> H. Wimmer, J. Perner, *Beliefs about Beliefs: Representation and Constraining Function of Wrong Beliefs in Young Children’s Understanding of Deception*, “Cognition” 1983, vol. 13, pp. 103–128.

the children are asked whether the first puppet knows that the piece of chocolate is now in the box, they usually answer yes. For proponents of the theory-theory, the false belief test shows that children's theorising over other people's minds is subject to revision as they grow older. Gopnik also claims that people use the same cognitive mechanisms for theorising over other people's mental states as for scientific theory building.<sup>15</sup>

A second influential theory, the simulation theory, received its best-known defence from Robert Gordon and Alvin Goldman. Advocates of the simulation theory object to the overly rational, or even cold, account of the theory-theory. Goldman writes, "People often say that they understand others by empathising with them, by putting themselves in others' shoes."<sup>16</sup> Gordon writes: "The [simulation theory] imputes to us a hot methodology, which exploits one's own motivational and emotional resources and one's own capacity for practical reasoning."<sup>17</sup> On the simulation theory, people arrive at beliefs about someone else's mental states by transporting themselves in their imagination into the situation of that other person. For example, to form beliefs about someone else who is in love, a person will transport herself to the situation where she herself is in love and conclude from her own mental states what the other person's mental states are.<sup>18</sup> Simulation is thus process-driven rather than theory-driven.<sup>19</sup> This process need not be conscious. As Goldman writes, "Mental simulations might occur automatically, without intent, and then get used to form beliefs about mind-reading questions."<sup>20</sup>

The simulation theory draws support from a tradition going back at least to David Hume, which stresses the importance of empathy and sympathy in judging others.<sup>21</sup> Apart from this common-sense defence, defenders of the simulation theory sometimes refer to mirror neurons as evidence for their theory. These neurons are believed to be a class of visuomotor neurons that respond both when a particular action is performed and when the same action is observed in another person.<sup>22</sup> Neuroscientific research has, however, cast doubt on the existence of mirror neurons in humans.<sup>23</sup>

The last recent approach has its roots in enactivist theories of cognition.<sup>24</sup> Enactivists object to the rationalism of traditional cognitive sciences and opt for an embodied, narrative and enactive approach to human cognition instead. Shaun Gallagher

<sup>15</sup> A. Gopnik, A.N. Meltzoff, P.K. Kuhl, *op.cit.*

<sup>16</sup> A. Goldman, *Simulating Minds: The Philosophy, Psychology, and Neuroscience of Mindreading*, Oxford 2006, p. vii.

<sup>17</sup> R.M. Gordon, *Radical Simulationism* [in:] *Theories of Theories of Mind*, P. Carruthers, P.K. Smith (eds.), Cambridge 1996, p. 11.

<sup>18</sup> *Ibidem.*

<sup>19</sup> A. Goldman, *Interpretation Psychologized*, "Mind and Language" 1989, vol. 4, pp. 161–185.

<sup>20</sup> A. Goldman, *Simulating Minds...*, p. 40.

<sup>21</sup> *Ibidem*, p. 17.

<sup>22</sup> V. Gallese, A. Goldman, *Mirror Neurons and the Simulation Theory of Mind-Reading*, "Trends in Cognitive Sciences" 1998, vol. 2, pp. 493–501.

<sup>23</sup> A. Lingnau, B. Gesierich, A. Caramazza, *Asymmetric fMRI Adaptation Reveals No Evidence for Mirror Neurons in Humans*, "Proceedings of the National Academy of Sciences" 2009, vol. 106, pp. 9925–9930.

<sup>24</sup> E.g. S. Gallagher, D. Zahavi, *The Phenomenological Mind*, London 2012; D.D. Hutto, E. Myin, *Radicalizing Enactivism: Basic Minds Without Content*, Cambridge 2012.

holds that “[...]primary intersubjectivity [...] is the primary way we continue to understand others in second-person interactions.”<sup>25</sup> In his view, understanding other people’s mental states is neither theoretical nor based on simulation, but an embodied practice. He does not deny that theorising and simulation play some role in social cognition,<sup>26</sup> but its role is very limited. These practices are emotional rather than rational, sensory-motor rather than cognitive, perceptual rather than theoretical, and nonconceptual. Gallagher also refers to these practices as “interpersonal pragmatics”. The practices lead to a direct, pragmatic understanding of another person’s mental states. According to Daniel Hutto, understanding other people’s mental states cannot happen outside of narratives. He notes that “[...] by far the best and most reliable means of obtaining a true understanding of why another has acted is to get the relevant story directly from the horse’s mouth.”<sup>27</sup> He further claims that folk-psychological narratives do a lot of work in making sense of other people’s mental states.<sup>28</sup>

All three theories of social cognition appear to be (very) different, with the theory-theory taking a theoretical approach, the simulation theory taking a softer, more empathic approach and enactivist theories taking an embodied approach. Hybrid theories have been suggested, but they are rather rare.

## 4. Religious cognition as social cognition

In this section I will work towards an integrative framework for understanding religious cognition as social cognition. As we saw in the second section, cognitive scientists of religion tend to consider religious cognition as a particular subclass of social cognition. We also noted that some cognitive scientists see supernatural minds as rather similar to human minds, while others see supernatural minds as (very) different. The distinction is important because both groups of theories appear to fit better with various theories of social cognition.

### 4.1. Religious cognition as situated social cognition

In the theories of Guthrie, Barrett and Bering, gods are believed to be invisible, but their minds not to differ from human minds. Stewart Guthrie starts from the observation that humans tend to look at the world in an animistic fashion, meaning that they often see non-living things as alive; for example boulders as bears and flying pieces of paper as birds. Humans also do something more – they anthropomorphise; when humans see patterns like faces in clouds or thunderstorms, they will see it as intentionally created. Guthrie does not claim that humans see intentional action everywhere, but does hold that in situations where uncertainty and stakes are high,

<sup>25</sup> S. Gallagher, D. Zahavi, *The Phenomenological Mind...*, p. 83.

<sup>26</sup> This remark by Gallagher is quite remarkable since few theorists in social cognition have combined the theory-theory and the simulation theory. Usually the two theories are contra posted.

<sup>27</sup> D.D. Hutto, *The Narrative Practice Hypothesis: Origins and Applications of Folk Psychology* [in:] *Narrative and Understanding Persons*, D.D. Hutto (ed.), Cambridge 2007, p. 46.

<sup>28</sup> *Ibidem*.

they usually will. According to Guthrie, this tendency results from our evolutionary history. For our ancestors, it was much safer to attribute most patterns to intentional actions because not doing so could result in a failure to note a predator or potential enemy. Guthrie adds that all of this usually remains unconscious.<sup>29</sup>

According to Justin Barrett, religious cognition results from hyperactivity of the “agency detection device” (ADD). Because it is hyperactive, the ADD is prone to find agents even on very modest evidence of their presence, and the detected agents are sometimes believed to be supernatural. Humans constantly scan their environments for the presence of other agents, and ambiguous evidence, like rustling leaves or wispy forms, will usually be interpreted as stemming from the behaviour of an agent. Barrett argues that this process may contribute to the formation of religious concepts in two ways. First, ADD can identify an ambiguous thing itself as an intentional agent. Examples are interpreting fog or clouds as ghosts or spirits. Second, ADD can interpret ambiguous evidence (noises, natural phenomena) as resulting from agency without finding a physical, visible agent responsible for it. The ADD may then conclude that the observed phenomena are caused by an invisible agent. Barrett uses similar evolutionary foundations to Guthrie; claiming that it was safer for our ancestors to detect too many agents than too few, because detecting one predator too few could result in death, whereas detecting too many predators would not. Like Guthrie, Barrett does not claim that this whole process is always conscious.<sup>30</sup>

Jesse Bering developed the most explicit social account of religious cognition. He explicitly connects religious cognition to the theory of mind (ToM), which is the cognitive system responsible for human social cognition. Bering writes that,

The presence of an existential theory of mind (EToM) suggests that individuals perceive some nondescript or culturally elaborated (e.g. God) psychological agency as having encoded communicative intentions in the form of life events, similar to a person encoding communicative intentions in deictic gestures.<sup>31</sup>

He suggests that the EToM is a special function of the ToM responsible for perceiving meaning in certain live events. Events that are perceived as meaningful are intuitively connected with intentionality since only minded beings are believed to be able to give meaning. Upon perceiving meaningful events where no apparent meaning giver is to be found, people will be inclined to infer to an ultimate meaning giver or God, claims Bering. He does not take a stance on whether this whole process takes place consciously or not.

Although simulation is not immediately ruled out, none of the three accounts suggest that beliefs about supernatural minds result from simulation processes. The accounts do fit well with a theory-theory approach. On all three accounts, beliefs about supernatural minds can be said to explain certain phenomena. In Guthrie’s view, supernatural minds explain patterns in nature; in Barrett’s, they explain allegedly agential phenomena; according to Bering, they explain the occurrence of

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<sup>29</sup> S. Guthrie, *Faces in the Clouds...*, pp. 39–61.

<sup>30</sup> J.L. Barrett, *op.cit.*, pp. 31–44.

<sup>31</sup> J. Bering, *The Existential Theory of Mind*, “Review of General Psychology” 2002, no. 6, pp. 3.

meaningful events. However, none of the theories make any mention of empirical theory testing and theory revision. This might be because Guthrie, Barrett and Bering are primarily interested in the roots of religious cognition and not in their further development. Obviously, religious beliefs move well beyond the beliefs Guthrie, Barrett and Bering discuss. No religion merely believes in gods that cause patterns, cause agential phenomena or invest meaning in nature. Nonetheless, perceptions of design, reports about supernatural interventions and experiences of profoundly meaningful events do play an important role in many religions. It is not unlikely that the root beliefs Guthrie, Barrett and Bering discuss set off a process of theory testing and revision similar to the one proposed by Carruthers and Gopnik.

## 4.2. Religious cognition as exceptional social cognition

Two influential cognitive theories hold that supernatural minds are very different from human minds. Pascal Boyer writes,

[A]re [...] gods just like other people? Not really. There is one major difference, [...] we always assume that other people are agents with limited access to strategic information [...]. In interaction with supernatural agents, people presume that these agents have *full* access to strategic information.<sup>32</sup>

Boyer defines strategic information as “the subset of all the information currently available (to a particular agent, about a particular situation) which activates the mental systems that regulate social interaction.”<sup>33</sup> Examples of strategic information are people’s intentions or desires. It is strategic because it has a bearing on how to interact with somebody. Boyer notes that strategic information is much more important to humans than to any other species because humans rely on social interaction to a far greater extent. For our ancestors, who relied on social interaction to coordinate hunting and food gathering, strategic information was even a matter of life and death. Having limited access to other people’s strategic information thus made humans vulnerable – and continues to do so. Gods, on the other hand, are not believed to have these limitations. For them, other minds are fully transparent. Boyer argues that believing in (a) god(s) with full access of this kind caused people to be more inclined to follow social rules. Especially if the god(s) are believed to be morally concerned and will punish or reward people in accordance with their obedience to social rules, groups that believe gods are watching will coordinate their activities better and will be more successful.<sup>34</sup> Similar views have been defended by Scott Atran,<sup>35</sup> Ara Norenzayan<sup>36</sup> and Todd Tremlin.<sup>37</sup>

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<sup>32</sup> P. Boyer, *op.cit.*, p. 178 (italics in original text).

<sup>33</sup> P. Boyer, *op.cit.*, p. 173.

<sup>34</sup> *Ibidem*, pp. 155–191.

<sup>35</sup> S. Atran, *In Gods We Trust*, Oxford 2002.

<sup>36</sup> A. Norenzayan, *op.cit.*

<sup>37</sup> T. Tremlin, *Minds and Gods: The Cognitive Foundations of Religion*, Oxford 2010.



We noted in Section 3.1 that Bering puts ToM at the root of both social and religious cognition. Tanya Luhrmann also focuses on ToM, but argues that it requires some modification for religious cognition. In normal situations, minds are believed to be strictly separated; people normally believe that no external thoughts can enter their own minds. According to Luhrmann, this changes in religious cognition. For religious cognition the ToM has to become “porous”, meaning open for intrusion by another (supernatural) mind. According to this view, supernatural minds are able to intrude on people’s minds, whereas ordinary human minds are not.<sup>38</sup> Emma Cohen argued for something similar when she discussed how in some religions spirits are believed to enter people’s minds and influence their thoughts.<sup>39</sup>

Both these accounts do not fit well with simulation; arriving at beliefs about supernatural minds that differ (greatly) from human minds seems impossible by simulation, because using one’s own mind will not lead to conclusions about (very) different minds. They also do not fit as well with the theory-theory as with the previous group of theories. It seems strange that people would settle on a mind with full access to strategic information or with the ability to intrude other minds as a conclusion to explain some observed phenomena. They might conclude to supernatural minds of this sort on the basis of experiences, but even then it remains unclear what kind of experiences these would have to be. Both accounts fit better with enactivist theories of social cognition. Both Boyer’s and Luhrmann’s ways of conceiving religious cognition can be understood as incarnated in embodied practices. By definition, social norms always function within a community, and cannot be detached from the concrete social corporation they intend to give direction to. This was not only the case for our cave-man ancestors; today, for people who believe that a god is watching them, this belief manifests itself in their concrete daily activities. Similarly, Luhrmann discusses the porosity of religious minds in the context of American evangelical churches. She describes how for evangelical Christians the belief that God can implant thoughts is not an abstract idea, but becomes concrete during prayer and religious services<sup>40</sup>. The importance of narrativity is less obvious in Boyer’s and Luhrmann’s theories. However, in many religious traditions beliefs about God’s moralising nature form an important part of religious stories. Luhrmann also discusses the role of testimonies in evangelical churches in teaching believers how to discern thoughts implanted by God.

### 4.3. Toward a unified account

Cognitive science of religion has been criticised for giving too restricted a view of religious cognition that does not match what religious believers actually believe.<sup>41</sup>

<sup>38</sup> T.M. Luhrmann, *When God Talks Back...*

<sup>39</sup> E. Cohen, *The Mind Possessed: The Cognition of Spirit Possession in an Afro-Brazilian Religious Tradition*, Oxford 2007.

<sup>40</sup> T.M. Luhrmann, *When God Talks Back: Understanding the American Evangelical Relationship with God*, New York 2012.

<sup>41</sup> J. Jong, Ch. Kavanagh, A. Visala, *Born Idolaters: The Limits of the Philosophical Implications of the Cognitive Science of Religion*, “Neue Zeitschrift für Systematische Theologie und Religionsphilosophie” 2015, no. 57, pp. 244–266.

There have also been concerns that cognitive theories of religion neglected the importance of culture.<sup>42</sup> Enriching the theories with insights about social cognition shows how these problems can be overcome.

At first glance, the theories of Guthrie, Barrett and Bering bear little resemblance to how believers in the major world religions of today perceive their gods, though Barrett's theory does to some extent resemble animistic religions. By incorporating the theory-theory into the first group of cognitive theories, this difference can be bridged. The experiences that Guthrie, Barrett and Bering discuss can be considered as root experiences that first raise awareness of supernatural minds. Secondly, people form initial beliefs about these supernatural minds to explain their experiences. Thirdly, the initial beliefs are revised when the circumstances make it necessary. Since these circumstances will likely be different in different cultures, the revised beliefs will probably also be (very) different from culture to culture. Thus the three theories can accommodate cultural differences while retaining their cognitive focus.

Matters are somewhat different for the second group of theories we discussed. Incorporating enactivist theories of social cognition does not allow culture to be seen as something that is added to root experiences, because cultural embodied practices and cultural narratives play an indispensable part in the formation of religious beliefs. Without social corporation, belief in supernatural minds with full access to other minds will not emerge, and without prayers and religious services, neither will belief in a supernatural mind that can intrude human minds. A problem emerges; on this account, religious cognition depends on cultural practices and narratives (social cooperation while being watched by god for Boyer and religious services and prayer for Luhrmann), but the cultural practices and narratives themselves cannot be understood apart from religious beliefs. As a result, this account is circular, and the origins of religious beliefs remains a complete mystery.

This problem can be solved by combining the two groups of cognitive theories into one overarching framework. The first group can explain the root experiences that lie at the basis of religious cognition and explain how the initial beliefs can be revised when circumstances make this necessary. Over time, revisions of initial beliefs will result in cultural differences, and then cultural practices and narratives can influence religious cognition themselves. The first group can thus account for basic religious cognition, and the second group for advanced cultural religious cognition. Both are needed to give an adequate account of religious cognition.

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<sup>42</sup> Emma Cohen, Jonathan Lanman, Harvey Whitehouse and Robert McCauley address this point as one of the common criticisms against the cognitive science of religion under the heading "The CSR is too narrow," but claim that taking regard of cultural variation falls beyond the scope of cognitive science of religion (E. Cohen, J.A Lanman, H. Whitehouse, R.N McCauley, *Common Criticisms of the Cognitive Science of Religion – Answered*, "Bulletin of the Council of Societies for the Study of Religion" 2008, vol. 37, no. 4, p. 114).

## 5. Conclusion

In this paper, I examined how cognitive theories of religion that propose a relationship between social and religious cognition can be enriched by insights from theories on social cognition. I argued that this is indeed the case. Cognitive theories that consider supernatural minds to be similar to human minds can be enriched with insights from the theory-theory. The resulting theory holds that people have certain root experiences that lie at the basis of initial religious beliefs. These initial beliefs act as a theory which can be revised when the circumstances require it. Cognitive theories that consider supernatural minds to be (very) different from human minds can be enriched with insights from enactivist theories of social cognition. Religious cognition is thus understood as embedded within embodied, cultural practices and cultural narratives.

I have also argued that both groups of theories need not be in conflict but can be combined. The first group then explains basic religious cognition by accounting for its root experiences and initial cultural development. The second group can explain advanced religious cognition when culture has moved beyond the point where it influences how religious beliefs are formed. The combination provides a richer and more accurate account, because it explains how religions can differ and it does justice to the importance of culture for religion.

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