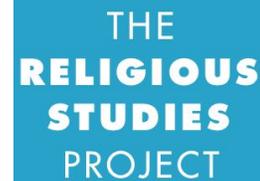## Cognitive Approaches to the Study of Religion

Podcast with **Armin W. Geertz** (23 January 2012).
Interviewed by **Christopher R. Cotter**.
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http://www.religiousstudiesproject.com/podcast/podcast-armin-geertz-on-cognitive-approaches-to-the-study-of-religion/

Chris Cotter (CC): Today we are joined by Professor Armin Geertz of Aarhus University. He's the head of the Religion and Cognition and Culture Research unit (or RCC) in the section for the study of religion. There's a new book series coming out of this unit with Equinox, called Religion, Cognition, and Culture and Armin is the editor of the series. And volume one is called *Religious Narrative: Cognition and Culture* and due for publication next month. We're going to be talking about cognitive approaches to the study of religion. Welcome, Armin.

Armin Geertz (AG): Thank you, Chris. I'm very happy to be here.

CC: Good. A lot of our listeners really won't have any idea about what "cognitive approaches to the study of religion" are; I suppose the first thing we should start with is, what does this "cognitive" word mean—what is cognitive science at all?

AG: Yes, yes. Actually, it's not a very clear area because there are many approaches to the cognitive—in the cognitive sciences. But basically the idea is that we have a… we have universal capacities of the mind, with universal constraints. We're not born as blank slates. We're born with certain attitudes and certain ways of understanding and dealing with the world, even as small babies. Babies are geared to get into—to plug into—a social group and to become attached to important figures and it's the study of those processes, mechanisms, and constraints in our brains and in our minds that are perhaps

the core of the cognitive sciences. One can say that the cognitive sciences became important for the cognitive study of religion around 1990 with the publication of a book by E. Thomas Lawson and Robert N. McCauley, called *Rethinking Religion.* And they drew upon the earlier cognitive revolution from the 1950s where the computer was considered to be a good indication of the human mind. And therefore, one of the main figures is in linguistics—Noam Chomsky—and his approach to the mind has served as a point of departure for Lawson and McCauley's book. That book is an analysis of religious rituals as if they are sentences—as if there is a grammar behind them. And that grammar is based on the way that we look at rituals and understand rituals. So they ask, "What is it that makes people able to decide whether a ritual is a good one or not?" "Are there some universal capacities of the human mind that are at play here?" And their answer, of course, is yes. So that's one way—that's one approach, and it happened around 1990. There were, of course, earlier attempts by single scholars. We could call the discipline, perhaps, the cognitive anthropology of religion, where it's mostly been anthropologists who have been interested in studying cultural psychology and how individuals function in social groups and things like that. And what kind of role religion plays in those contexts. A person I'm thinking about is Stewart Guthrie who already introduced the cognitive theory of religion a long time ago, in the eighties. And he's had also a decided influence on the cognitive study of religion, the cognitive *science* of religion, as it's called. One of the things that is a problem in the cognitive approach to the study of religion is that we're not completely in agreement about what cognition is.

CC: Okay.

AG: And it's not only us. It's also cognitive scientists that are in disagreement. Some consider the mind to be a kind of advanced computer based on formal, logical procedures, getting information, getting data, and analyzing the data and turning it into useful information for us to get on in the world. Others, however, have been pointing out—and especially recently, and especially because of an interest in the mind by neurologists, by brain scientists—that the brain is *not*

simply a computer and is *not* simply a machine that deals with information. The mind is in a body and it's in a brain, which means that the functions of the brain in the body have a decided influence on our cognition and our minds. It's our very foundation, and much of the way we look at the world is based on the way our bodies move in the world. It's also considered to be situated in a sense that we are in a group—we are in a social group—and certain situations and our way of understanding the world is based on our relationship to the group. It's also... there are also others who consider cognition to be extended. In other words, the way our minds work is put *out* into the world—*exuded* into the world. And we surround ourselves in the world with cognitive structures that help us think and help us survive in the world. Archaeologists are also very interested in improving the—our—understanding of cognition, where they are claiming, quite rightly that objects, material objects, are extremely important for our cognition. Not only to help us in the world but to influence our very way of thinking. You'll notice small children, babies, already grabbing at things and trying to understand and manipulate with objects. And just that fact in itself is helping to develop the neural networks in the baby's brain, and making the baby a socially competent and cognitively competent creature.

So there are many understandings of what cognition is. And one can say that... because the focus is on the mind, scholars have the tendency to downplay cultural systems, cultural ideas, [and] cultural assumptions and values, as being secondary to our cognitive abilities. And this is where there are many who are doing—and we are as well, in our research unit, Religion, Cognition and Culture—that we need to reintroduce culture as an important causal factor in human cognition. In other words, that culture is not secondary. You can't take culture away and just study what is left over; it's impossible. Mainly because we are cultural creatures. And we are cultural creatures who have become cultural creatures long before *homo sapiens* even showed up on the scene. So earlier hominids were also *deeply* cultural. So it's very difficult for us to design experiments where you can kind of ignore the cultural factor. What people claim are cognitive constraints, in other words, frameworks for understanding the world around us and also setting limits for how we think about the world—they

could just as well be cultural constraints that have been so deeply embedded in our minds and in our bodies, of course, that they seem just as intuitive as cognitive procedures. This is something we're still arguing about, but it's a friendly argument. We agree that there are bottom-up procedures and there are top-down procedures and we need to take both into serious consideration if we want to understand the human mind and our human cognitive abilities.

So what you can conclude is that the cognitive science of religion is based on the cognitive sciences, and on experimental psychology, with a specific interest in religious thought.

CC: Okay. Very stimulating introduction there…

AG: Thank you.

CC: You mentioned *we* and you mentioned anthropologists and archaeologists and then scholars of religion and then presumably we have neuroscientists, cognitive scientists, in there there as well. How does one juggle these different disciplines? I mean, presumably, you have scholars working with you who are mainly from the study of religion and how do they learn all this cognitive science and do you have to work with other people, and if you do, how does that dynamic work?

AG: Right, yes. We have a coalition at my university that's called Mind Lab. And Mind Lab consists of scientists from the natural sciences, primarily the neurosciences and health sciences, people working with pain at the pain research center at Aarhus [University]. We have scholars from the psychiatric hospital, psychologists, physicists, statisticians, people studying music, and a whole array of people in the humanities. And of course, my particular group is focusing on religion. However, we have an extremely stimulating cooperation with our colleagues in the other sciences. The bearing idea—the founding idea—of Mind Lab is that we try to apply the natural sciences on age-old human problems, age-old philosophical and religious problems. By doing this it

requires that we work in teams because if you're going to, for example, perform an experiment with a brain scanner, you definitely have to work with people who understand a brain scanner and who also can handle all of the enormous data that comes out of the scanning. You need a statistician for that. And you need to talk with experimentalists who can help you interpret the data that's come out of this brain scan. So you'll find that a lot of the articles that we've been publishing in the major journals in the neurosciences, and psychology, and other journals… we have a whole list of authors, sometimes five or six authors. And the first person might be a scholar of religion—usually is—and then the one's that follow will be the specialists who are part of the team in helping perform this experiment. Now, the trick is to get people in the natural sciences and the health sciences to become interested in what we're doing. And fortunately, religion has been brought back on the agenda on world affairs so that many scientists are puzzled and neuroscientists are puzzled and they're wondering, "What is it that moves people to do what they do in the name of religion?" The problem for them is that they don't know very much about religion. If they do, it's their own particular religion if they happen to have one. So therefore, it's an ideal situation that we have specialists who know about religion, who know about the history of religions and are experts in particular religions, working together with neuroscientists who want to help us think experimentally. So it requires a lot of patience and graciousness on behalf of both the humanists and the natural scientists. And fortunately we have that situation at my university and the government has funded our coalition and important results are coming out of it.

CC: Thanks, very much. Anything which gets academics talking to each other is going to be a good thing.

AG: Yes, indeed. Yes.

CC: So you've spoken a bit there about why neuroscientists, etc., are interested in helping the study of religion. So I'm wondering—this is quite a big question—but what are the benefits to the study of religion, of using this, we'll

say *more* scientific—maybe I shouldn't "more scientific"—but this more traditionally science-based approach?

AG: Alright, yeah. Well there are at least two advantages. The first advantage is that through this cooperation with the natural sciences we may be able to test theories and hypotheses that we've developed in the human approaches—the humanistic approaches to the study of religion—empirically. Of course, you can go out and do fieldwork, you can ask people, you can observe people, you can use questionnaires and so forth and get statistical data and all that. But sometimes there are assumptions, especially assumptions about the psychological capacities of religious human beings, where you need to test—you need to experiment—to gain empirical access *indirectly*, you might say. Of course, experiments are not—it's not a natural situation. But they can open the possibility that you could find support for, or maybe *not* support for a particular hypothesis. So it's hypothesis driven. And in that sense, it's important for us in the humanities to try to think, to rethink, or to attempt to approach our subject in ways that we had not thought of before. So there's the empirical aspect. That's the one aspect, the one advantage, the experimentally empirical approach. The other one is the whole methodology involved, that it's a new—it's a supplement to our toolbox of methods, where we have the more traditional methods, which are still highly relevant: studies of texts, studies of archaeological sites, using various approaches such as iconography or semiotics or structural analyses or philological analyses of the expressive side of religion. And on the other hand we have a whole array of methods for studying human behavior: the social sciences, and ethnography, anthropology. And now the new ones that have shown up: the neurosciences, psychology (has of course always been interested in religion, at least for the past 150 years). And then the third toolbox, you might say, is theoretical reflection: philosophy, theory of—philosophy of—science, and theories of religion and religious behavior. So it's a supplement to our toolboxes. However, it's a very technical supplement, where you need to understand statistics and you need to understand how to use this new hardware that's been showing up. I mean, a brain scanner is a big thing and it's very expensive and you have to go to the hospital and perform your

experiments there. So it requires some kind of insight. And there we need, of course, the help of our specialist colleagues. But there are those two advantages. The empirical advantage: Can we test some of our most cherished ideas and philosophies about religion? And the other is: Can we think in another way in relationship to our topic?

CC: Okay. Talking about empirically testing religious ideas, experience, etc., I'm sure our listeners would be interested if you had an example of just how you construct a scientific test of something religious.

AG: Right. One of the things that—the basic procedure is that you have a theory. You have a theory about, maybe, let's take an example from one of the experiments that we've been working on: the topic of prayer. Prayer is a very simple procedure. It is not necessarily connected to a specific situation; you can pray anytime, anywhere, and this is an advantage if you want to put people into a brain scanner because they have to lay very still; they can't move their heads. The machine is noisy so you have earplugs. You cannot talk; you have to think. You can be shown pictures, for example, and the machine will be recording where the blood is flowing in your brain as you look at these images, but in order to get something meaningful out of it you have to have some kind of a contrast. Because basically, what these kind of approaches involve is that you have a control and then you have the experimental aspect and you subtract from the two. And what's left over gives an indication of what brain areas are active.

So our hypothesis was that prayer, as simple as it is, is also very complicated. It's not only the words that are being spoken, it's not only the message that's being sent or received; it's also behavior, and it involves both the brain and the body. Emotions can be very much connected to prayerful behavior. So our hypothesis was that prayer, simple as it is, is very complicated, and we hypothesized that types of prayer will stimulate different areas of the brain. And the reason we're doing this—the theory that's behind it—is that we seriously doubt this claim that's being spread around, assumed by several neuroscientists and others, that there are specific areas of the brain that are dedicated to

religious experience. We're not convinced by their experimental results, we're not convinced by their experimental designs, and we do think that there are religious agendas that are behind it all. At least there are religious organizations that are financing these particular experiments. So what we're claiming is that the brain is a multipurpose organ, where there are no specific—well, let's say besides the senses and the body—there are no dedicated areas of the brain. So for sight, there is a dedicated area; for hearing, there is a dedicated area, and so forth. But for religious behavior and thought, there is no dedicated area. This is our claim. So, taking this simple, human action of praying to a divinity or to an ancestor or to a spirit, we claim that this is, as a matter of fact, quite complicated, and draws on areas of the brain that are used in other ways.

And we designed the experiment so that as the participants lay in the scanner, they were asked to "think" a prayer. And we have four things, well actually, five things that they were asked to do. They have to think The Lord's Prayer. We're talking about Protestants—*young* Protestants—from conservative Protestant groups who believe in prayer, believe in the power of prayer, and believe that they indeed have contact with God when they pray. We ask them to think the Lord's Prayer in a thirty-second slot. Or "slice," as we call it, which fits the physics of a brain scan. And then the next slot, which, of course, depend on—it wouldn't be a particular sequence, but at least four. The next one might be, "We would like you to think a personal prayer". And then we would ask, "We would like you to think a nursery rhyme." And the fourth would be that "We would like you to think up wishes to Santa Claus." And the idea behind those four types is that we have different styles, okay. The Lord's Prayer is more automatic, and more abstract; the personal prayer is more personal and there are two different kinds of activities. And we were then comparing them with similar activities that are not religious. So the nursery rhyme should stimulate the same areas of the brain as the Lord's Prayer. And wishes to Santa Claus should, in principle, stimulate the same areas as personal prayer. (It turns out that these religious individuals don't believe in Santa Claus so it was a little bit difficult for them to take it all seriously.)

But anyway, the results came out, anyway—very interesting results and statistically significant results—that when our participants were asked to think the Lord's Prayer, it was their more abstract areas of the brain, up in the prefrontal areas of the brain, that were being active. And the same with nursery rhymes. When they were asked to think personal prayer, the areas that were stimulated in the brain were those areas that are well known in brain sciences as the social cognition areas, in other words, when you are communicating with other human beings. So the conclusion would be that the Lord's Prayer is abstract, not quite as personal. It might be due to the rhythm because we find the same areas stimulated by nursery rhymes. We also found that it might have to do with expectations of reward because it turns out that the particular area that's being stimulated is an area that's known for reward expectation. It's known for the production of a particular brain chemical that's called *dopamine*. It's also an area that has been experimentally shown to be stimulated when you trust someone. So we're thinking and concluding that perhaps it's an expectation of a reward from God or from whatever being that they're praying to, that's being stimulated, or it might be simply because of the rhythm. We can't decide. We can only go so far. The other one—the other result about social cognition—is very interesting because it shows that people are more moved in personal matters by a personal deity, probably conceived of as like a human-like creature, rather than this abstract, all-knowing, omnipresent creature that theology is reflecting on. And it also indicates that what defines us as being humans, as being social creatures, is at play when we are praying to a deity or to a greater creature.

CC: I'm just going to ask another couple of questions.

AG: Yes.

CC: Time is getting on.

AG: Okay.

CC: But what you were just saying there, that basically, what I understand is that as far as the brain's concerned, when we're talking to a deity—whether or not that deity exists, we'll not comment on that—it's like we're talking to another person.

AG: Exactly.

CC: So in that sense, how do you find your research—this particular bit of research or cognitive sciences in general—are taken by religious individuals. You need them—you need people who are religious to participate in your experiments. So how do they react to your research?

AG: Yes, a very good question. It's a very complicated situation to perform experiments with religious people because we of course must—we have respect for their religious beliefs. We're not trying to disprove the existence of God or to disprove the effects that they claim that a religious behavior has. On the contrary, we want to try to find out what human, bodily, brain, and psychological mechanisms are involved in these... in their religious behavior. The press, however, has a completely different take on it, and they think that we're proving or disproving. As a matter of fact, when we first published the experiment that I've just described to you, we got reactions from atheists who said, "Now you've proven that it's just humans that are just thinking the way they usually do." And we got supportive mails from religious people who were saying, "Now you've proven that God has given us the ability to communicate with him and it's so much like being human that it's quite natural." And the fact is, we haven't proven anything. What we've done is we've supported a particular hypothesis. Which can always—the part of doing science is that you present your results among your peers and they, then, if they think this is interesting, they might either move on, using some of the results that we have presented, or they might want to try to replicate what we've done. And if it's conceivable that a team who would want to replicate our experiments would say, "Well, we couldn't replicate your experiments so it doesn't support your

hypothesis." So we always have to be open to the fact that our results are open to debate, and criticism, and negotiation.

The people who participate, who are so kind and willing to help us in the experiments, of course have their own agendas. They're not interested in our hypotheses and so forth. Although in some way, I think, it's important for everyone, whether they're religious or not, to understand what science is doing and understand what it can contribute to human life. But besides that, our religious participants, of course, are interested in showing that religious behavior helps. It helps in personal situations; it helps in social situations, and so forth. And they, of course, are also interested in finding out, how does that work, actually, physiologically. How does it work? So we share our results with them. We are very careful not to over-interpret our data, rather under-interpret rather than over-interpret, and making sure to deal with the press in a reticent manner so that there isn't rampant claims about religious areas of the brain or religious activity or anything like that.

Our young people, our team, consists of young scholars: Ph.D. students, post-docs, young established scholars who have done excellent fieldwork. Who understand reciprocity; who understand you have to give in order to receive. And they attend the religious services of the people that they ask to participate in their experiments and attend in other activities, social activities, and so forth. This is the way human beings deal with each other; you try and make a connection and you give and take. And they've done this; they've done it quite well. So we have people coming back to help us with our other experiments. So that's the positive aspect. Of course there are people who are afraid and who maybe are afraid that we're out to disprove something. But we're always clear on that fact; we're not trying to disprove anything.

CC: I'm afraid that we are out of time, so we we'll have to call it a day, there. But thank you very much, Armin Geertz.

AG: You're welcome. It's my pleasure.

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