



# The Neural Correlates of Religious and Nonreligious Belief

*Sam Harris , Jonas T. Kaplan*

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ABSTRACT from the full study:

## Background

While religious faith remains one of the most significant features of human life, little is known about its relationship to ordinary belief at the level of the brain. Nor is it known whether religious believers and nonbelievers differ in how they evaluate statements of fact. Our lab previously has used functional neuroimaging to study belief as a general mode of cognition [1], and others have looked specifically at religious belief [2]. However, no research has compared these two states of mind directly.

## Methodology/Principal Findings

We used functional magnetic resonance imaging (fMRI) to measure signal changes in the brains of thirty subjects—fifteen committed Christians and fifteen nonbelievers—as they evaluated the truth and falsity of religious and nonreligious propositions. For both groups, and in both categories of stimuli, belief (judgments of “true” vs judgments of “false”) was associated with greater signal in the ventromedial prefrontal cortex, an area important for self-representation [3], [4], [5], [6], emotional associations [7], reward [8], [9], [10], and goal-driven behavior [11]. This region showed greater signal whether subjects believed statements about God, the Virgin Birth, etc. or statements about ordinary facts. A comparison of both stimulus categories suggests that religious thinking is more associated with brain regions that govern emotion, self-representation, and cognitive conflict, while thinking about ordinary facts is more reliant upon memory retrieval networks.

## Conclusions/Significance

While religious and nonreligious thinking differentially engage broad regions of the frontal, parietal, and medial temporal lobes, the difference between belief and disbelief appears to be content-independent. Our study compares religious thinking with ordinary cognition and, as such, constitutes a step toward developing a neuropsychology of religion. However, these findings may also further our understanding of how the brain accepts statements of all kinds to be valid descriptions of the world.

## Author Contributions

Conceived and designed the experiments: Sam Harris, Jonas T. Kaplan, Marco Iacoboni, Mark S. Cohen. Performed the experiments: Jonas T. Kaplan. Analyzed the data: Sam Harris, Jonas T. Kaplan, Marco Iacoboni, Mark S. Cohen. Contributed reagents/materials/analysis tools: Marco Iacoboni, Mark S. Cohen. Wrote the paper: Sam Harris, Jonas T. Kaplan. Performed all subject recruitment, telephone screenings, and psychometric assessments prior to scanning: Ashley Curiel. Supervised our psychological assessment procedures and consulted on subject exclusions: Susan Y. Bookheimer. Gave extensive notes on the manuscript: Mark S. Cohen, Marco Iacoboni.

## The Neural Correlates of Religious and Nonreligious Belief Details

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## From Reader Review The Neural Correlates of Religious and Nonreligious Belief for online ebook

### Jay Reynolds says

Neat that Goodreads provides for cataloging of papers as well.

Here it is:

<http://www.ncbi.nlm.nih.gov/pmc/artic...>

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### Joshua Nomen-Mutatio says

More fascinating contributions to the nature of belief in general and some incremental steps and revolutionary work in the neuropsychology of religion.

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### Greg says

This is pretty fascinating. I'm not literate enough in all the language to completely understand some of the details, but the findings about parts of the brain being stimulated in regards to religious belief are pretty interesting. I have some questions (thoughts) about psycho-pharmacology and what could possibly be belief centers in the brain, but I'll wait till I re-read this again before just spouting out about things.

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### ❁ Hana says

Sebuah kajian yang menarik walaupun saya tidak fasih langsung dengan hampir semua istilah yang digunakan.

Sebagaimana kemampuan menguasai bahasa tinggi yang dikatakan telah siap wujud di dalam diri setiap manusia (instilled), begitu juga lah dengan kepercayaan kepada Tuhan. Hasil kajian mendapati golongan kanak-kanak dan remaja mempercayai kewujudan Tuhan. Namun akibat pengaruh budaya dan faktor-faktor lain, pemikiran ini mungkin berubah apabila semakin meningkat dewasa.

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### Tim says

The study was poorly done. The book was a waste of time. Proved nothing.

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