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Preface: Research Approaches to the Study of Religion

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Abstract: Preface to the special issue 'Research Approaches to the Study of Religion'. First of all we pay attention to cognitive studies of religion and compare theology and philosophy of religion.
Keywords: cognitive science, cognitive science of religion, theology, religion.

The study of religion has known a great expansion in the last twenty years, despite its apparent decline in most Western areas. This is a curious and enigmatic trend. When I attended the Annual Meeting of the Society for the Scientific Study of Religion for the first time in 2001, I had to choose among 10 different panels of papers taking place simultaneously. The last time I attended the same Meeting two years ago, I had to choose among 16 panels; we had moved from an average of 300 to almost 500 presentations. The number of specialized journals and book series devoted to the new scientific study of religion has multiplied, and the available bibliographies and data bases keep growing steadily. It is hard to render a systematic review on issues like 'religion and prosocial behaviour' (more than 140 published papers) or even new scientific theories trying to explain religious origins and evolution (more than 70 papers from different authors).

Scholarly institutions devoted to the study of religion are thriving, like the traditional American Academy of Religion with its massive annual conferences, and the new attempt to institute a European version, the European Academy of Religion, to be launched on the 5th of December 2016 in Bologna. This tendency is reflected in institutional changes, like the moves to convert old Theology Faculties or Divinity Schools into 'Theology and Religion' ones, broader in scope and covering fields like 'Religious studies' and the new brand usually called 'Cognitive Science of Religion', which often includes biological and neurological approaches as well.

All these moves claim for some interpretation. Indeed, something important is happening in the field of the academic study of religion that affects the traditional approaches represented by theology and – more recently – by philosophy of religion. Religion attracts the interest of many scholars and becomes unexpectedly the object of intensive and well-founded research. We are clearly moving from what could be called an 'internal hermeneutics' towards an external one, from a focus on the texts and history, which has nourished a long season in theology and exegetics, towards a focus on empirical and even experimental approaches, applying quite different theoretical frameworks, like cognitive sciences, behavioural and evolutionary psychology, and even comparative psychology or primatology.

The new interest that religion awakes can be explained by very broad and very concrete or closer reasons. The latter is a result of some 'religious resurgence', as has been claimed in many

world areas with virulent irruptions in the last twenty years, when religious factors have been determinant in many political and social settings. We could not ignore that variable when several phenomena needed an in depth explanation. The other reasons go beyond the conjunctural, and rather point to the very enigmatic nature of religion and how its very essence challenges most attempts at understanding it or at coming to terms with its truth claims. In short, religion has to do with what is of ultimate value and meaning, and hence thinking about religion is like trying to grasp our own last reasons and our own last fundaments. Reversing the Anselmian Argument, the attempt to think the meaning of the Divine reflects our need to account for the most important and relevant aspects in our life and our reality. In that sense, stopping studying religion would be like bringing to a close our intellectual endeavour to understand reality to its end, in its whole.

The last sentences could sound as celebratory regarding all that is going on in the field of the new scientific study of religion. Unfortunately, this is not the case in most published researches. Contrasting with the great ambition and scope in the study of religion, much of the current production lacks that depth and large horizons. The current research is much narrower and focuses on immediate causes and dynamics presiding over religious beliefs and behaviours. Its aim is often to reveal the hidden mechanisms, the subtle dynamics behind the religious mind and behaviour, often their style resembles more a scientific version in deconstructive practice. That approach often becomes disappointing but might turn useful and necessary as well, provided that it does not prevent a view able to appreciate the broad picture. Part of the problem derives from the excess of reductionism in the scientific treatment of religion, the obsession with details and basic levels that inhibits a better perspective, one able to account for the great variety and richness represented in so many religious expressions.

Theology and Philosophy of Religion cannot ignore all that is happening in that research field. There is too much at stake and regrettably too few scholars in that academic fields devoting their time and interest to follow such developments and trying to learn from them or to apply their findings to theological hermeneutics. This is a task that could be discouraged by the same paucity resulting from a closer and critical examination about the ongoing research. Indeed, too many outcomes from the standard cognitive science of religion have been harshly debunked because of their poor theoretical ground and the scarcity of empirical evidence their authors provide. The temptation could be to ignore and neglect all this research corpus as completely irrelevant for theologians and philosophers, used to alternative methods and hermeneutical or normative approaches. In my opinion it would be a mistake. Even if we are more and more aware of the mounting flaws afflicting that scientific approach, we should nevertheless learn from their many achievements and the ongoing discussions, something I find highly instructive, together with most recent developments and attempts to move beyond the standards reached so far and to explore fields that were left beside in the first waves of that program, like culture, meaning and symbols.

Our expectation is that a new generation in the scientific study of religion assumes a less reductive stance and becomes able to take into account central aspects of those very human and social experiences to help to better understand its dynamics, to improve its application and to prevent its worse expressions. The articles contained in this special issue clearly reflect that spirit and open to a brighter panorama.

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Religion's Possible Role in Facilitating Eusocial Human Societies. A Behavioral Biology (Ethological) Perspective

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Abstract:
Eusociality is the most successful animal social system on earth. It is found in many social insects, a few crustacean species, and only three vertebrates: two African naked mole rats and human beings. Eusociality, so unusual for a vertebrate, is one of main factors leading to human beings becoming the most successful land vertebrate on earth by almost any measure. We are also unique in being the only land vertebrate with religions. Could the two be related? This article will present evidence, illustrated primarily with Judaism and Christianity, that these two seemingly unrelated social systems – eusociality and religion – that correlate temporally in our evolution, are possibly related. Evidence will also be presented that a (mostly) non-reproducing exemplar caste of celibate clergy was a eusocial-facilitating aspect of religion in western social evolution.
Keywords: celibacy, Christian, eusocial, ethology, evolution, in-group marker, priest, religion.

1. Introduction

The term 'eusociality' was first used by Batra [4] to describe the unique social behavior of bees. Eusociality is sometimes called 'ultrasociality' [58], [114]. Today, eusociality has a loose and restricted definition. The loose definition requires: (1) multigenerational care of young, (2) cooperative care of young, (3) a division of labor, and (4) defense of communal locales, often containing foodstuff. The more restricted definition requires that in (3) one component of the division of labor involves a non-reproducing caste.

An emergent feature of eusociality is that an individual's behavior benefits the in-group breeding population more than and often at a cost to one's self, similar to a corporate or military culture in which the corporation's or military's needs take precedence over those of the individual. In that

respect, eusociality differs from altruism, where costs and benefits, ideally based on measures of reproductive success, are determined on an inter-individual basis. Eusociality's emergence and maintenance, like that of altruism, can be mathematically modeled by kin-selection [62] or among non-related persons by multi-level group selection [101].

Eusociality evolved independently at different times and through different mechanisms in many taxa of social insects [145], a few crustaceans [38], and in three mammals: human beings [146] and two species of under-ground-living, naked African mole rats [126], whose modest claim to success is being the longest living rodent and by being resistant to any kind of cancer. Quoting the most influential authors on this topic, Martin A. Nowak, Corina E.Tarnita, and Edward O. Wilson,

> [E]usociality is not a marginal phenomenon in the living world. The biomass of [eusocial] ants alone composes more than half that of all insects and exceeds that of all terrestrial nonhuman vertebrates combined. Humans, which can be loosely characterized as eusocial, are dominant among the land vertebrates [101, p. 1057].

Humans can meet even the restricted definition of eusociality if celibate clergy, who emerged early in Christianity but were absent among the Judeans from whom Christianity emerged, are considered a caste of eusocial exemplars, admired people considered an example of what should be copied.

In this article the terms 'clerical' or 'cleric' or 'clergy' will refer to the male originators, elders, and evangelizers of early Christianity as well as ordained ministers – priests, bishops, cardinals, and popes – in Roman Catholic Christianity. Married permanent deacons in the Church today, although technically clerics, are being excluded when the term 'cleric' is used in this article. Modern clerics are of two types: religious order, who usually live in all male communities and take vows of chastity, poverty and obedience; and diocesan presbyters (parish priests) and bishops, who usually live alone and make a promise to be celibate. Celibacy means not married. Chastity means sexual relations only between a husband and wife. For convenience, the term celibacy will be used unqualified for both religious order and diocesan clerics to mean a cleric living in an unmarried and chaste state. Religion's role as a possibly contributing and possibly necessary but not sufficient cause of the emergence and maintenance human eusociality will also be addressed. Other contributing and possibly necessary causes include other types of non-religious, rule-generating social institutions [109] and our transition to agriculture approximately 10,000 years ago [58].

Although the article is about religion, it is written from a somewhat unique perspective of behavioral biology (ethology), an academic discipline in which the object of study is behavior [41], [42]. The ethological perspective has been applied to religion before [49], [64], [138]. Ethologists usually ask four questions about behavior: (1) What is its phylogeny (evolutionary history), if it has one? (2) How does it develop within the lifespan of the individual (i.e., its ontogeny)? (3) What are its proximate causal mechanisms (i.e., behavioral physiology)? and (4) How does it contribute to reproductive success, if it does, which is called its adaptedness [132]? Hopefully, the reader whose background is other than biology will see how this unique perspective can make a contribution to our understanding of religion by showing how some components of religion, probably not the ones most readers think, have possibly contributed to our reproductive success.

I will develop the argument that some components of religion possibly contributed to our reproductive success by facilitating human eusociality in two ways: at first by being in-group markers for a breeding population, which was coexistent with one's religion until very recently; and second, by having as a part of early Common Era (CE) European religion, celibate, eusocial-exemplifying clergy. In order for religion to have evolved by selection, at least some of the structural design features within religion would have to have been adaptations, meaning that individuals possessing them had better reproductive success than individuals who possessed other structural variants with the same function.

In behavioral biology natural and cultural selection, which are interactive, can produce evolutionary change. When I use the term 'selection' unqualified, I mean both.

The term 'function', which will be used throughout this article, means the use (roughly synonymous with 'purpose') of a *structural design feature*, which is a feature of an organism that has static (as in an anatomical feature) or moving (as in behavior) architectural mass by which the feature can be defined or described. The architecture is the pattern of movement of body parts with mass in 3-D space. The distinction between a structural design feature's definition versus just its description is very important in behavioral biology. When something is *defined*, it is first put into a recognizable general category; then one says how it is different from the other items in the same general category. In contrast, a *description* is just a transformation of some of the perceivable features of what is being described using a different format, such as spoken language or in writing [51].

Appreciate that natural selection can treat certain heritable, coordinated patterns of movement, like what is called LSV behavior (to be explained) that can be *defined* by its form (pattern of movement of body parts in 3-D space) the same as if the behavior was an anatomical feature, like a bone [51]. Some structural design features, if they can be *defined* by their form, can be passed across generations either by their blueprints in DNA (i.e., in genes) or culturally by social learning. These two mechanisms, both of which can generate change (i.e., copying errors in genes or cultural innovations), are interactive and influence one another in what is called either gene-culture evolution or biosocial evolution. Most important, cultural institutions (including religions) can cause changes in the genome that favor cultural fitness [115].

I am proposing that certain structural design features associated with religion that can be *defined* by their form, whether they are passed across generations by DNA or by cultural (social) learning, facilitated our acquisition of eusociality primarily by being in-group markers for the (religious) breeding population. This eased our transition from kin-based to non-kin based social organizations during our bio-cultural evolution. Richerson & Boyd [115, p. 90] call this 'marking of group boundaries by cultural symbols.' This means being an in-group marker for a breeding population would have been the 'ultimate function' of the religious 'cultural symbols' (using Richerson and Boyd's terminology) when they were under positive selection pressures. This would have occurred for the first time many tens of thousands of years ago. Of course, metaphorically speaking, natural selection did not 'know' that this (i.e., being an in-group marker) was their ultimate function, as natural selection has no brain and cannot 'know' anything. The only currency that natural selection accepts is reproductive success. Human in-group breeding populations that had a stronger in-group identity must have had a selective advantage in multi-level group selection for eusociality.

An important principle in biology is that structural design features (or forms) can change function (i.e., what they do) over evolutionary time (phylogeny) as well as during the developmental lifespan of an individual (ontogeny). And, a structural design feature can have two or more different functions at the same time. With that as background, and given the phenomenal success of eusociality as an animal social system, any variation of a structural design feature that facilitated eusociality in an individual would almost certainly have been and still be an adaptation for that individual through either kin selection among related persons [62] or through multi-level group selection among non-related persons as societies grew in eusocial complexity [101].

Theoretically, one could argue that a function other than in-group marker was the ultimate function of these religious structural design features when human beings first acquired religions. As a modern example of another function for a religious structural design feature, in poorer parts of the world today wearing a gold cross on a gold chain around one's neck is also a status symbol, which would make status display the function. Ironically, some Japanese teenage girls, who are Buddhist, wear gold crosses around their neck, not as cultural symbols of religion, but as fashionable, high status, 'western-style' jewelry. Today, as in the past, some religious people wear religious items on their

person as the religious equivalent of good luck charms, which is another possible function of religious structural design features. I am open to these other possibilities; but within multi-level group selection I cannot think of a more adaptive function for religious structural design features than being eusocial-facilitating in-group markers for a breeding population.

A similar type of unanswered question occurs regarding the evolution of religion as a whole within the cognitive science of religion with adaptation and by-product proponents each making their arguments [17]. Of course, non-material functional entities in the non-material mind, such as the 'modules' within the cognitive science of religion, cannot be adaptations, but they can confer adaptedness (or adaptiveness) on the structural design features in the brain whose functions they are. In behavioral biology the argument seems more settled. At least today, the structural design features associated with religion, from information-laden religious beliefs (and the behaviors they predictably bias in the active state of believing) to crosses around people's neck to hijabs, are and were actual in-group-marking cultural adaptations for a breeding population. Among hunter gatherers, which is where we as a species have spent 95% of our time, religious beliefs and behavioral rituals probably would have been the main structural design features (i.e., cultural symbols) associated with different religions.

Our closest non-human primate relatives, the chimpanzees and bonobos, are neither eusocial nor religious. At some time in the 6 million years since our last common ancestor, eusociality and religion came to characterize us. There is no evidence that our recently extinct other human species, *Homo neanderthal*, who lived approximately 500,000 to 40,000 years ago and with whom we share more than 99% of our DNA and with whom there was some inter-breeding, was any more eusocial than chimpanzees or bonobos. Nor, is there evidence of true religion in Neanderthals, although there is some evidence of proto-religion, such as burying the dead. There is absolutely no evidence of either eusociality or religion in the tool-making common ancestor of *H. neanderthal* and *H. sapiens*, who was *Homo erectus* and who lived 1.9 million to 70,000 years ago.

In reconstructing history, 'possible' is the best standard of evidence that can be presented at this time for the relationship between religion and eusociality. As more hypotheses are tested and more data accrues, the evidence might become probable. Given the inability to test hypotheses in long-gone ancestral environments where human proto-religions [142], [6] and proto-eusociality [146] evolved, most likely the standard of evidence for religious structural design features ever having had an actual causal role in human eusociality will never get to within the realm of scientific certainty. In the meantime, we will consider if the evidence to date is at least plausible.

2. Religion and Its Evolution

Evidence points to religion emerging as a cultural institution from about 200,000 years ago to about 50,000 years ago when humans lived in small hunter-gather bands of 25 to 50 persons. Religion's evolution [46], [120], [138], which is a separate question from God's evolution, or at least the evolution of human ideas about God [19], [64], [148], is a complex topic as religion is composed of religious beliefs, emotions and behaviors. There are also other features of religion, such as religious myths and sacred texts and commentaries, which for convenience, I'm bundling within religious beliefs as the linguistically represented components that contribute to the creation of religious beliefs. Apart from some arguments to the contrary [17], [138], it is unlikely that religion as a whole, including its inborn and culturally acquired components, could have evolved *directly* by selection, which can only act *directly* on structural design features, as previously discussed, be they genetically or culturally transmitted across generations [50].

There is one obvious structural design features of all religions that was previously mentioned: the phylogenetically old (and therefore heritable), coordinated motor pattern of make-oneself-lower-*or*-smaller-*or*-more-vulnerable (LSV) behavior used in humans in the non-vocal aspect of petitioning

prayer. Each religion has a somewhat distinguishable local variation on the common and general LSV theme by which the behavior is *defined*. This local, learned and culturally acquired and transmitted variation on the common LSV theme is why one can tell the difference between a praying Jew, Christian or Muslim [51]. LSV behavior, because it is a heritable, coordinated pattern of movement that can be defined by its form, can be a *direct* object of gene-changing natural selection. The local, culturally acquired learned variation on LSV behavior that is specific for particular religion, which can also be defined by its form, can be a direct object of cultural selection.

There are also bodily features that are structural design features of religion, such as the circumcised penises and religious beards of Jewish and Muslim men. There are also cultural items that are symbols of specific religions, such as the semantic representation of specific partially counter-intuitive and partially counterfactual religious beliefs, a gold cross worn around a Christian woman's neck on a chain or the hijab head covering of Muslim women or the Yamaka skull cap worn by religious Jewish men. Most important, all of these structural design features are religiously mediated in-group markers.

Some more can be added about religious beliefs as religiously mediated in-group markers. There are two ways in which a belief can be conceptualized: the philosophical-psychological way and the behavioral biological way. In philosophy and psychology, a belief is some version of that which is held to be true, and where knowledge is a justified true belief. In philosophy and psychology, beliefs are non-material/non-physical concepts in the non-material mind. Using the word 'belief' or 'believe' in language, as in 'I believe P,' is not evidence for the presence of a belief. It is only evidence of what someone says that they believe. It is subject to deception and may not be evidence that someone harbors the belief at all.

By contrast, in behavioral biology, where components are preferentially referenced to behavior (movement), a belief can be conceptualized as a quantity of information, which when in the brain and formatted above the level of an individual neuron (i.e., not just in an individual neuron but within a neural network or circuit), biases behavior in a predictable way; and when the individual is in the active state of believing, the behavior (movement) is constitutive of the belief and not just evidence of the belief [54]. If beliefs are composed of information, and if information is always 'physical,' beliefs are always physical. From the third person objective perspective, the mind is what the cognitive-related structures of the brain do, such things as thinking, planning, praying, etc. What things do in biology is in a different, non 'physical' ontological realm from what things are, which is framed in biology as the form/function distinction. 'Mind,' from the first person perspective and the issue of Cartesian dualism, etc., is a separate issue not being addressed.

The state of believing, which would be what the beliefs (as well as the individual who harbors the belief) are doing, would be a non-material (third person perspective) function in the non-material mind when the individual who harbors the belief is in the active state of believing. In behavioral biology causation can't cross the ontological boundary between form and function, which has lots of application to the causes of religious behaviors. Beliefs, because they are information-laden physical entities in brain, can make bodies move. That is because beliefs are in the same form/function ontological realm as bodies. They are both forms.

This behavioral biology perspective on beliefs is a particularly useful way of conceptualizing beliefs in religion, where an (if not *the* most) important biological function of a ('physical') religious belief is to act as an in-group marker by biasing people's religiously motivated behavior in a predictably similar way. What people do behaviorally, based on a belief they harbor, is more important than what they say about what they believe, as in 'I believe P.'

I'm saying that religious structural design features – from beliefs to gold crosses to hijabs – are in-group breeding population markers dogmatically rather than conjecturally because from my behavioral biology perspective the evidence, some of which was just discussed, is compelling. More

will be said later. Arguing that it feels good to believe and to have faith cannot be the primary function of religious beliefs. Metaphorically speaking, natural selection does not 'care' if someone feels good or bad. Rather, the good feelings in people of faith in the state of believing are just natural selection's way of having someone have religious beliefs.

Also, utility trumps truth in behavioral biology, meaning that the truth value of the propositions in the linguistic representations of religious beliefs are not relevant, as counter-intuitive as that might sound. What is important for religious beliefs, from a behavioral biology perspective, is that people who harbor them believe together, pray together (in the same way) and then lay together and then have babies together, the religiously-motivated ingredients of an in-group breeding population.

3. Religion's Possible Role in Eusocial Evolution

Religion's possible role in the emergence of eusociality can be understood in a series of stages that I am calling 'isms,' meaning distinctive practices, styles, beliefs, and behaviors through which human societies have progressed. The issue at hand is religion's role in when and how (i.e., by what proximate mechanisms) individuals came to put the welfare of their in-group breeding population above that of themselves, a necessary and emergent property of eusociality. Different mechanisms were probably involved in these different stages, starting with the family group and ending with the western-style industrialized democracies in parts of the world today. What follows are the stages.

3.1 Nepotism

As pointed out a number of decades ago by Richard Dawkins [28], we (or at least most) humans are essentially vehicles for caring for and then sexually combining our genes with someone of the opposite sex and then caring for the resultant progeny during our very transient and short individual lifetimes. We die but our genes survive, if not in our children than in our siblings' children (i.e., our nieces and nephews) and our less closely related cousins' children, etc. As a result, most of our behavior, as gene carriers, is directed at doing what is best for and in propagating our immortal genes that are scattered among our relatives. For all of us, there are more of our genes in our relatives than in ourselves. As a result, because our genes appear to be such important drivers of our behavior, family comes first, sometimes to our own personal detriment, which goes under the heading of nepotism.

This would be the earliest theoretical stage of human proto-eusociality, where self is self and 'other' is family. What parent would not give up their own life to save their children. As a result, many of our family-first behavioral traits have evolved by what is called kin selection [62]. We don't know the social history of our primate ancestors well enough to know if some of them prior to our last common ancestor with the chimpanzee 6 million years ago lived in small monogamous family groups, such as the Asian gibbons live today [83]. Extant primate societies are very variable [128].

3.2 Bandism

Even though several extant African hunter-gather groups now have courtship-initiated marriages, there is both genetic and cultural evidence of family-arranged transfer of reproductive age adolescent individuals among hunter-gather bands in our human past in what is called reciprocal exogamy [139]. On a less formalized basis, female adolescent transfer between flexible fission-fusion groups [128] is found in the chimpanzees and bonobos, our closest primate relatives. In humans, among current hunter-gathers [68], as in many more modern societies, either sex can disperse (transfer) from their natal group to marry.

The fact that human groups are and probably were more stable than the less enduring fission-fusion groups of chimpanzees and bonobos is probably why multi-level/group selection, by which eusociality primarily evolved, worked better on us than it did on them. In-group marking religious structural design features and stronger human affectual bonds among more than mother and offspring (e.g., romantic love and paternal-offspring bonds) would have made our groups more enduring in composition than groups of chimpanzees and bonobos. That would have occurred sometime after our proposed transition from multi-male and multi-female (i.e., polyamorous) mating in the earliest *Homo sapiens*, which will be discussed below in the work of Ryan and Jetha.

As a result, compared to a family kin group in which everyone is genetically related, hunter-gather bands are composed of genetically related and non-related persons. The theoretical kin group, as a social unit, would not have needed religion as an in-group marker to put the extended family's needs above that of the individual. We evolved to put family first by kin-selection, as explained above, given that our genes are 'selfish' but widely distributed among our kin.

What would have been needed in hunter-gather bands to cause individuals to put the groups' needs above that of one's self are symbolic, culturally-acquired, in-group markers. Such markers would have included in-group distinguishing language (or dialect within a language), dress, hairstyle, adornments, jewelry, cultural rituals, and community held partially counter-factual and partially counter-intuitive beliefs, which is where religion comes into the picture. All religions contain such beliefs as well as religion-specific and therefore in-group specific linguistic and behavioral rituals [111].

Adult human males in hunter-gather bands, even those who are not genetically related, are relatively cooperative and egalitarian with each other [11], especially for a primate. A provocative proposal has been made by Ryan & Jetha [119] that in our early hunter-gather band stage our mating system was multimale-multifemale (polyamorous), somewhat like chimpanzees and bonobos are today, and that our penises (but not that of the chimpanzee and bonobo) are as responsible for the high degree of adult male: adult male cooperative behavior as our brains.

The shape of our penises could also be as much a contributing cause of our eusociality as our religions! The adult human male's glans penis even today is essentially a scoop which in pre-ejaculatory penile-vaginal thrusting would dislodge and remove the sperm of other males who had recently ejaculated in the adult female. We are the only primate with such a 'device,' which Ryan and Jetha argue (somewhat persuasively) evolved sometime after our last common ancestor with the chimpanzee to allow adult human males to compete at the sperm level, which then freed them to cooperate within the hunter-gather band at the behavioral level for big game hunting and communal defense. In comparison to our closest non-human primate relatives, adult human males have been called *'SuperCooperators'* [99]. Fifty non-related stranger human males can sit on a city bus together peacefully, which would be an impossible task for fifty, non-related adult male chimpanzees.

The pattern for religions in hunter-gather bands is to change rapidly in ritual and belief as bands split apart, which is common. There are good data documenting this among the Apache Native American bands in the American Southwest [47, p. 38], [57, pp. 1–2], [94, pp. 8–13]. Appreciate the advantage of religion as an in-group marker for a hunter-gather band. A newly arrived adolescent might have a different dialect or even a different accent from having been in another hunter-gather band prior to puberty. Dialects and accents get fixed at puberty. Our brains react differently to someone who speaks our language with a dialect or accent compared to a native speaker [8]. Their different dialect or accent would identify that immigrant person as not a member of the new in-group. However, the adolescent would have strong emotional motivation for acquiring the new religious beliefs as well as the new dress, adornments, hair style, etc. So in that respect, religious beliefs and rituals come in as in-group markers where language dialect and accent stop [131].

3.3 Tribalism

The next more complex type of organization in human social evolution is the tribe, which can consist of hundreds to thousands of individuals, often divided into genetically related (through the maternal or paternal line) clans. And when small scale horticulture and husbandry became adopted, tribes could grow in size. Because tribal members are even more un-related genetically than members of a hunter-gather band, religion would have taken on even more importance as an in-group marker for the tribe as a way of predisposing people to put the in-group's needs above that of one's self. Tribal religions are more elaborate than simple hunter-gather band religions. In tribes one can see the beginning of the transition from the more behaviorally based imagistic to the more belief-based doctrinal modes of religion [41]. Compared to the relative simplicity of hunter-gather religions [46], the religious myths that make up the belief system of Navajo Tribal religion, as an example, take over 856 pages to document [113], which is actually 31 pages longer than the *Catechism of the Catholic Church* [21] and a little more than half the number of pages in the *New American Bible* [97].

3.4 City Stateism

The invention of agriculture circa 10,000 years ago allowed larger numbers of humans to live together and grow their food in the surrounding countryside. A city state is a sovereign city and the surrounding countryside, often governed by a ruling family. European city states, which also had their ruling families, had their own professional armies. Our evolved sense of in-group and out-group tribalism is what held these city states together. In addition, almost all city states contained people of the same religion. So there were two in-group markers, the symbols of the city states, such as coats of arms, flags, etc. and the symbols of the religion.

3.5 Nationalism

The next stage in our social evolution would be the nation, at least historically composed of confederations of many tribes, city states, and states (as in 'The United States'). It is at the nation state level that national symbols take predominance from flags to songs, to currencies, etc. Some nations consist of citizens of the same religion, where one can see state religions. In other nations of diverse people, like the United States, nationalism appears to act in a similar way to religion as being an in-group marker. The United States is not a single breeding population, as people assortatively (preferentially) mate (i.e., marry) primarily on the basis of religion, although this is rapidly changing with secularization.

People have always been willing to die for God and country, which shows how the two different types of culturally-created social institutions, religious and political, are related. Both religion and the nation state act as eusocial-facilitating in-group markers, especially where the in-group is also a breeding population. Nationhood is a less effective eusocial-facilitating in-group marker when there are factions within the in-group that don't exchange genes. Such was the case in Europe with the Jews and Christians prior to World War II, and now with the European Muslims and Christians.

Ironically, secularization, where religion's influence on who marries whom declines, will allow for more gene flow among previously genetically isolated religious in-groups within nations. This will facilitate the nation's ability to act as an in-group marker. With all its symbols, nations, like religions, are well suited for the task. Appreciate that the more that nation-specific in-group markers disappear, such as a nation-specific religion or currency or passport-requiring borders, the less effective the nation becomes as a eusocial-facilitating in-group. That conflict is evident in the European Union (EU) today where English is becoming the common language and the Euro is becoming the common currency and

one can cross national borders in the EU without passports. That which is considered the in-group is expanding, which causes cognitive and emotional distress in traditionalists.

4. Prosocial Behavior, Cooperation, Altruism, Eusociality, and Parochial Altruism: What Are the Differences?

First, one can model these different entities with the same or similar equations and computer simulations [13]. That is because one issue is the same among them, which is the interaction of self with other. The 'other' can be another individual or any group of other individuals. Given the current popularity of cognitive science and cognitive science of religion, the various ways in which these entities are modeled primarily address cognitive and rational ways of behaving and downplay the emotional, which is difficult to model [107]. Emotions don't follow laws of logic that can be modeled. To have a more comprehensive understanding as to what causes these different entities, and as a general principle with which to understand human behavior, imagine a triangle with thoughts, emotions, and behavior at the three corners. If there is a change any one of these three items, it almost always has an influence on the other two.

David Sloan Wilson [144] says that altruism is both a motivation of behavior and a behavior. He points out that the most altruistic species on earth are eusocial insects in whom we don't ask questions about their motivation. He then argues that in terms of trying to understand human altruism, we should concentrate on ways of modeling the behavior and how it could evolve and be maintained and forget about the behavior's emotional motivation. That modeling principle would apply to eusociality as well. In respect to humans, modeling equations and computer simulations, although showing how such behaviors could evolve by natural selection, would not be very predictive for a particular individual in whom emotions as well as idiosyncratic life history variables play a part in behavioral decisions.

4.1 Prosocial Behavior

Prosocial behavior means two things: (1) helping others individually or in groups, and (2) following social norms. In terms of the first meaning of prosocial behavior, in the human (as contrast to an ant) the motivation for 1:1 prosocial behavior is often said to be altruism, but that is just kicking the can down the road because we then have to ask what motivates altruism, which on a 1:1 basis is empathy and will be discussed below. Also, the costs and benefits in this type of prosocial helping behavior do not have to be as profound as units of reproductive success. Holding a heavy door open for an old lady when she is coming into a restaurant behind you costs almost nothing for you in calories and a few seconds of time but the small act of human kindness might benefit her significantly. Human prosocial helping behavior can be on a 1:1 basis or on a 1:group basis, such as donating money anonymously to large charity. The motivations are different between the two and will be covered below.

The other meaning of prosocial behavior, following social norms, does not have to be related to altruism or eusociality at all. Examples of social norm following include wearing the currently fashionable, society-specific and expected clothing, obeying driving rules, belonging to the state religion when there is one, and showing common courtesy and politeness expected of one in one's social group. Cultural manners are a type of cultural in-group-marking, such as the greeting ceremony of shaking hands in Europe and bowing in Japan [42]. These types of ritualized, culture-specific social behaviors are motivated by our tendency towards normative coercion and the tendency or need of people to do what most people do and especially what high status people do [92], [95], [102]. The

motivations behind such conformity behaviors are complex. Following driving rules, one of the examples of prosocial behavior just used, requires cooperation, the next topic.

4.2 Cooperation

Human cooperation can be generated just from the (rational) thought corner of the thought-emotion-behavior triangle previously explained [2], whereas human altruism and eusociality are almost always generated from the emotional corner. By contrast, appreciate that in a eusocial ant cooperation is just genetically programmed given the appropriate releasing stimuli. Although social and cultural factors are involved in human cooperative behavior, there is also a heritable component, just like in the eusocial ant [23]. Even though cooperativeness is widespread among the Animal Kingdom [135], many authors conflate human cooperation with human altruism as a single entity, primarily because they can be modeled with the same computer simulations and equations. They use the terms synonymously. There is an advantage in separating cooperation from altruism, especially in humans. All altruism involves some degree of cooperation but one can be cooperative just on a genetically programmed basis (ants) or on more volitional, rational cognitive basis (humans). Humans don't have to have any positive feelings at all for the person with whom they are cooperating. People can even cooperate with people with whom they have negative feelings, such as cooperating together in an organization to compete with other organizations. So even though cooperation and altruism can be modeled with the same computer simulations and equations, altruism, at least in humans, implies an emotional-motivational component that is not needed in simple cooperation.

There are two main types of cooperation, direct and indirect [100], which are also called direct and indirect reciprocity. Robert Trivers [134] was the first to show mathematically how direct cooperation, in which there is at least a temporary cost to self and a benefit to another individual, could have evolved by what he called reciprocal altruism. One helps one's neighbor knowing that if one needs help in the future, one's neighbor will be more likely to return the favor. This is extending social reciprocity credit to one's neighbor. Many tribal societies (e.g., the Navajo of North America) are held together by such webs of social reciprocity credit.

Allomaternal care (non-relatives taking care of juveniles), a type of cooperation, is widely distributed among birds and mammals and common among primates [70]. Adult male primates also interact with juveniles in many ways and for many different reasons [129]. But we (*Homo sapiens*) are the only primate in which fathers take intimate care of offspring that can, except for nursing, can be identical to the type of intimate care given by mothers [90]. We and chimpanzees are also the only primates that engage in cooperative food sharing among adults. Human beings, at least in more advanced societies, are also the only primate with a division of labor where specialists help and cooperate with each other for goods and services. In simpler societies most people are generalists. Issues like reputation and cheating, in relationship to cooperating, are also involved and are complex and beyond the scope of this article. But it can be mentioned that reputation allows for what is called indirect reciprocity [100], where the favor is simply passed on to other community members, as long as the person asking for help in the future does not have a bad reputation as being a cheater who does not reciprocate. The take home point about cooperation is that in humans it can be generated by cognitive, rational factors alone.

4.3 Altruism

We discussed the relationship between cooperation and altruism above. There are certain features in common between altruism and eusociality, which will be discussed below. In humans, these two types of social interaction, altruistic and eusocial, have different underlying emotional motivational systems. Altruism involves a 1:1 interaction where one does something to benefit someone else at a cost to self.

The emotion of empathy is primarily and usually what motivates this type of human altruistic interaction [31], [33], [35]. As a result, and to reiterate, computer simulations and games, which don't involve face to face interactions with real people in need, reduce the role of empathic emotion as a motivating factor in human altruism, which is why maps (computer simulations, equations, and games) don't always accurately reflect the territory (real life situations). There are also experimental data supporting the role of empathy as the motivation underlying human altruism [5], [45], [133], [137].

We also know something about the neurological mechanisms that generate empathy, including mirror neurons [56] and oxytocin [3]. We empathically understand what others feel by a mechanism of action representation [20]. Empathy does not require a prior affectual bond between the two people. We can cooperate and even be empathic with total strangers or even to birds and non-human mammals. One theory of empathy is that one behaves altruistically to reduce the negative empathic feelings we have in ourselves when we observe someone else in distress. Natural selection does not metaphorically care much about how people feel but can utilize unpleasant feelings in sculpting our behavior.

Cloninger & Kedia [24, p. 97], who also go into the neuroscience behind their argument, claim that

> [A]ltruism is an attitude that is only possible in an animal that has the capacity for self-transcendence, which requires identification with what is beyond the existence of the individual. Altruism is an expression of self-awareness that emerges for the first time in modern human beings along with self-aware consciousness and the capacity for sublimation. Altruism depends on brain structures that are only present in human beings and not in non-human primates.

This finding is another way of differentiating human altruism from the more ubiquitous non-human animal prosocial behavior and cooperation.

In spite of strong arguments to the contrary [98], [110], the evidence is weak for religion's role in the evolution and maintenance of altruism [55], [91] or that altruism can explain religion [104]. Although some of the world's great religions have an emphasis on altruism [96], many of the ancient state religions created gods that could not care less about how humans behaved towards one another. This lack of evidence for religion's role in altruism or vice versa does not preclude religion's relationship with eusociality, where religion acts as an in-group marker. One's common religion, with all its symbols, facilitates acting in ways that benefit the in-group at a cost or potential cost to self. To illustrate the principle, school uniforms, sports teams, boy scounts, and armies also dress the same to increase their sense of in-group.

4.4 Eusociality

Appreciate that in most eusocial species, like the social insects, there is nothing in either the broad or restricted definition of eusociality that involves individuals being emotionally altruistic to one another on a 1:1 basis in the multi-generational and cooperative care of the young and division of labor. Humans also can baby sit and watch each other's children as a job for money with no emotional involvement with the child even though that is usually not the case for most people when they care for other people's children that they know and which at least involves what Sarah Hrdy [70] calls mutual understanding. In contrast to altruism, which is interactions on a 1:1 basis, an emergent property of eusocialism is individuals acting so as to benefit their in-group often at a cost to themselves.

Tribalism is the general term for what underlies this behavior, although tribalism is now extended to more advanced and complex societies where it is called nationalism. Richerson & Boyd [115] call this the 'tribal social instincts hypothesis.' However, ethologist Niko Tinbergen [132, p.

118], who won the Nobel Prize in Physiology and Medicine in 1973 for his discovery (along with fellow ethologists Konrad Lorenz and Karl Von Frisch) of the mechanisms of instincts, very strongly argues that within the hierarchical organization of behavior 'there is no such thing as a [i.e., in the singular] social instinct.' Instincts occur at lower hierarchical levels and can contribute to social behavior. As such, tribalism (or 'colonyism' in social insects) is not in itself an eusocial-facilitating *instinct* either in ants or in us.

Tribalism, which is not an instinct, is also not a known or understood basic human emotion that causes behavior. The closest set of behaviors to tribalism might be those related to territorial defense, where aggression is the primary emotion used to defend territory. However, aggression does not accommodate the important emergent property of eusociality, which is putting the needs and welfare of one's in-group breeding population above that of one's self. There are probably several different emotions underlying what is called tribalism. Xenophobia, which is a fear of strangers who are not members of one's in-group, is one such emotion that creates our sense of in-group versus out-group.

In the past 10,000 or so years with the advent of agriculture, aggression in territorial defense would have been more adaptive than in the long hunter-gather phase of our social evolution. So fear and aggression are two emotions. There are others as well. Patriotism is a component of tribalism. People often get emotional feelings, including sympathetic arousal (i.e., 'goose bumps') and sometimes even get tears in their eyes when they hear their national anthem sung. Perhaps that is a manifestation of awe. Tribalism emotions appear to be sublimated by fans of sports teams, who get very emotional cheering on their surrogate in-group sports team.

4.5 Parochial Altruism

This is a term for costly in-group cooperation and then inter-group aggression without expectations of future returns. Not surprising, the concept, being somewhat of a hybrid between two different human motivational systems, has conflicting evidence supporting it being natural kind [149].

5. The Behavioral Biology of Human Eusociality

To review, eusociality requires (1) multigenerational care of young, (2) cooperative care of young, (3) a division of labor, and (4) defense of communal locales, often containing foodstuff. The more restricted definition requires that in (3) one component of the division of labor involves a non-reproducing caste.

Given the number of elements that comprise eusociality, there is certainly not a human 'eusocial gene,' even though a mutation in one or more human genes could theoretically impair an individual's ability to behave eusocially. In addition, because eusociality evolved in a number of very diverse taxa (insects, crustacean cleaning shrimp, naked African mole rats, and human beings) that are so distant taxonomically, it is a reasonable presumption that there is more than one way, i.e., different mechanisms, in which a species can become eusocial.

From a behavioral biology perspective, eusociality is a highly efficient social organization for a society where the individuals in the society are analogous (same function but different evolutionary history) to the different specialized cells in a multi-cellular organism. Human beings have gone through a progression in complexity of social organizations since we first evolved, which was previously discussed. At each stage, we became more eusocial. Compared to eusocial insects, human being social organization is not genetically determined in such a fixed way. We are more flexible, as evidence by the different human social organizations just in the past few thousand years around the world. Now, the behavioral biology of the components of human eusociality will be discussed separately with occasional comparisons with other eusocial species.

5.1 Multigenerational and Cooperative Care of the Young

Multigenerational and cooperative care of the young (i.e., cooperative breeding) are present in species that are not eusocial, including many non-human primate species. But, as previously stated, what is unique to human beings is that adult males, especially fathers, are much more involved in care of the young, including infants. Besides mutual understanding [70], one of our other mechanisms of multi-generational and cooperative care of the young is our capacity to form affectual empathic bonds even with non-related juveniles [70], which derives from maternal care that evolved independently in birds and mammals [42]. Irenäus Eibl-Eibesfeldt captured this capacity with the beautiful phrase, 'with maternal care love came into the world' [43, p. 158]. There is a neuroscience behind this capacity that is beyond the scope of this article [30].

5.2 Defense of a Communal Local, Often Containing Foodstuff

Defense of a communal local, often containing foodstuff, requires that we as human beings can distinguish between in-group and out-group members. Based on twin studies there is evidence that in humans what is called in-group love (i.e., patriotism and nationalism) and out-group derogation (i.e., prejudice and xenophobia) have a small heritable component [74], which is almost certainly polygenic and not presently known but which might be mediated by oxytocin [32]. Compared to social insects, who have colony-specific pheromones, human beings have average-generating mechanisms in our brains that average variations of kind on common sensory themes. Our brains appear to 'know' what is average, as what is average is more aesthetically pleasing to the brains' owners. For example, when one takes photographs of the faces of many different women, who for example work in the same organization, and then morph all the faces into one face using morphing software, the picture of the morphed face, which is the average face, is considered more aesthetic and attractive than the face of any of the individual women [59, p. 191]. We can give meaning to (i.e., identify) a particular face so easily by knowing (or at least our brain 'knows') how and to what degree the particular face differs from the average face.

We, or at least our brains, have a similar mechanism for 'knowing' what is average for features about which we are familiar other than human faces. Each human in-group breeding population, which historically has been synonymous with a religion, has culturally unique features that can be detected with our senses. Such features include language, dress, hairstyle, jewelry, manners, customs, etc. We know (because our brains learn) what is average from seeing so many examples as we grow up in a society. In a strange society, not knowing what is average produces what is called 'culture shock.' We are particularly sensitive to outliers, who are in the tails of the distributions for what is average in our own society, as average is the exemplar of the in-group. When an individual is more than a few standard deviations from average in a culturally transmitted feature in our own society, the individual is looked at with suspicion as not being an in-group member. Average is beautiful is true in biology even if it is counter-intuitive.

Racial features and how we react to them on fMRI fall into this same average is beautiful principle, as they can be quantitatively distributed across in-groups and show variation within and across what are called races rather than being discrete kinds [117]. For example, people get progressively more Asian looking as one moves east from the Middle East farther into East Asia. Races are modeled as clines in genetics, which reflect a geographic center and then quantitative changes in gene frequencies as one moves away from the geographic center. Human races are not discrete kinds. Humans also don't have an innate racial bias as humans evolved in the Pleistocene where most people only saw people of the same race. What at first could be interpreted as evidence for racial bias on fMRI appears to be just driven by norm (i.e., average) violation [122]. By contrast, other features, like a

different language, are more qualitative ways of differentiating someone as an out-group member. The outward manifestations of religion, from dress to behaviors to beliefs, are often qualitative distinguishers. A meta-analysis reveals that we determine that someone is an out-group member based on many different quantitative and qualitative features that utilize different brain regions [127].

We have out-group prejudice ('xenophobia'), identifiable on fMRI and quantitative EEG analysis, for people who even have a different dialect of the same language we speak, when all we hear are their voices [8]. When people of the same race are put in groups based on something that they believe that they have in common, their brains react differently on quantitative EEG measures to in-group versus out-group members [67], [112]. Our brains even react differently on fMRI to an out-group with whom we are in current conflict versus a distant out-group with whom we have never had any interactions [16] or between a moderately different versus an extremely different out-group [65] or to politicians faces of the same or different political persuasion than our own [75]. Our brains react differently to pictures of people who look like us, meaning they are of the same race and ethnic group, depending on whether there is a national flag of our country or another country in the picture, showing that out-group bias can occur with symbols and doesn't depend on facial difference cues [27].

That later finding has obvious implication for religious symbols, such as the gold cross or hijab, as in-group and out-group markers. Our brains even react differently when we hear pro out-group versus pro in-group words spoken by someone else [15]. When doing tasks, our brains react measurably differently, using quantitative EEG analysis, in the presence of an in-group or out-group observer [69]. Our brains react differently on fMRI when an in-group member is harmed by another in-group member compared to being harmed by a member of an out-group [93].

We also know something about in-group preference or ethnocentrism at the neurohormonal level. As previously stated, oxytocin, a brain peptide that is associated in women with uterine contractions and childbirth, also promotes in-group favoritism and to a lesser degree, out-group derogation [32]. People differ in the degree to which they have this in-group preference tendency based on which of several polymorphic oxytocin receptor genes they have [86]. Of interest in terms religion's function as an in-group marker, a recently published placebo controlled study has shown a relationship between intra-nasal oxytocin administration in middle age men and self-reported measures of spirituality [136]. In-groups and spirituality (i.e., politics and religion) might be related because they both appear to be mediated, at least in part, by oxytocin.

5.3 A Non-Reproducing Caste

The general and figurative definition of a caste in the online *Oxford English Dictionary* [105] is 'a system of rigid social distinction in a community.' Given that the *Catechism of the Catholic Church* [21, p. 441] claims that ordination confers a permanent ontological change on the cleric, the general and figurative meaning of a caste seems applicable. Human males become non-reproducing clerical caste members for a variety of reasons.

There are two main reasons (or proximate, contributing causes that are neither necessary nor sufficient causes) that facilitate a human male being able to be a celibate cleric, both of which involve reproductive suppression but by two very different mechanisms:

- reproductively suppressed in adolescence or young adulthood by acquiring, through indoctrination, various counter-intuitive religious beliefs,
- reproductively suppressed *in utero* in the third trimester of pregnancy by steroid sex hormones.

First, before explaining these two mechanisms in more detail, something must be said about 'reproductive skew', which is the ratio of non-reproductive to reproductive members of a breeding

population [61]. The higher the ratio, the higher the reproductive skew. Compared to other eusocial species, humans have an extremely low reproductive skew. Reproductive skew is modeled in two ways: the *transactional model* assumes that each individual has full control over reproduction but self-restrains from reproducing. The *compromise model* assumes that all individual will at least try to claim a share of the breeding.

The reproductive suppression of clerics, including the two main reasons mentioned above, is most compatible with the transactional model, although 'self-restrains' should not be confused with 'free will.' In the *transactional* model of reproductive skew 'self-restrains' in reproducing occurs by different mechanisms in different species. It also occurs by at least two different mechanisms in clerics of the human species. It is sometimes reversible and sometimes not, which also applies to humans. The following applies to humans except where reference is made to the naked mole rat.

5.3.1 Reproductive Suppression in Adolescence or Young Adulthood

This mechanism is associated with clerics who are *primarily* attracted to adult women. It is potentially reversible. This celibate behavioral phenotype is a manifestation of a very strong religious belief, almost certainly acquired with accompanying emotions, that biases the cleric's behavior towards eusocial cooperativeness where they put the reproductive success of their in-group breeding population above that of themselves. In some clerics in religious orders, who joined the orders in adolescence, wanting to be a member of a relatively a high status and locally admired 'we-group' [44] could also be a contributing factor. Except in earlier centuries when illegitimate children of clerics were common (Betzig, 1995), giving up romantic love, sex and children in the modern world for God in such clerics is a very different phenomenon from simply having less reproduction as a result of reproductive cooperation among males, which is common among primates [37] and is modeled by the compromise model of reproductive suppression.

One could argue (albeit not without controversy) that the reversible, non-reproductive status in celibate clergy who are *primarily* attracted to women occurs by an analogous submissive interaction with a dominant, same sex, higher social status individual, which is the mechanism that produces reproductive suppression in the naked mole rat [150]. Analogy can be a source of knowledge (Lorenz, 1974). Same sex clergy higher up in the hierarchy impose beliefs that facilitate the acceptance of the 'discipline' of non-reproducing celibacy on all clerics, including those who are *primarily* attracted to reproductive age women. The effect of this discipline is felt most by diocesan clerics who are *primarily* attracted to adult women and who usually live alone in rectories. After Vatican II in the 1960s, when many clerics were disappointed that celibacy was not made optional, tens of thousands of them left, mostly to get married. By contrast, celibacy is quite understandable and natural for religious order clergy, who live in all male communities. Appreciate that among the primates groups of non-reproducing males are not unique to religious order clerics who live together in religious communities [116]. Such 'bachelor groups' are different from another primatological term, 'peripheral males', a category that appears applicable to diocesan clerics (i.e., parish priests) who live alone in rectories.

5.3.2 Reproductive Suppression in Utero in the Third Trimester of Pregnancy by Sex Steroid Hormones

This type of reproductive suppression is not reversible. It is not initially and sufficiently caused only by intra-individual-controlled factors in the fetus, as the mother's physiology appears to plays a very

important role. It results in less romantic and sexual attraction to reproductive age girls and women, which makes a celibate clerical lifestyle easier. Psychodynamic explanations for this type of reproductive suppression, once quite popular in the 20th century, no longer have scientific credibility. The behavioral neuroendocrinology is quite complex and beyond the scope of this article [40], [48], [52], [72], [140].

Even in small scale human societies there is always a small percentage of adults who do not reproduce [118]. In addition, there is always more variance in human male compared to human female reproductive success. A common interpretation of the last common ancestor of all living women appearing to be older than the last common ancestor of all living men by tens of thousands of years, and also there being more genetic polymorphisms on the human X versus somatic chromosomes, is that there were more breeding females for each breeding male (i.e., polygyny) when we first speciated into *Homo sapiens* [143], [63]. Reproductive skew for men but not for women (i.e., less men breeding) went up over time as subsistence intensified in human societies from hunter-gathers to herder-gardeners to full time agriculturists in the first civilizations [10].

Ironically, Mathew 19:10-12 in the New Testament of the Bible addressed this issue 2,000 years ago. When asked by his disciples if it is better for a man not to marry, words attributed to Jesus say,

> Not all can accept [this] word, but only those to whom that is granted. Some are incapable of marriage because they were born so; some because they were made so by others; some, because they have renounced marriage for the sake of the kingdom of heaven. Whoever can accept this ought to accept it [97, pp. 1040-1041].

6. In-Group Breeding Population Markers in General and in Humans in Particular

An in-group breeding population, a phrase that has been used throughout this article, is a group of individuals of the same species in which breeding occurs but in which there are at least some barriers to gene flow from other in-group breeding populations of the same species. In many cases the barriers to gene flow are physical, such a body of water or a mountain range. However, individually carried physical barriers, like religious in-group-marking clothing and beliefs, can also exit even when there are not environmental physical barriers separating the two groups. These in-group markers allow two different in-group breeding populations of the same species to live together with very little if any gene flow between them.

The Christians and Jews prior to World War II in Poland are good examples of this religiously-mediated separation of genes. The degree of gene flow across in-group breeding populations is quite variable across different species, which is one of the arguments as to why multi-level group selection is not universally effective in all species. In 19th century Europe, Catholic and Protestant religions were once barriers to gene flow. They are much less so today. Nevertheless, eusocial species are particularly good at having in-group breeding population markers.

In eusocial insects [77], cleaning shrimp [22], and naked mole rats [103], identification of non-colony intruders is olfactory, although some social insects also use visual cues. In human beings there are many different in-group markers for breeding populations that use different senses. Outside of the kin-group, who might be able to recognize one another by bodily-emitted olfactory cues [71], larger social organizations (bands, tribes, city states, nations) predominantly use visual cues, such as culture-specific behaviors, clothing, hair style, adornments, food, etc. However, there are also auditory cues in terms of language and music and even olfactory and taste cues based on local foods. And finally, since we are the primate that talks, in addition to our behaviors being biased in predictable ways by our

beliefs, we can also talk (generated by behavior) about what we believe, thereby creating a mobile, sound-wave-generated in-group symbol that can also repel potential out-group suitors.

Eibl-Eibesfeldt [44, pp. 37-38] frames in-group attachment in terms of indoctrinobility, which he defines as 'a special learning disposition to form an affective attachment to symbols and values characterizing the quasi-familial we-group... Once acquired, individuals seem substantially fixated to their religious… values and to the symbols typical for the we-group.'

Religious beliefs, which are symbols either in their semantic representations or in the behaviors that they bias in predictable ways during the active state of believing, are almost always divisive and as such, are quite good in-group markers. Religious beliefs are good in-group markers because their semantic representations are hard for outsiders to acquire without strong emotional commitment; but yet they can be acquired ontogenically when emotional motivation is strong, as when new adolescents enter a new breeding population. Lastly, religious beliefs, as in-group markers, can change very rapidly when an in-group breeding population splits [47], [57], [82].

7. Celibate Clergy as Eusocial Caste Exemplars

Many of the earliest Christian clerics, like most men of their day, were married. Clerical marital continence (i.e., you can't have sex with your wife) crept in incrementally over the first millennium; and mandatory celibacy (i.e., you can't have a wife) for Latin-rite clerics was finally instituted in the 12th century [66], [108]. Theological rationalizations for the hierarchy-imposed discipline of clerical celibacy today include the 'gift' [125], apostolic origins [25], children of clerics inheriting church property, and Jewish ritual Purity Laws once Mass began being celebrated daily. Higher personal religiosity is cross-culturally associated with lower sexually permissive attitudes and behaviors [121], a lowering that approaches zero in many clerics. There is a well known inverse relationship between spirituality and sexuality in many religions, especially Buddhism, that goes beyond the scope of this article. 'Celibacy requires a good prayer life' is often taught to Roman Catholic seminarians and men religious during their formation.

A eusocial exemplar is someone whose life is a witness for behaving in ways that benefits one's in-group above that and often at a cost to one's self. In Darwinian natural selection, costs and benefits are measured in units of reproductive success. By being celibate or by taking a vow of chastity, clerics are not acting to promote their own reproductive success, which makes all aspects of their life eusocial exemplars by definition. Whether they are cooperative in doing domestic chores in monasteries or meet their obligations for common prayer or act altruistic towards their fellow monks in their all male religious communities are not relevant factors to them being eusocial exemplars to the laity. 'Reproductive altruism' was and still is central to the public image of clerics to the laity in both the early [89] and the modern [124, pp. 151-152] Church.

Non-clerical males in their adolescent and early adult years are highly competitive with one another over reproductive age teenage girls and women. They engage in lots of high risk behavior in this pursuit, causing their mortality rate to be several times that of teenage girls and women of the same age. This is especially true in polygynous societies [78]. Even in later adulthood, the mortality rate of non-clerical males is significantly higher than women due to diseases, some of which in the modern world are related to lifestyle [79]. By contrast, a corresponding exaggerated sex difference in mortality in Bavarian religious monk clerics above age 25, when compared to cloistered nuns, was not seen between 1870 and 2000. And in the post World War II period, the life expectancy of Bavarian monks was significantly higher than non-clerical Bavarian men [87]. Male clerics, as eusocial exemplars, are not competing and engaging in life-shortening high risk and often show-off behaviors (i.e., bravery displays) among themselves, jockeying for higher social status for better access to higher reproductive value, reproductive-age teenage girls and women. Rather, they are acting in relatively non-competitive

ways that benefit the children of other in-group breeding population members, from ministering to their spiritual needs to teaching, etc.

Appreciate that up until modernity, when the social status of clerics in western society started to decline, Christian celibate clerics were regarded as very high status persons, not to say that they still are in more religious countries, most of which are now south of the Equator. And as high status persons their behavior would have had a much greater influence on the populace at large than the behavior of persons of lower status, which is why I have called them eusocial exemplars. People tend to imitate the behavior of high status persons until most people do the behavior at which time the laggards are swept up into conformity by normative coercion [92], [95], [102].

The Judean community from which Christianity emerged in the first century CE was bound together by a heterosexually-positive religion of genetically-related persons. Monotheism, which started among the Jews and Zoroastrians in the first millennia BCE, facilitated the in-group marking function of religion [76], [123]. Polytheists are more tolerant of each other and often acquire each other's gods. A eusocial-witnessing non-reproducing clergy caste was not needed to influence the Judeans to put the welfare of their in-group above that of themselves. They would have been predisposed to do this naturally through kin selection [62]. There are remnants of this same sentiment today in modern Israel, exemplified by what an Israeli friend once told me, 'It feels like we're all cousins.'

To facilitate eusociality, with all its benefits, early Christianity, as a new religious movement of non-genetically related persons, needed something more. I am proposing that this something was an exemplar caste of Christ-story-emulating, non-reproducing male clerical evangelists, who were promulgating even marital continence among themselves [25]. In the first few centuries of the CE such men, like their portrayed Jesus, would have been unusual witnesses for a strict eusocial religious in-group society. Centuries later this non-reproducing status of clerics was extended to religious order brothers and sisters. It is ingenious that the terms devised for these non-reproducing ministers of the church (father, mother, brother, sister) and the faithful laity (children) create a eusocial-facilitating, fictive kin group. Although religious brothers and sisters (nuns) are not considered clerics today, what is said about clerics certainly applies to them as well. They just would not have been as effective as eusocial exemplars because of their relatively lower social status.

8. Human Eusocial Exemplars Other Than Celibate Clergy

Celibacy is institutionalized only within religions. One does not have to be celibate or take a vow of chastity to do any other emotionally (and even physically) intimate human occupation, such as a physician. That itself is evidence of at least a relationship between religion and eusocial-facilitating celibacy. Celibacy is also found in other great religions that are beyond the scope of this article [1]. There are other human eusocial exemplars besides celibate clergy that will now be discussed.

There are two very strong examples of human eusociality having to do with suicide. In World War II, when the Japanese realized that they were losing the war to the Americans, kamikaze suicide bombers turned their propeller driven fighter planes into precision-guided bombs targeting American warships. The pilots were dying for country, which in Japan, with the populace believing that Emperor Hirohito was a deity, meant that they were also dying for God. For God and country (*Pro Aris et Focis*) go together so well because they both have similar if not the same tribalism-related motivations. Tribes, as contrast to more egalitarian hunter-gather bands, also have high status leaders. And, people relate to God behaviorally as though (almost always) He is an alpha male leader [53]. Hirohito was just an example of an Imperial cult in which the ruler is worshiped as a God, exemplified also by divine kings. Such theocracies have existed in ancient Egypt, China, Rome, and several places in ancient Southeast

Asia. Today, one sees remnants of this type of religious-like devotion to an otherwise secular communist dictator in North Korea with Kim Jon-un as the 'Supreme Leader.' Some North Korean women have been seen on videos overcome with emotion and crying just by being in his presence.

The other suicide-related example of eusociality is Muslim suicide bombers, who give up their own life while hopefully (on their part) killing more of the infidel out-group members in the process. Human suicide has been considered an example of a behavior that evolved by kin selection [29] and is considered by Joiner et al. [73] to be an example of deranged human eusociality. Lankford [80] presents a weak argument trying to refute a relationship between human suicide and eusociality.

The final example of non-religion-related eusocial exemplars are military forces where individuals take great risks and can and often die for their country in great numbers as witnessed by the enormous slaughter of military personnel in World Wars I and II. Sometime there is an obligatory draft where citizens (usually just male) are conscripted by their country to fight the country's wars. However, at other times men (and now women in many countries) volunteer for the armed services. Examples of where this volunteering occurred in great numbers was after the Japanese bombing of the American naval base in Pearl Harbor, Hawai'i in 1941 and after the Muslim terrorist-hijacked airplanes crashed into the two World Trade Center towers in New York City in 2001.

9. Testing the Possible Association Between Religion and Eusociality

There are many ways in which one can test the association between religion and eusociality. We know the two are at least temporally correlated in human evolution, given that our closest living relatives (chimpanzees and bonobos), with whom we had a common ancestor 6 million years ago, are neither religious nor eusocial today. But so did other major factors come into existence with our speciation, including our capacity for symbolic language. What follows is not meant to be either an exhaustive or systematic review of the literature. I am just mentioning areas in which future research will lead to better understanding of the relationship between religion and eusociality illustrated with some of the recent literature. What follows are data supporting a relationship between religion and eusociality that can be interpreted as possibly being more than a simple temporal correlation in our evolution as a species.

9.1 Association of Nationalism with Religion

Apart from the older imperial cults and the divine rights of kings and so called contemporary state religions like the Anglican Church in England and the Lutheran Church in Sweden and the Muslim theocracies in the Middle East, there are other contemporary associations between nationalism and religion. I'll cite some examples about which I'm familiar from the United States. Appreciate that the United States is a country in which there is a constitutionally mandated separation between church and state. Yet, on our currency it says, 'In God we trust.' In our pledge of allegiance to the flag we say, 'One nation, under God.' Prior to the congress starting a session there is an opening prayer by a member of the clergy. Presidents and presidential candidates almost always end speeches with 'God bless the United States of America.' God and nation, which is just the larger version of the tribe, simply evoke very similar emotions. Separation between church and state is very recent in human history.

The Old Testament as well as the Koran, both religious books, are also law books. And appreciate that there were very close ties between the monarchies of Europe and the Roman Catholic Church from the 5th to the early 16th century, when the Protestant reformation began. The takeaway point from the above is that religion and politics are closely intertwined with one another so much that folk wisdom is that one does not discuss religion and politics in polite company because of the similar

strong emotions associated with the belief systems in both of them. Religious beliefs are very similar to political beliefs in many ways including both are often partially counter-factual and partially counter-intuitive and both are difficult to change. There are probably similarities in the emotions as well. Awe might be a common emotion between nationalism/tribalism (i.e., politics) and religion. And both politics and religion also share fear and aggression given that religions evolved in setting in which one's religion was coexistent with one's in-group breeding population. Many people have certainly been killed over religious differences in the world in times and places where religions helped to isolate people as separate in-group breeding populations. Appreciate the human pattern for social groups is to grow > divide > culturally differentiate > compete. Religion is a very good cultural differentiator.

9.2 Charitable Giving

One way of testing the association of religion with eusociality is in anonymous charitable giving. When one gives to a large charity, one is usually not doing something on a 1:1 face basis with the needy recipient of the charitable giving that would tend to invoke 1: 1 altruistic empathy. Charitable giving is one method to learn about the relationship between an activity that benefits large number of less fortunate individuals in the in-group at a cost to self. However, that being said, there are times today when a great disaster anywhere in the world, such as the tsunami that occurred in Asia a few years ago, allows one to see people in great personal distress on the television news, even when they are continents away. Actually seeing the human suffering on the television news after the Asian tsunami prompted me to send a donation to a charity that was going to help these people. But that is the exception rather than the rule in terms of people's usual anonymous charitable giving. Recent research from the Pew Research Center shows that in 2014, in the United States persons who were highly religious (said that they pray daily and attend religious services at least once a week) donated significantly more to charities than persons identified as not highly religious [84]. Similar findings at other times have also been found [14], [60], [94], [81], [106], [147].

9.3 Volunteering for Military Service

The United States has had an all voluntary military since 1973. Volunteering to serve in the military as an enlisted (i.e., non-commissioned officer), where one is benefiting one's in-group often at a cost to self, is another potential measure of eusociality. In the United States there is a statistically significant correlation with the number of enlistments per 1,000 18-24 year olds with what is called the 'Bible Belt' in the United States, which are the most highly religious states in the South Atlantic, East South Atlantic, and West South Atlantic [7]. However, there were other variables that were not controlled, such as the large numbers of military bases in this region as well as economic factors. Another large sociological study that controlled for a number of possible intervening variables found that young, non-college educated males who identify as 'highly religious evangelical' are more likely to enlist in the United States military [18].

The United States Defense Manpower Management Center published a Table presenting data in 2009 [26] that queried 1,407,580 active duty military personnel on 107 possible religious preferences including atheist, agnostic, and no religious preference. They found that 0.5% of active duty military personnel identified as atheist, 0.09% as agnostic, and 20% as no religious preference. If one compares the 0.5% of active duty military claiming to be atheist in 2009 to Pew Research Center data from 2007 [84], 1.6% of all Americans claim to be atheists and 2.4% claim to be agnostic. Given that atheism and agnosticism are much higher in younger and military aged Americans, it is a reasonable interpretation of these data that military personal claim to be more religious than the general American population. Religionism appears to be correlated with nationalism and the group > self manifestation of eusociality.

10. Conclusion

It has been shown that religion and eusociality are related temporally in that they both entered our species sometime after we split from our last common ancestor with the chimpanzees and bonobos. The bigger question is whether our religions, which are unique to us among all members of the Animal Kingdom, could have facilitated our becoming eusocial. The argument has pretty much been refuted that religion is what facilitates our behaving altruistically and vice versa on a 1:1 basis. Although there are religions in which altruism is praised [96], some of the great polytheistic state religions that preceded Judaism and Christianity and Islam created gods who could not care less about how humans treated each other. Nevertheless, there is strong evidence that Christianity in particular acted as a group-binding in-group marker for the 'people of God' during the formative period of Christianity and up until at least the reformation [88]. Religiosity has been shown to still promote in-group favoritism [39].

But do religious feelings facilitate the feelings that underlie human eusociality? If moods are considered '*specific* readinesses' to act [41, p. 48], and if feelings are considered self-awareness of our moods, certain mood states facilitate or make more difficult other mood states. When they facilitate other mood states, they are considered proximate moods. So could the mood states associated with religions lower the threshold and therefore facilitate the acquisition of mood states necessary for eusociality?

Reverence to a deity, especially in petitioning prayer, is motivated by many emotions. One of the most important is fear, which can be deduced by the types of prayer postures used in petitioning prayer, which are the make-oneself-lower-*or*-smaller-*or*-more-vulnerable (LSV) behaviors associated with the non-vocal aspect of petitioning prayer. LSV behavior probably preceded vocalized linguistic behavior in the earliest expression of religion in our evolutionary history. One can show LSV behavior without uttering a single word of symbolic human speech. The earliest objects of human LSV religious behavior were the earliest deities (ancestors and great elements and forces of nature). Appreciate that LSV behavior used in the non-vocal aspect of petitioning prayer is an exaptation (a new function for an existing structural design feature) of very similar LSV behavior that was and still is used in fear-based submission throughout all social vertebrates.

In order to have social governance, as in the beginning of early tribal societies with chiefs' etc., humans would have needed to express more hierarchicality than they expressed in the more egalitarian hunter gather bands. Boehm [11] argues that egalitarian social structure in extant hunter gatherers is not a default mode but is rather imposed by coalitions of sub-dominants. So even hunter-gatherers would and could have exhibited LSV religious behavior towards the referents of animistic spirits as well as in 1:1 social interaction behavior with more dominant tribal members. But religion is and presumably was very primitive in hunter-gather bands, primarily imagistic and behavioral with unsophisticated beliefs in their supernatural animistic spirits in almost everything around them. Religion did not start to get complex until our tribal stage. Subservience to God and subservience to one's political leader are just two different variations on the same LSV theme.

Chimpanzees definitely display LSV behavior towards dominants. And yet, there is no religious behavior among chimpanzees. If one then asks what came first in human beings, the LSV behavior of subservience to other humans or the LSV behavior in the non-vocal aspect of petitioning prayer, the subservience to other humans would have been first given that chimpanzees also show this behavior. So at best one could say that the presence of LSV subservient political behavior might have facilitated the development of LSV religious behavior. We appear to have been political before we were religious. Chimpanzees are political beings [34]. Their cousins, the bonobos, show behavioral manifestations of proto-humanism [36].

But LSV behavior is not the main link between religions, political organizations, and eusociality. It seems as though the main way is in terms of religion being an in-group marker for the political in-group breeding population. Religions have behaviors and beliefs that are in-group specific. As explained, they can easily be acquired by an immigrating adolescent who might never as an adult speak the new in-group language without an accent or dialect. It was discussed how in-group breeding population specific religious beliefs and rituals can and do change easily when hunter-gather bands split and a new religion is formed in the splintered group. In-groups identify by various in-group symbols. So it is reasonable to presume that religions facilitated governances and eusociality by affording in-group-specific religious symbols to individuals and with which people could identify with the in-group. It is also important to re-emphasize that in terms of religious beliefs, what is important from a biological perspective is their utility, which is what they do. Their truth value is irrelevant to this biological function as long as they act as an in-group marker and bias the behavior of the faithful in a predictably similar way.

In summary, although the evidence is weak to non-existent that religion in general facilitates 1:1 altruistic acts among individuals or vice versa, there is evidence both theoretical and in preliminary data reviewed that religion facilitates human eusociality by being an in-group marker for a breeding population. As eusociality got more restricted with more specialization, including a non-reproducing clergy caste, western society became even more eusocially complex.

What also can be said is that religion, which is a natural 'biological' product of human gene-culture co-evolution, follows the same 'form follows function' principle that is ubiquitous in biology. As function wanes, so does form. Religion is a bio-cultural form. Remember that from a behavioral biology perspective religious beliefs, the force that hold doctrinal religions together, are information-laden physical forms, as information is always physical. And if information is that which is necessary to make decisions, in the modern age, religious beliefs are slowly losing that secondary function as well. Beliefs in general bias our behavior in predictable ways but religion is having less and less of an effect on what we believe in the modern world relative to the very important role it played in antiquity.

In the parts of the world, such as the western industrialized democracies, in which religion's influence as an in-group marker for a breeding population is diminishing, religion wanes. In biology forms with no biological function slowly become vestigial and eventually disappear. In reference to religion, this is called secularization. Much has been written on the topic [130]. Hopefully I have shown that it is at least plausible that religion played a role in our eusocial evolution by helping us go from kin based societies to the modern industrialized information age. Historians can sort out the details.

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Religious Belief is Not Natural. Why Cognitive Science of Religion Does Not Show That Religious Belief is Trustworthy

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Abstract:
It is widely acknowledged that the new emerging discipline cognitive science of religion has a bearing on how to think about the epistemic status of religious beliefs. Both defenders and opponents of the rationality of religious belief have used cognitive theories of religion to argue for their point. This paper will look at the defender-side of the debate. I will discuss an often used argument in favor of the trustworthiness of religious beliefs, stating that cognitive science of religion shows that religious beliefs are natural and natural beliefs ought to be trusted in the absence of counterevidence. This argument received its most influential defense from Justin Barrett in a number of papers, some in collaboration with Kelly James Clark. I will discuss their version of the argument and argue that it fails because the natural beliefs discovered by cognitive scientists of religion are not the religious beliefs of the major world religions. A survey of the evidence from cognitive science of religion will show that cognitive science does show that other beliefs come natural and that these can thus be deemed trustworthy in the absence of counterevidence. These beliefs are teleological beliefs, afterlife beliefs and animistic theistic beliefs.
Keywords: cognitive science of religion, religious epistemology, trustworthiness, reformed epistemology, natural beliefs.

1. Introduction

It is widely acknowledged that the new emerging discipline called cognitive science of religion has a bearing on how to think about the epistemic status of religious beliefs. Both defenders and opponents of the rationality of religious belief have used cognitive theories of religion to argue for their point. This paper will look at the defender-side of the debate. I will discuss an often used argument in favor of the trustworthiness of religious beliefs, stating that cognitive science of religion shows that religious beliefs are natural and natural beliefs ought to be trusted in the absence of counterevidence. This argument received its most influential defense from Justin Barrett in a number of papers, some in collaboration with Kelly James Clark. I will discuss their version of the

argument and argue that it fails because the natural beliefs discussed by cognitive scientists of religion are not the religious beliefs Barrett and Clark have in mind and are not any of the beliefs of the major world religions like Christianity, Judaism, Islam, Hinduism or Buddhism. I will also argue that cognitive science does show that some other beliefs come natural and that these can thus be deemed trustworthy in the absence of counterevidence. These beliefs are teleological beliefs, afterlife beliefs and animistic theistic beliefs.

In section 2, I lay out the argument in support of the trustworthiness of religious beliefs on the basis of naturalness. In section 3, I provide an overview of the scientific findings from cognitive science of religion that is used to argue for the naturalness of religious belief and in section 4, I argue that the scientific findings do not suffice for the argument discussed in section 2. In the last section, I discuss the beliefs for which cognitive science of religion does provide trust.

2. Naturalness of Religious Beliefs as Justification

An argument in the debate over the philosophical implications of the cognitive science of religion states that cognitive theories of religion increase the epistemic status of religious beliefs because they show that religious beliefs are natural. The argument was most prominently defended in several articles by Justin Barrett; both in papers of his hand alone and in collaboration with Kelly James Clark [3], [4], [5], [8], but has its roots in work by Alvin Plantinga [39]. They claim that it is rational[1] to trust natural outputs of human cognitive mechanisms as long as there are no good reasons to doubt them. Since cognitive theories of religion allegedly show that religious beliefs are natural outputs of human cognitive mechanisms[2], they ought to be trusted as well. Plantinga added that natural outputs are only trustworthy in absence of defeaters (see below) and hence grants them an 'innocent-until-proven-guilt status'. Although they do not discuss it explicitly, Barrett and Clark seem to think there are no defeaters for religious beliefs.

The argument runs as follows:

1. Religious beliefs are natural outputs of cognitive mechanisms.
2. Natural outputs of cognitive mechanisms are trustworthy in the absence of defeaters.
3. Therefore, religious beliefs are trustworthy in the absence of defeaters.

The argument is formally valid; if both premises are true, so is the conclusion. The 'innocent-until-proven-guilty principle of rationality' [15, p. 10], on which the second premise relies, goes back in Western philosophy to Thomas Reid (1710–1796). According to the principle, beliefs that humans form spontaneously or find themselves having, should be trusted as long as there is no evidence to the contrary. The principle is sometimes connected with relying on common sense. Plantinga refined this principle, stating that outputs of properly functioning cognitive mechanisms, following a good design plan, in a suited environment, successfully aimed at truth should be deemed trustworthy [39]. Relying on the outputs of our cognitive mechanisms is usually motivated by claiming that the alternative would lead to radical, or at least far reaching, skepticism. Thomas Reid's common sense philosophy is sometimes considered an anti-sceptic alternative to David Hume [6], [43]. Plantinga's views on proper functioning were partly motivated by his critique on older evidentialist views which he thought were too stringent [38, pp. 70–71]. The idea is that relying on the outputs of cognitive mechanisms without further confirmation is necessary for all sorts of beliefs which we consider true and requiring evidence for them is too big of a task. For example, people rely on it for beliefs about the existence of an external world and other minds without ever having considered the evidence in favor or against their belief. Plantinga argues that since the outputs of our cognitive mechanisms are usually deemed trustworthy, making an exception for religious beliefs is uncalled for [37].

For Plantinga, proper functioning is closely linked to a design plan; a mechanism is functioning properly when its function follows the intention of the design plan. A design plan need not result from a personal designer as Plantinga allows for an evolutionary design plan [39]. Barrett and Clark use the term 'natural' instead of 'proper functioning'. They do not refer to a design plan and adopt a more general strategy. Especially Justin Barrett stresses how our cognitive make-up

naturally produces religious beliefs [3], [5]. He uses the term 'natural', not as opposed to supernatural, but roughly as the opposite of cultural or learned. Natural beliefs are thus those that arise spontaneously, independently of culture or upbringing. In this regard, a natural belief can be defined as follows:

Belief p is a natural belief iff p is produced independently of culture or upbringing.

The term 'natural' is thus used as a synonym of 'intuitive' or 'spontaneous'. The naturalness of religious beliefs is important because beliefs that (partly) result from culture or upbringing can no longer unambiguously be called mere outputs of cognitive mechanisms. Although beliefs are not automatically rendered untrustworthy when resulting from culture or upbringing, their trustworthiness depends on many factors, like the reliability of testimony. As a result, they do not enjoy the same innocent until-proven-guilty status but require additional arguments to defend their rationality.[3]

Authors relying on common sense or defending an innocent-until-proven-guilty stance towards natural outputs of cognitive mechanisms are, however, not naïve. According to Plantinga, outputs of properly functioning mechanisms can be overridden by defeaters. In his discussion of Christian religious beliefs, Plantinga writes: "The claim [of those who argue against the trustworthiness of religious belief] is that there are serious defeaters for Christian belief: propositions we know or believe that make Christian belief (…) *irrational* (…)" [39, p. 358].[4] Barrett and Clark write: "(…) [w]e can trust beliefs produced by our cognitive faculty until that belief is undermined or defeated by stronger or better corroborated beliefs" [15, p. 10]. As a result the innocent status of natural beliefs is always preliminary since we cannot know what future defeaters will be found. Plantinga argues that there are no convincing defeaters for religious beliefs[5]. Barrett and Clark seem to hold similar views.

What does and does not count as religious is notoriously hard to define**.** Barrett and Clark are not clear on what they mean with 'religious beliefs'. They mainly discuss 'belief in God' and at one point 'belief in spirits or polytheism' [15, p. 11]. The term 'God' of course also lacks a uniform definition. In analytic philosophy of religion, 'God' is often defined as a perfect being, having perfect qualities like omniscience and omnibenevolence. In Abrahamic traditions, God is a transcendent, very powerful being who created the cosmos. In older polytheistic religions, gods are associated with natural phenomena like the wind or the oceans and some modern day animistic religions use the word 'god' in a similar way. Many Indian religions use the term 'god' to refer to celestial beings who have attained a higher (spiritual) status than ordinary humans. Barrett and Clark do not specify what they mean by the term. Their papers do make it clear that they are writing from a Christian perspective. We can thus safely assume that their understanding of the term 'God' comes close to the Abrahamic understanding where God is a transcendent, very powerful being who created the cosmos.

The conclusion of the argument does not state that religious beliefs are trustworthy. To make this claim, one must argue that no defeaters are available. Defenders of this kind of arguments devote most of their attention to defending the second premise. Most criticisms are also aimed at this premise [18, pp. 194–199], [44], [24]. Some critics have granted both premises and the conclusion but argue that there are successful defeaters for religious belief [16], [35]. Some authors have attacked the first premise. Jason Marsh argues that the wide diversity in religious beliefs poses a problem for thinking that religious beliefs are natural outputs of our cognitive mechanisms [32]. Jonathan Jong, Christopher Kavanagh and Aku Visala argue that the God of classical theism does not match the idea of God that comes naturally and therefore appear to deny the first premise [27]. My argument is different since it does not involve the God of classical theism but religious beliefs. Although there may be some overlap between some religious beliefs and the God of classical theism, the overlap is limited and religious beliefs move well beyond the God of classical theism.

In this paper, I will grant the second premise and focus on the first premise. I will argue that the first premise does not hold under scrutiny because religious beliefs move well beyond the natural outputs of properly functioning cognitive mechanisms and often even contradict them. For this purpose, a closer look at the evidence from cognitive science of religion is needed.

3. What Natural Beliefs?

Clark and Barrett claim that recent insights from cognitive science of religion support the first premise stating that religious beliefs are natural outputs of cognitive mechanisms. Indeed many authors in cognitive science of religion subscribe the claim that religious belief is natural.[6] In this section, I will survey the evidence from cognitive science of religion in support of this claim. A number of cognitive theories of religious beliefs can be used as evidence. Since the theories in cognitive science of religion are diverse, I will focus on the most widely discussed theories and distinguish three groups; one suggesting that a number of natural beliefs prepare the way for religion, one suggesting that theistic beliefs themselves are acquired easily and naturally, and one suggesting that people naturally find themselves having theistic beliefs. All theories I will discuss put the emphasis on unconsciously formed, intuitive beliefs rather than on consciously formed, reflective beliefs.[7] They all suggest that religious beliefs should primarily be explained on the level of the first kind of beliefs. In all this, a caveat must be made that none of the claims about natural beliefs discussed below should be taken as established. Although some are better confirmed than others, none of them is uncontroversial.[8]

Some psychologists suggest that a number of beliefs of importance for religion emerge naturally during childhood development. Though these natural beliefs cannot be called religious themselves, they are thought to prepare the way for religious beliefs or make the acquisition of religious belief easy. A first kind of natural beliefs is teleological beliefs. Deborah Kelemen and her team observed that children are prone to give teleological explanations for phenomena where teleology is absent [29], [30]. When children were asked questions like 'What are clouds for?' or 'What are lions for?', many of them gave answers along the lines of 'Clouds are for raining.' and 'Lions are for visiting in the zoo.' Older children were less likely to give similar answers and adults usually gave mechanistic, non-intentional answers. However, when adults were asked to answer question under time pressure, they were again more likely to give teleological answers [30]. A study on Romanian Gypsies showed that adults who had not received much education were more likely to give teleological answers [13]. According to Kelemen, these results provide evidence for the claim that humans have a general bias to treat objects and behaviors as existing for a purpose. After learning scientific (i.e. mechanistic, non-intentional) explanations for phenomena, the bias recedes but does not completely disappear. According to Kelemen, 'promiscuous teleology' is believed to be a conceptual prerequisite for intuitive theism [30].

A second kind of preparatory natural beliefs are beliefs about mind-body dualism. According to Paul Bloom, it is not controversial that naïve physics is different from naïve psychology and therefore people think of physical entities in different terms than psychological entities. Bloom claims the difference results in the intuitive belief that the mind is distinct from the body or can exist separately from it. Experiments showed that young children tend to believe that the brain is only responsible for some mental activities, like solving math problems, but not others, like pretending to be a kangaroo or loving one's brother. They believed the latter activities are done by persons and not by their brains. Mind-body dualism is thus a by-product of people having two different cognitive systems, one for physical entities and one for psychological entities. This dualism makes it possible to imagine an immortal soul and immaterial gods [11]. Bloom's common sense dualism is closely related to the third kind of natural beliefs, immortality beliefs.

Jesse Bering and his colleagues concluded from experiments that children intuitively believe that people continue to have psychological states after biological death [9], [10]. In one experiment, children watched a puppet show in which one character died. When the children were asked whether the dead puppet still had mental states, they tended to answer in the positive. For older children and adults, not all mental states continued after death but mainly epistemic, emotional and desire states like 'being hungry' or 'being sad' [9].

Teleological beliefs are very different from beliefs about mind-body dualism or afterlife but these (kinds of) beliefs are similar insofar that they are believed to prepare the way for religion.

Bloom suggests that a combination of these beliefs is needed to arrive at religious beliefs but Kelemen and Bering seem to believe that one is enough. None of the authors discusses in greater detail how the intuitive beliefs result in religiosity. They do suggest that religiosity is the evident next step when the intuitive beliefs are in place. For example, Paul Bloom writes: "The proposal here is that there are certain early-emerging cognitive biases that give rise to religious belief. (…) These biases make it natural to believe in Gods and spirits (…). These are the seeds from which religion grows" [11, p. 170].

A second group of theories has also gone one step further and argued that belief in God itself is acquired easily and naturally. Justin Barrett argued that humans tend to overdetect agency. Upon hearing sounds like rustling of leaves or seeing things like a branch that resembles a snake, people tend to believe that they are caused by or are agents. Barrett suggests that this was evolutionarily beneficial for our ancestors; detecting too many agents was much safer than detecting one too little because detecting one too little could have resulted in not noticing an approaching predator. Usually the initial beliefs about agency are overruled by checking the environment and finding an explanation for the perceived phenomenon. Sometimes no explanation is found and then humans will tend to infer that an invisible agent caused the phenomenon. Once the presence of an agent is inferred, humans will begin reasoning about the agent and form more elaborate beliefs about its nature [2].

Kurt Gray claims that humans intuitively look for a moral agent and a moral patient in situations they experience as morally significant; moral agents being those who do good or bad, and moral patients being the recipients of good and bad [22]. In situations where people find themselves as moral patients (e.g. when they are harmed or helped) but cannot find a human moral agent, they form beliefs about an ultimate moral agent. Clear examples of such situations are natural disasters. For Gray, belief in God is thus intimately tied to beliefs about morality. People can thus infer to God both in good and bad situations but Gray suggests bad situations are more likely to lead to belief in God. Gray finds support for his theory in studies stating that suffering and belief in God are significantly correlated [23].

Jesse Bering argued for something similar like Gray and Wegner but in his view people (unconsciously) infer to God when experiencing meaningful events. He claims that people have an 'existential theory of mind', a cognitive system that allows people to attribute meaning to certain experiences. Meaning is intuitively connected to agency so when people experience something as meaningful they look for an agent who invested the event with meaning. For some meaningful experiences no human meaning giver is to be found. For example, in the case of a beautiful sunset which is experienced as meaningful or again a natural disaster, no human can be pointed to as meaning giver. In these cases, people will infer to an ultimate meaning giver according to Bering [7].

Barrett, Gray and Bering all suggest that vague theistic beliefs are acquired naturally. Although vague, the theistic beliefs are not just the bare belief in the existence of a god, but belief in (a) divine agent(s) for Barrett, in a divine moral actor for Gray and in a divine generator of meaningful events for Bering. On the three theories, people arrive at theistic beliefs in different ways but they are not mutually exclusive. Gray explicitly connects his theory to Barrett's [23], and all are similar in claiming that theistic beliefs result from an overly active cognitive mechanism. These three theories are less well backed up by empirical evidence than theories from the first group. Bering offers some limited evidence himself but Barrett and Gray leave it at stating their theory.

A third group of theories states that people naturally find themselves having theistic beliefs. The difference with the previous group is that these theories suggest that theistic beliefs are not so much acquired after experiences of agency, morality or meaning, but rather preprogrammed by our evolutionary history. One influential theory connects belief in God to social cooperation [36], [41]. Defenders of this theory note that people rely on social cooperation for their survival to a far greater extent than any other animal. Our ancestors already had to make arrangements to coordinate the activities of the tribe (hunting, food gathering, etc.) and with the emergence of states coordination

became even more important. A problem is that people can forego their obligation and rely on the efforts of others because no one can be sure if someone will keep their promises. When people have the belief that a God with full access to people's intentions and desires is watching them and that this God will punish or reward people in accordance to their obedience to the norms, people are far more likely to keep their promises and cooperate. As a result, tribes with the belief in God were more successful in surviving and belief in God was inherited. A number of philosophers have argued that this evolutionary story might have been God's way of letting Himself be known [34].

Another theory suggests that gods function as attachment figures who provide comfort and alleviate psychological stress. Belief in God is said to provide a safe haven in times of distress and serve as a secure base for risky and challenging endeavors. In this regard, attachment to God is similar to attachment to parental figures [20], [21]. Lee Kirkpatrick suggests that believing in God as an attachment figure could be evolutionarily beneficial, but holds that this is not very important for the theory [31]. An evolutionary account would account for why people would naturally find themselves with beliefs about a divine attachment figure. To my knowledge, implications of an evolutionary account have not been discussed by philosophers but this could also be God's way of letting Himself be known.

Both theories share the suggestion that people naturally have vague theistic beliefs. In contrast to the second group, both theories have little to say on how theistic beliefs are acquired but rather suggest that people naturally find themselves having these beliefs. Their beliefs are also not bare theistic beliefs but belief in in a morally concerned, all-seeing god for the social cooperation theory and in a comforting, loving god for the attachment theory. The theories are also not as well backed up by empirical evidence as theories of the first group. Empirical evidence for evolutionary theories is of course more difficult because they cover processes stretching over millennia that cannot be repeated.

4. Natural Religious Beliefs?

Now does the evidence from cognitive science of religion establish the first premise, stating that religious beliefs are natural outputs of properly functioning cognitive mechanisms? At first glance, the answer should be negative for the vast majority of religious beliefs. Although the major world religions are very diverse, it is safe to say that most of them move well beyond the intuitive beliefs from the first group of theories. Teleology is filled in a number of very different ways; Abrahamic religions will state that the teleology in nature flows from the will of God and many Indian religions will state that teleology results from the universal laws of karma. Religious traditions that subscribe to mind-body dualism also do not rest at the belief that the mind is somehow different from the body but hold that mind and body are separated after death. Many religious traditions also have beliefs about what will happen after death that are much more elaborate than the belief that psychological states will continue.

All theistic religions[9] also move beyond the vague theistic beliefs discussed by the second and third group of theorists. No cognitive theory states that full-blown religious beliefs, like belief in the Trinity or the avatara of Vishnu, are the natural outputs of our cognitive mechanisms. Often cognitive scientists will admit that culture plays an important role in shaping religious beliefs. If that is the case, religious beliefs can no longer themselves be called the natural outputs of our cognitive mechanisms[10] because natural is defined in opposition to cultural or learned (see section 1). Clark and Barrett acknowledge this point but respond with: "(…) [T]he initial function of the godfaculty [Clark and Barrett's term for the cognitive mechanisms producing theistic beliefs] (…) is to make humans aware (…) of the sacred dimension of reality rather than clearly defined Judeo-Christian conceptions of God (…)" [14, p. 187]. Their response does not avoid the problem. If only awareness of the sacred dimension of nature comes naturally, only the belief that nature has a sacred dimension is shown to be trustworthy by their argument and not the Judeo-Christian conceptions of God. To argue for the trustworthiness of religious beliefs more will be needed.

Defendants could also respond that current cognitive theories still provide some reasons for trusting religious beliefs because important elements, like belief in God, do come naturally. This is a valid response but since those theories claiming that theistic beliefs are natural only discuss vague theistic beliefs the trust will be limited. Complex theistic beliefs, like the Christian belief in the Trinity, move very far from the vague theistic beliefs discussed by the second and third group of theories in section 2. If vague theistic beliefs come natural this gives some trustworthiness to the Christian belief in the Trinity but the trustworthiness is of the same order like the trustworthiness article 10 of the Belgian constitution, stating that all Belgian citizens are equal before the law and hence allowed to hold public and military office,[11] gets from the natural, intuitive belief that people should be treated equally. Moving from a vague theistic belief to the belief that God created the world, became incarnate, and sends his Spirit to live in each of us, requires many intermediate steps which do not come naturally and need to be rendered trustworthy on other grounds.

The first premise of the argument can also be relaxed, stating that religious beliefs are not natural outputs themselves but result from natural outputs of our cognitive mechanisms via some intermediate steps. Stated as such, religious beliefs themselves do not come naturally but can rightly be called natural outcomes of our cognitive mechanisms. This approach is suggested by the first group of theories, discussed in section 2, and also by Barrett. It draws on ideas from dual process accounts of cognition where beliefs result from both online, fast, intuitive thinking and offline, slow, reflective thinking [28]. Barrett distinguishes nonreflective beliefs from reflective beliefs. Nonreflective belief is Barrett's term for intuitive or natural beliefs and reflective beliefs are beliefs arrived at through conscious, deliberate mental activity. He argues nonreflective beliefs influence reflective beliefs in three important ways; they act as a default for reflective beliefs, they make (some) reflective beliefs more plausible and they shape memories and experiences [2, pp. 2–26]. Since reflective beliefs are thoroughly influenced by intuitive beliefs, claiming that the latter come natural will show that the former are trustworthy.

This approach is problematic. Apart from the fact that it is hard to assess to what extent reflective religious beliefs are influenced by intuitive beliefs, a problem arises. Barrett's view does not hold for the reflective beliefs of the major religions. In all major religious traditions at least some of the intuitive beliefs discussed in section two are contradicted. We already noted the mismatch between intuitive theistic beliefs and nontheistic religions. Christian doctrine contradicts the intuitive beliefs discussed by Barrett and Gray. In the Christian tradition, God's activity in the world is limited so that most intuitive beliefs about invisible agency, which Barrett discusses, will be dismissed. For most Christians, morally bad events do not directly result from God's agency but rather from sin or the fallen status of the world so the intuitive belief of God as ultimate moral agent will be dismissed. Most Christians will also portray God as forgiving in nature rather than punishing. Jewish and Islamic doctrine contradicts Kirkpatrick and Granqvist's intuitive beliefs. The Jewish and Islamic traditions, where God is believed to be strictly transcendent, does not fit well with an intuitive belief in a comforting God who alleviates stress that defenders of the attachment theory discuss. Finally, Indian religions tend to contradict the intuitive beliefs discussed by Bloom and those of the third group of theories. Many Hindu traditions, Sikhism and Buddhism will discard the intuitive mind-body dualism and the intuitive moralizing nature of God.

The fact that all major religious traditions subscribe to some intuitive beliefs and dismiss others poses no problems to their internal consistency because each tradition can serve as an overrider system.[12] Each tradition can override certain intuitions on the basis of sacred texts, authority of important figures or knowledge from certain ritual practices. Sacred texts, authority of important figures and/or knowledge from certain ritual practices can thus be defeaters for intuitive beliefs. Christians can dismiss the intuitions that God is frequently intervening in nature and yet hold on to the intuitive belief in God's moralizing and comforting nature because the latter beliefs are confirmed in the Bible whereas the former are denied. Muslims will base their objection to a comforting God by referring to Quranic surahs. Jews will do likewise by referring to the Torah. A follower of Hindu advaita vedanta might overrule her dualist intuitions because of the authority of

Adi Shankara's writings or because of her experiences during yoga meditation. A Buddhist can refer to her experiences of unity with the universe during meditation.

Furthermore, when religious traditions endorse intuitive beliefs, they usually don't do this by merely claiming that they come natural but often claim they were confirmed by revelation, experience or reasoning. Natural beliefs thus appear to play some role in establishing religious beliefs' trustworthiness, but their role is very limited because the authority of sacred texts, authoritative figures and knowledge from ritual practices is much greater. The question whether the traditions themselves are trustworthy falls beyond the scope of this paper. It is, however, clear that an appeal to naturalness is no longer warranted since natural beliefs are often discarded and when they are affirmed they are rendered trustworthy in other ways.

5. What Does Come Natural

We noted in the previous section that the evidence from cognitive science of religion is insufficient for defending the trustworthiness of religious beliefs and thus that Clark and Barrett's claim does not hold water. Theories in cognitive science of religion do, however, claim that some beliefs come naturally and hence are trustworthy in the absence of defeaters if one subscribes to Clark and Barrett's (and Plantinga's) argument. I will discuss each of the three groups separately.

Kelemen's experiments provide evidence that the belief about teleology in natural comes natural. The experiments do show teleological beliefs receding when people learn mechanistic explanations but this only shows that in some or many cases there are defeaters. In cases where there are no such defeaters, teleological beliefs can thus still be trusted. Bloom's intuitive mind-body dualism also comes natural, but here there appear to be convincing defeaters. Modern science (especially neuroscience and psychology) show such an intimate connection between mental operations and the physical body that a strict separation between the two is implausible. Recent defenses of mind-body dualism [19], [42] also do not rely on intuitive beliefs. The naturalness of afterlife beliefs discussed by Bering and his colleagues supports the belief that physical death is not the end. Often this belief is overruled by a commitment to some form of physicalism.[13] For those who do not subscribe to physicalism, the belief that life continues after death is supported.

The intuitive theistic beliefs discussed by Barett, Gray and Bering support a form of theism closely resembling animism or spiritism as it is still practiced by indigenous tribes in Africa and America. Boyer discussed at length how many tribes believe that spirits are often interacting in the world and are morally concerned [12]. Animistic rituals and shamanism suggest that animistic spirits or gods are also believed to invest meaning in events. David Hume famously claimed that animism was the original religion from which all other religions developed [25], and Boyer makes a similar suggestion [12]. We noted that the development cannot be as straightforward as Hume and Boyer claim because religious traditions contradict many of the animistic beliefs. Nonetheless, animism can be deemed trustworthy when overrider systems like those of the major religious traditions are absent.

The theories from the third group are interesting because they yield contradictory beliefs; on the first belief in a morally concerned, punishing god comes natural and on the second a loving forgiving god. the first thus gives trust for theistic beliefs resembling those of Judaism and Islam whereas the second gives trust for beliefs closer to those of Christianity and bhakti strands of Hinduism. Each of both theories can also be made compatible with the beliefs discussed by the second group of theories, yielding trust for an animism with punishing or loving gods and spirits. A combination seems difficult. This might signal that one of the two theories must be false or that both are incomplete. Assessing this falls beyond the scope of this paper.

6. Conclusion

In this paper I have argued that arguments to show that religious beliefs are trustworthy on the basis of their naturalness fail because religious beliefs are not natural. The beliefs of major religious

traditions differ greatly from the natural beliefs discussed by cognitive scientists and often even contradict them. Religious traditions can be consistent when rejecting natural beliefs because natural beliefs can be overridden by elements from their tradition, like sacred texts, authoritative figures or experiences during rituals.

I have also argued that cognitive theories of religiouis belief do yield trust for some beliefs, namely some teleological beliefs, afterlife beliefs and animism. Two theories provide trust for contradicting beliefs; one in a punishing god and another in a loving forgiving god.

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Notes

1. Clark and Barrett are not clear on what they mean by 'rational'. For Plantinga, someone is rational if she has not violated any of her epistemic obligations. This fits well with Clark and Barrett's argument. The term is, however, used in a wide variety of ways by epistemologists. In the remainder of this paper, I use the term 'trustworthiness' to avoid confusion.
2. The term 'cognitive mechanism' is used to talk about specific functions of the human mind. Some cognitive scientists take a firmer stance and argue that cognitive mechanisms are distinct modules in the brain. Most cognitive scientists, however, take a more relaxed view.
3. One could argue, like Plantinga, that testimonial beliefs also enjoy an innocent-until proven-guilty status. But then the trustworthiness of religious beliefs no longer depends on their naturalness like Clark and Barrett claim.

4. Plantinga distinguishes between rebutting and undercutting defeaters; rebutting defeaters being propositions that rule out the truth of a belief you hold and undercutting defeaters being propositions that are (inconclusive) reasons for giving up a belief.
5. Plantinga primarily discusses Christian beliefs.
6. Prominent cognitive scientists, besides Justin Barrett who defended this claim are Robert McCauley [33], Pascal Boyer [12] and Jesse Bering [8]. Of these, only Justin Barrett discusses the consequences of religious belief allegedly being natural for its trustworthiness.
7. This distinction was popularized by Daniel Kahneman [28]).
8. For example ,cognitive scientist Jonathan Jong writes: "(…) [C]entral tenets of the ECSR [evolutionary cognitive science of religion] are (…) notoriously under-determined by data, as anyone intimately familiar with the primary research literature knows." [26]
9. I take theistic religions to be religions that accept the existence of at least one god. This excludes among others Theravada Buddhism and religious naturalism. If the category gods is limited to creator gods, it also excludes other strands of Buddhism, Jainism, Taoism and animism. Obviously Barrett and Clark's argument does not rule in favor of them.
10. This point was also made in a somewhat different way by Jonathan Jong, Christopher Kavanagh and Aku Visala [27]. They, however, do not explicitly discuss the ramifications for the trustworthiness of religious beliefs.
11. http://www.senate.be/doc/const_nl.html#const
12. The term 'overridder system' was first used by William Alston [1].
13. Physicalism is the philosophical doctrine that everything is material or physical.

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‘Responsible Interim’: Revising Hermeneutics and Ethics in the Era of Globalization and Religious Plurality. Philosophical and Sociological Reflections on the Modern State of Religion

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Abstract: Coming from a more *comparative point of view* as far as *Theology of Religions and Interreligious Studies* are concerned – though to a certain extent as well as a pluralist in the sense of hope for universal understanding and well-being – I want to ask how *Interreligious and Intercultural Hermeneutics* are a necessary tool when we try to set up *minimal standards for a Global Ethics* in the reality of nowadays multicultural societies. I introduce for Ethics as well as for Hermeneutics the concept of *‘Responsible Interim’* – the latter reflecting the fact that human beings do have universals only under the *‘eschatological reserve’* (in Christian terminology), as *‘Suchness in Emptiness’* (in Buddhist terminology). I will proceed from universal truth questions and more general questions of philosophy of religion towards questions of cultural i.e. religious contexts shaping ethical and religious view(s) and convictions. Can smallest common denominators be found? How does *legal rule* help to establish and keep them? How does society, how do individuals change by starting from a spiritual, creative and holistic and maybe even *transpersonal point of view* – a view of *co-creation* and *incarnatio continua* in religious, i.e. in Christian terminology again?
Keywords: Comparative theology, theology of religions, interreligious studies, interreligious and intercultural hermeneutics, holistic hermeneutics, minimal standards for a global ethics, ‘responsible interim’, ‘eschatological reserve’, ‘suchness in emptiness’, legal rule, transpersonal point of view, co-creation, Incarnatio Continua, deep pluralism, beauty.

1. Introduction and Preliminary Remarks

A global world is a plural world. Not the least migration has brought plurality to each and every country – plurality of cultures and religions. No wonder that it is 30 years already that Alan Race published his well-known classic ‘Christians and Religious Pluralism’ [31], a book eagerly perceived and discussed in the World Council of Churches and the Ecumenical Institute of Bossey, Switzerland, where I spent a special internship at the beginning of the eighties. My parish past and future was of mainly bourgeois downtown background with English worships for tourists and foreign visitors: we just *had* to become ecumenical. It also had at its Eastern outsets the second

largest prostitution area and a growing number of migrants, i.e. asylum workers: therefore we *had* to be aware of socio political and intercultural questions. We were more and more faced with secularism and declining numbers of church and hence parish members. We were surrounded by citizens from non-Christian background and *had* to discuss the question of interreligious encounter. We of course had been engaged in Jewish-Christian dialogue since quite long (the huge and impressive Frankfurt synagogue, painted so marvellously by Max Beckmann, had been at Börneplatz, which then was part of my parochial parish compound too), but this of cause was an agenda set by German history and the Holocaust and had to be differentiated also in terms of church history and the Jewish roots of Christianity itself.

When I look back I never had the idea that interreligious dialogue and interfaith engagement or even a necessary *Theology of Religions* could be done and achieved without taking into consideration connected sociological, political, economic and juridical questions, or the question of how societies and religious bodies are shaped by culture, art and ritual.[1] When I look back, in my professional career philosophy and theology always had to make sense for pastoral considerations as well, since it is not only reason pleading for a common truth or *Ethics* of humankind but also our heart which has to accept them, our spirituality in which it has to play a role. Without personal convictions, without self-understanding also in terms of faith and confession, without taking into consideration that milieu and heritage, education and class shape us as individuals there will never be what I would like to call a 'grown up and trustworthy intellectual conviction and theory of truth and behaviour'. And here lies the reason why the introduction to an article which seeks to help building a platform for interreligious and intercultural encounter starts with rather personal remarks too. If the outcome should be a trustworthy and disputable suggestion for revised *Hermeneutics* and Ethics in a plural world, philosophy of religion has to proof its suggestions on the level of religious studies, Ethics and personal faith convictions.

2. In Order to Be Holistic Hermeneutic Has to Be Pluralist

Hermeneutics is not only understanding words (and maybe with them the Word of God), understanding scriptures and sayings but also very individual or collectively grown expressions of a culture, of a religion in art and music, of ritual. Gadamer can be seen as father of a universal Hermeneutics in the footsteps of Heidegger: all understanding (of a text, of a piece of art of the partner in dialogue) is bound to language. Therefore whenever we try interpretation we have to be aware of our pre-judices, i.e. underlying subjectivity I may add.[2] Discourse and dialogue is always needed. In a hermeneutic circle singularities and universals interpret each other. For Gadamer however understanding as it is described is much more than a method; it is universal [9]. Understanding, i.e. Hermeneutics is seen as the basis of human existence. There must be a correlation then of truth, sense, perception and understanding, between understanding and explanation, between dialogue partners, between a reader and a text, a piece of art and so on.

I would call this 'holistic understanding', a hermeneutic deeply influenced by phenomenology therefore necessarily pluralistic. But also a hermeneutic which takes space over against time very seriously. Merleau-Ponty for example, due to his study of Husserl and Heidegger, suggests a 'third dialectic' in dealing with the fundamental connection between 'Esse' ('Dasein') and 'World': the basic constitution of the subject is not its intentional conscience neither its 'Esse', but its corporeality [25].

A more '*holistic Hermeneutics*' has been suggested again and recently by scholars of Comparative and Post Liberal Theology. Marianne Moyaert [27, p. 289] points out, that meaning does not exist apart from its material embodiment. She quotes George Lindbeck [22, p. 187] in that religions "even more than the culture and languages they resemble, are like places of residence, which one cannot leave without losing part of oneself".[3] And as Paul Griffiths writes, "it seems to those who belong to it, to be comprehensive. It seems to them to take account of and be relevant to everything" [12, p. 9]. But religion, be it as our ultimate concern(s) ("das, was uns unbedingt angeht", as Paul Tillich put it [41] or as one of many autopoietic subsystems of society (and culture)

[23] from a secular sociological point of view, cannot and should not (wholly) occupy what in recent cultural anthropology, coming from geographical sciences, is called 'third space'[4]; the space of civil society. In fact this 'third space' cannot but be as plural as our societies are. We need space for our ultimate concerns - that is true. And since they always drive us towards action, there is no Hermeneutics without and Ethics accompanying. We should however not forget that whatever truth we know of, whatever Ethics we plea for is hermeneutically in process and never absolute. In Christian terminology we may also call this *'under the eschatological reserve'*. As Christians talk of the 'Already now and not yet' of salvation, they also are aware that final truth is only to be expected at the end of times.

One of the advantages of Enlightenment Philosophy and Protestantism for Ethics therefore is the teaching of the Two Kingdoms and its counterpart in constitution law as separation of religion and state. In a multicultural society, in a global world we will have to live with minimal common standards of agreement in order to have as much as possible democracy and justice. Again: the 'third space' will always be a space for a plural civil society. There can be only unity as long as diversity is taken serious.

3. A Hermeneutical and Ethical Theory of 'Responsible Interim' – a Revised Comparative Theology in Terms of 'Pluralism Under the Eschatological Reserve'

As 'Comparative Theology', to my point of view, tends to be a variation of older (mainly Catholic) Inclusivist Models and 'Pluralist Theology' is in danger to end up in a mere Humanist Philosophy (sometimes a *'hidden inclusivism'*), what is often called 'Intercultural Theology'[5] not seldom ends up de-masking as a modern and late modern form of mission theology. Where it used to seek inculturation of the Christian teachings and doctrines, it now opens up dialogue with those various cultural contexts of Christianity. And sometimes with those religions which have been shaping it.
Some, for example Franz Gmainer Pranzl and with him the 'Zentrum Theologie Interkulturell und Theologie der Religionen' at the University of Salzburg (Faculty of Catholic Theology), prefer to see 'intercultural' as an adverb: since the historical and hermeneutic ground is plural in itself, interculturality is not an aspect of theology but describes the method and Hermeneutics it has to follow. Interculturality nowadays plays a more and more important role in philosophy and cultural anthropology as well[6] A well-known representative of Intercultural Philosophy, from a more Indian-Hindu background is Ram A. Mall, from a Persian-Muslim background let me mention Hamid. R. Yousefi [24], [49].

Reinhold Bernhardt, a well-known German Systematic Theologian and 'critical Pluralist' described in a lecture [2] during the annual conference of DGMW (German Society for Mission Studies) in September 2013 in Hofgeismar, Germany, 'Intercultural Theology' in its bridge building function between Systematic Theology and Religious Studies: in providing a larger 'material base' (as far as culture is concerned) it leads a way out of the prevailing mannerism and provincialism of the former. Furthermore it helps to escape Western monoculturalism by taking up the context paradigm in, for example, cultural semiotics and reconstruction.

I do see the advantages of a revised comparative as well as pluralist point of view as far as Theology of Religions and Interreligious Studies are concerned. And, as stated above, all my pastoral work, ecumenical engagement, all conferences, workshops and think tanks I had the pleasure to prepare, organize and conduct, finally my research, have proved that there is no Theology of Religion(s) without the questions of how religion and culture are connected. And they *are* deeply intertwined. So again: why not 'Intercultural Theology' as an important aspect of 'Theology of Religions' and it's 'Typology' as well? Maybe 'Intercultural Theology' – at least in Germany and as stated already above – still has too much a connotation of being a 'modern way of Mission Theology' that is aware of the meaning and importance of culture, not the least inculturation. And sometimes it tries to avoid questions of interreligious encounter by taking non-Christian religions just as 'part of foreign culture/s' to be understood for Christian theologians and missionaries. But even where it opens up an earnest dialogue with non-Christian religions (and

world views), it stays part of or at least is deeply connected with the Typology of Theology of Religions. It is sharing its exclusivist or inclusivist, and sometimes pluralist, also critical pluralist standpoints. In the latter case pluralism in some cases would be called 'pluralism under the 'eschatological reserve'. Other Pluralists have come to what is called 'dual belonging', describing a sort of 'religious bi-linguality'. In Paul Knitters case however it is to be seen that there stays a certain inclusivism: if I am not mistaken Knitter sees Buddhism as a deepening factor of his Christianity and not equitable in the deepest sense [17]. Even representatives of dual belonging, one famous German representative being Perry Schmidt Leukel und Reinholdt Bernhardt, the latter teaching at Basel University [35] are in danger of arguing from a humanist-philosophical meta-position.

The very term 'intercultural' can be misleading if it is not taken in terms of a (more phenomenological) comparison of religions but tends to construct a very sophisticated religious or cultural syncretism.

In terms of *Hermeneutics and Ethics*, when asking the truth question (be it philosophical, religious or ethical) I am obliged to reflect the 'observer's standpoint' being that of a confessing Christian. Arguments from creation theology allow me to argue for salvation of all beings (living and non-living – but this would need another article to explain more deeply), and be it under the 'eschatological reserve'. From my understanding of theology of the cross on the other hand I cannot but differentiate between my personal Christian confession and the probability of more than one 'truth' because of the confessional truth claims of followers of other religions and world views. This cannot but lead to a dialectical, i.e. critical analytical philosophical approach and a Hermeneutics and Ethics to be developed in '*responsible interim*' as I call it – and will come back to later.

And if theology means to defend faith before reason, this does not mean, to my point of view, to neglect any critical potential of truth questions or to renounce valuation. But any valuation and any truth claim is done in '*responsible interim*', under '*eschatological reserve*' to put it into Christian terminology and without any exclusivism (an analogy from natural science would be the principle of falsification so to speak – again a topic to be discussed in another article). Whether we call that 'deep religious pluralism' as Griffin (coming from Comparative Religion) does from a more process philosophical background [11] or follow those who are in favour of what often is called 'mutual inclusivism' still has to be discussed and depends not the least on answering the question whether process thought still is a metaphysics – though 'in becoming'.

In what developed from the 90ies onwards as 'Comparative Theology' comparative meant an inter textual, pre dogmatic and pre systematic approach. All conclusions are seen as of preliminary character, grand narratives are rejected. Far more the serious study of other religions is seen as an intellectual and ethical MUST. Local comparisons of really existing faiths and their expressions are urgently needed.

Francis Xaver Clooney [3] can be seen as an early and important representative of this so called 'alternative' to pluralist approaches. Comparative Theology for him stresses experience and confession over against Metaphysics and centrist or essentialist approaches.

Comparative Theology however, despite its post-modern gestures, often ends up more traditional then Pluralist Theology in stressing, not so much the singularity of personal confession, but the uniqueness of each religion, i.e. faith system. And of course, when we stress what is unique in each religion there is no way but also stressing their sometimes (confessional) absolutist claims.[7] Yes, it is possible and most helpful to share in liturgies of other faith communities and get to know to ones best ability their Ethics, doctrines and philosophies. But when it comes to research let us stick to describe them from a more epistemological, i.e. phenomenological point of view. Even if one would claim to try and 'share' faith claims other than one's own from within (for example because of dual belonging, which out of various reasons for me theologically is perfectly justifiable but then again and though epistemologically and spirituality intriguing, not any step further on a way towards a universal truth) this could never be a scientific argument for or against whatsoever. Moreover it would lead those strongly criticizing the hegemonic attitude of traditional pluralism into a double bind situation in claiming deep pluralism and at the same time defending the

uniqueness of their own religion – and be that out of church political reasons. Those on the other defending the truth of different religions by pointing out to the 'truth' of dual belonging set up a new hegemony by 'knowing' several final ultimates – and be that by faith.

Of course we know today, especially as a result of modern natural science, – and have to take this seriously as theologians if we still want theology to be a scientific discipline - that there is no neutral observer's position. And this is the case also for philosophy (of religion). Therefore whatever theology of religion(s), whatever Hermeneutics or methodology we follow we are well advised to reflect upon the subjective, confessional, preliminary factor.[8]

Those representatives of Religious Studies trying to do justice to the observer's standpoint by developing what they call 'Intercultural Religious Studies'. Different traditions of Religious Studies and their individual questions and solutions are seen as equal contributions to the ongoing discourse. The influence of personal faith and religion is taken seriously over against an understanding of Religious Studies as purely scientific and phenomenological (as for example in the DVRW, the German Association for the Science of Religion).

Religious Studies claiming scientific neutrality over against Christian Theologies of Religion sometimes rely upon Lévi-Strauss [21] who compares the relation between linguistics and language with the one between ethnology and culture. The rules and structures of culture like those of language to his point of view are only to be understood from without. But his 'structural anthropology' still claims that a system and its contextual structure as a whole is underlying reality.
In their debate about nativism and constructivism Chomsky claims over against Piaget, that for the understanding of language there exists genetic bases in human brain [29]. But if we follow Piaget in his argument that language shapes and makes our reality or perception of it however and take this serious we reach what can be called linguistic relativity. This can be called 'post structuralism' in so far as it also denies the (linguistic) methods of structuralism and questions traditional standards of rationality in general.

However I would argue that Pluralism as well as Comparative Theology in their still metaphysical, i.e. idealist claims tend to post Enlightenment thought structures, whereas post-structuralists such as Derrida for example are closer to Critical Idealism again – especially in its *deontological* aspects (and deontological Ethics does by no way mean that concepts of material *Ethics* are lacking). Whether Post Structuralism ends up in language games and relativism or whether it takes serious the relativity of truth and reality (be that over against a spiritual ground or not) and in doing so helps to avoid hegemonic truth claims and moral systems (Foucault understands even language as technology of power. Discourse for him in a way means the understanding of reality in a certain era [6.]) is a question yet to be discussed in far more detail.

4. The Concept of 'Responsible Interim' in Buddhist-Christian Encounter: Truth and Justice in Becoming

In the following I want to ask how my 'hermeneutical and ethical theory of 'responsible interim'', how is revised Comparative Theology and a Pluralism 'under the eschatological reserve' can and should not only lead to a shared standpoint of 'a truth in becoming' but also be helpful when we try to set up '*minimal standards for a Global Ethics*'.

Taking Buddhist-Christian encounter as an example, I ask, how those questions can be better answered from its results and suggestions. Can smallest (hermeneutical and ethical) common denominators be found (at all)?

Western culture often and rightly is accused of a narrative of grasping, clinging, holding and hoarding and so strongly stressing permanence over against impermanence. But life and with life human beings face uncontrollable, unpredictable and impermanent realities and situations and therefore reality ('truth') is not always and should not always be perceived as linear over against the cyclic and circular aspects.

In doing so we must know that we live in a time of more or less permanent „liminality': this term from ethnology and anthropology was introduced by Victor Turner[9] when following up Arnold

van Genneps concept of ‘rites de passages’, but since a while it serves very well in describing political and cultural change) [42, p. 51]. It can be applied to societies going through crisis and/or change. Karl Jaspers for example with his concept of the ‘axial age’ as an in-between period of two structured world views and two rounds of empire building described this age as one of creativity and at the same time insecurity.[10]

A more or less permanent phase of ‘liminality’ indeed might lead to (political and spiritual) insecurity. Facing chaos human beings might become aggressive and fundamentalist because of fear and a lack of self-awareness. On the other hand it might also be a real chance for something new, be that a new order, new legal rules, new forms of economy or also new world views (sometimes in the past even new religions).

Truth, also and maybe especially religious truth claims, and with it Ethics, especially in its concreter material aspects, are in process. In discourse we should try to find minimal standards and agreements to be shared; neither metaphysical or essentialist solutions nor universal or absolutist claims. Kant’s Categorical Imperative might be very helpful here again as it shares part with constructivist and deconstructivist or post-structuralist (and let me add here comparative) world views at least in its *deontological* arguments. The latter also meaning that consensus cannot be reached by any ‘Moral Imperative’ (as Hans Küng so strongly and to my point of view also wrongly suggests in his World Ethos project [18]), since moral and all material Ethics are contextual and their universal claims are still dependent on a certain culturally influenced metaphysics, essentialism, and therefore always to a certain extent absolutist and hegemonic. Even a consensus reached by discourse and agreement of all possible partners has to be seen in ‘responsible interim’. Political correctness as one of the outcomes of modernism is in danger of a fundamentalism of its own so to speak.

‘Responsible Interim’ in Hermeneutics and Ethics describes arguing and acting towards a common truth and a common good – in knowing and respecting, that final truth is not known by any human person, group or society but lies in God. We will know and experience it only at the end of space and time, i.e. beyond space and time. Whatever we claim as philosophical, theological, ethical and moral truth cannot but being said under the eschatological reserve. What follows is neither absolutism nor quietism but a way of knowing, arguing, loving and acting to the best of our knowledge (intellectual and emotional) for the time being – until...we know better.

In a ‘liminal’ world society we need to live with these paradoxes of different religious truth claims and also ethical concepts – not a few of them deeply grounded in religious or at least civil religious world views – of unity in diversity and truth in process, i.e. becoming. In order to get closer to it we need permanent reflection and discourse, we need to confront the Other, the other person, the other group, the other system so to speak – be it political, economic, cultural or religious – we need to get to know, better to experience and also to endure the o/Other as well as possible by getting as close to it as possible. And in this ongoing and dangerous but necessary and hopefully nevertheless enriching process of transformation and deeper self-awareness, we long for a true, good and beautiful outcome.[11]

5. Transpersonal Co-creation: Outcomes for Anthropology and Ecology

First of all let me make it quite clear that when I speak of ‘transpersonality’[12] here, it is meant to point out the interdependence of all sentient beings, of all that what is even. There is no need to see any spiritual or religious roots for such transpersonal existence, but if we want to name a concept analogous to its meaning, I would suggest the (Zen-)Buddhist concept of ‘dependent co-origination’ (skr.: ‘Pratītyasamutpāda’). This, and especially for Westerners, can be all the more helpful since it has as its philosophical, spiritual or religious counterpart the concept of ‘An-Atman’, of ‘Non-Self’. To be aware of, to be sensitive to the worlds and societies transitionalities and interdependences in Buddhist thought we do not need any idealist transcendent principle (which all too often tends to new fundamentalisms – and be it that of modernism – and ideologies [7]. Since human beings cannot but conceptualize ‘unity’ from their own standing point. Even what they call revelation, still

stays truth as they perceive it, stays 'truth under the eschatological reserve'. This truth is in process, in becoming, as we already saw; we never 'have' it. When 'final truth' is proclaimed and this comes together with a plea for a new and better self-understanding, the new (S)self becomes only a mere substitute for the old ego.

Western culture, even when stressing the danger and narrowness of an egocentric and anthropocentric world view, tends to a non-reflected and in this sense negative solipsism. A too narrow interpretation of (Jungian) psychoanalysis pleas for overcoming the Ego's prison but still does so in terms of 'higher morality' which cannot be and is nothing else but the therapist's morality and philosophy. The metaphor of Oneness (all in its diversity and even contradictions is one, good and bad are overcome on a higher level etc.) then becomes a shallow metaphor for 'my universality and my values'. The necessary (poetical) paradoxes and (twofold) dialectics are lacking. And so what is called 'mysticism' gets rather close again to a double bind situation for those who are not 'followers' of the self-made wise or saint. This is what happens when paradoxes are not only captured in a non-reflected form of substance ontology but also 'overcome' on a very subjective (pseudo)metaphysical level.

In quite a few forms of Eastern religiosity to the contrary, epistemological questions, questions of how and questions of exercise are most important. 'How does one lead a good life' then is not so much a moral question but one of meditation and exercise. The way is what one should care about. 'Esse' (in the meaning of 'substance') is not the focus, neither a metaphysical concept of 'Self'. There is no real self, there is if at all an 'enlightened Self' (Sanskrit: 'Atman'). And this is 'No-Self' ('An-atman'). Amazingly then 'Ego' comes up again as a topic in its *'Suchness'* (and worldliness). In order to find a good way one has to be enlightened and then (!) very realistic and pragmatic.

The Buddhist teachings of 'Pratītyasamutpāda', of Non-Self and *Emptiness* (Sanskrit: 'Śūnyatā') as final reality allow us to take whatever is as it is and therefore 'right' without leading to any new absolute or categorical moral or ideology.[13] In a rather realistic, humoristic and nevertheless sincere attitude we might then come to do what is necessary for the world's survival. As free (S)selves we decide to act for peace, justice and integrity of creation. This helps us on our path to Enlightenment, but does not bring it forth. We give up part of our freedom for the sake of the 'beauty of togetherness' which might be called 'co creation' to borrow a term from modern management theory even. But this is all the time a decision to be taken from anew, to be revised ('semper reformanda' to borough a term from Christianity). And a similar thing is true for the Philosophy of Enlightenment: there is no absolutist metaphysical truth claim (besides the Categorical Imperative as a means and method of living, acting and believing in 'responsible interim' – always reflecting anew what has been found out so far and if necessary revising it).
Let us call it a 'realistic' decision because we know that one 'law' of reality is that of dependent co-origination: 'Pratītyasamutpāda'. It would be unwise and unhealthy to go against it. No heteronymous moral, no 'Moral Imperative' is needed in order to do the right things. The human capability of wisdom, understanding and will is estimated very highly – and trusted in the end. And of course this is an intellectual and ethical and to a certain extent also aesthetic decision grounded in the conviction, that we all possess the Buddha-nature from the very beginning (at least in some, especially Zen-, Buddhist traditions).

6. Love: Beauty as Eschatological Truth

Will this help shaping future politics, governance, leadership – not the least economics? And in what direction will we have to move together (for peace, justice, integrity of creation)?

This we do not know for sure. But as long as we do not have better and more convincing alternatives let us try and proceed with what we have got here so far. In the New Testament, in Paul's letter to the Corinthians in chapter 13:13, we read: 'But now faith, hope, love, abide these three: but the greatest of these is love.'

Hope is important indeed as optimism is and faith. But without love it will not lead us

anywhere. Love opens eyes for the 'Other' and its beauty. In terms of an all too narrow, rigid or even fundamentalist morality love even might be called 'a-moral in the truest and best sense', since it is a free (willing) and beautiful reaction to the wisdom of our interdependence, of God's love for his whole creation.[14], as a late modern variation of the ideal of 'kalon kagathon' so to speak. And here what I define as beauty comes in: like love takes what is there and says yes to it for beauty everything that is makes 'sense'; even the dualisms of good and bad are overcome since everything is what it is in love (by grace in Christian terminology). Everything is real in its 'As-it-is-ness' or 'Suchness' (Sanskrit: 'Tathatā') to use Buddhist language once more and in taking at this point both, 'Emptiness' and 'Suchness' in their dialectical relation. Believers may think here of what is often called 'sublime', the tremendum and fascinosum.[15] There lies something holy at the ground of all that what is which cannot be captured by the dualist differentiation between good and bad, now and then and here and there. Love and beauty in other words are the reminders of the kingdom of heaven, of Nirvana yet to come and already there in what we might call 'eternal moments'.

7. Individual Faith in Pluralist Societies – Let Us Be Visionaries, Let Us Stay Pragmatic

Religions as pure as they may be in their origins, may have a dark and possessive part, patriarchal exploitation and violence may be even in the inner part of monotheist religions [1] leading finally to a clash of civilisations. But can this and is this to be said of faith(s) as well?

For *Karl Barth* there was an important difference, not to be overcome, between religion and faith. For him, religions had to be seen as part of culture and faith being the existential call and answer between human beings and God, a vertical revelation of the Christ as only warrant of God's grace and grace alone.

We are meanwhile living in a different political and theological situation and to see religion as inseparable part of culture is a necessary prerequisite of (intercultural and interreligious) Hermeneutics, but there is still something extremely relevant in this aspect of Dialectic Theology: faith is something between human beings and God, a relation beyond culture and politics and therefore directly leading us to Ethics and to act appropriately. But – and here overcoming Barth towards a more twofold dialectics, faith and confession are no longer to be taken as final ultimates (in a metaphysical, essentialist manner).

Hermeneutics and also Ethics in this direction are more relational than pluralist or inclusivist, are transpersonal. Dualisms, also between subject and object are criticised and partly overcome.[16] For us nowadays this could mean that faith is nothing that contradicts pluralist societies. And if faith is an existential (in the sense of Martin Heidegger's 'Existential'), religion can never be absolute, religions can and should never compete or even fight each other, but together strive for truth and peace. The famous Japanese philosopher of religion, Christian theologian and Buddhist Katsumi Takizawa interpreted Barth in this direction, seeing even Barth's 'solus Christus' still and to a certain extent as materialized faith, as religion so to speak [8], [48].

8. Faith Facing Multireligiosity. 'Incarnatio continua'

Here is, were the saying, the wisdom of 'Saṃsāra is (Japanese: 'soku') is not Nirvāṇa' becomes important and very meaningful for a late modern world and its lasting 'liminality'. The '*Suchness*' of all what is there, is, in a special and not at all ontological neither dualist nor idealist way, 'identical' with 'Emptiness'.

Therefore we are allowed to let go, to let flow[17], to let be. Not the least to decide in and to understand and explain in 'responsible interim'.

Finally if we try to understand the Christian doctrine of incarnation by the help of this Buddhist wisdom we cannot but avoid thinking about 'Incarnatio continua', an ongoing manifestation of the Holy and the Sublime, of the Divine, of God in history and in cosmos in the sense of 'the Divine is ('soku') is not the Profane'. The life of Jesus (the Christ) then would be

the/one representation – a unique but not essentialist universal; maybe an eschatologically universal representation - of the 'ultimate Reality' – 'God is ('soku') isnot Void'? Incarnatio continua also meaning our longing to materialize divine truth, to embody what might be called 'holy' or 'sublime'. And if so, couldn't we think of the potential of representing the Divine, all of us, sentient and non-sentient beings even? No contradiction would there be from now on between theism and non-theism, neither between a mainly historical concept and a more spatial concept of revelation. This is the freedom in switching from absoluteness to uniqueness, from substance ontology and metaphysics to epistemology (and phenomenology) and *Hermeneutics and Ethics in Responsible Interim*. And, by the way, isn't substance ontology a philosophical concept added to Christian faith once it left its Jewish surroundings?

Reality is a process and so is truth and right doing. Where this process will lead us is more unexpected then we can even imagine – and yet: there is an unchangeable element in this process as well: let us call it 'Emptiness' and 'Suchness', let us call it 'God', let us call it 'Love' and 'Beauty', beyond time and space, beyond good and bad, beyond is and is not. Let us call it hope or faith, longing or will, insight or enlightenment. Let us not call it at all. Let us not kill mysticism by doctrinal fundamentalism. Let us rely on a philosophy in becoming. Let us live with it and try it out. Let us sense it. *Insinuate.*

9. Conclusion: Hope and the 'Beauty of Diversity': Freedom and Responsibility in 'Responsible Interim'

If truth is in becoming reality is a process all the more so. And we are 'co-creators' in it and of it. 'Creativity' understood here as an ever ongoing divine activity we share with all other beings. In a global and plural world considered as Gods creation or through the lenses of 'Pratītyasamutpāda' there is no development but the development of all nations, states, communities and individuals. Development is not any longer to be seen in terms of a transfer of help, knowledge and education from North to South, from East to West or in whatsoever direction.

In this world then there are neither subjects nor objects, neither donors nor receivers, we are all talented, wanted, 'mutually dependent co-creators' of what should be and has to be, inhabitants of what is as it is. 'Otherness' is a challenge and gift for 'co-creation' on its path towards the 'True, Good and Beautiful'. We will need to learn how to accept nature as equal partner in those 'regulation processes'. Not because it is a commandment to do so, but because it is wise.

It follows that in ethics and for minimal moral standards there are no universals if not universal declarations agreed upon by all and implanted into international legal rules. What we can achieve and must achieve therefore is, step by step, as many smallest common denominators regulated by legal rules, allowing as many facets of the existing plurality as possible. With the help of such legal rules we might keep our national, regional, continental etc. uniqueness, but these then will be parts of a greater whole as each individual is in a group or society.
We should however never forget that we are in transition, part of a process, maybe of an even unlimited „liminality'.

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Notes

1. And I would add, that all intellectual and scientific discourse is nowadays deeply influenced by Western culutre, thought history and methods.
2. For Habermas however, a self-reflective methodology can overcome pre-judices. And so he criticised Gadamer and his Hermeneutics. First in: Zur Logik der Sozialwissenschaften, Suhrkamp: Frankfurt am Main, 1967.
   A debate started to which also Ricoeur contributed in trying to mediate between those two positions. Ricoeur suggested that we cannot carry out our emancipatory ideals and interests without incarnating them within cultural acquisitions. An overly abstract dualism between understanding and explanation is not adequate: Paul Ricoeur, "Ethics and Culture: Gadamer and Habermas in Dialogue, *Philosophy Today*, Vol. 17, Issue 2, Summer 1973.
   Also: Robert Piercey, Ricoeur's Account of Tradition and the Gadamer: Habermas Debate, Springer: Berlin, 2004
3. Post liberal theology, mainly narrative in its method and critical against Systematic Theology as a closed system, at the end of last century started explaining Christian faith as „story', with its own culture, grammar and praxis to be found in the Bible and to be understood only within Christian 'logic'. That partly goes back to Wittgenstein's concept of 'language games'. Lindbeck for example speaks of the 'incommensurability of religions' and so denies Ricoeur's 'Hermeneutics of interreligious dialogue'. Modernity is accused of its foundationalism and hegemonial structures, its belief in universal rationality. This article however will differentiate more clearly between a concept of enlightenment in the sense of Kantian critical idealism and modernity and its fundamentalisms and argue for a democratic and liberal rationality (in Hermeneutics and Ethics) without absolutist claims. In doing so, it will differentiate between a critic of subjectivism or individualism and a total denial of a subject. But even the latter might be understood in terms of a 'deeper Self' by the help of non Western philosophy (and mysticism) and seen in analogy with the freedom of individuals as one of the great achievements of Protestantism and Enlightenment philosophy to my point of view.
   (In German theology the Swiss theologian Dietrich Ritschl was one of the first to take up 'story' as a concept: Dietrich Ritschl, *Story als Rohmaterial der Theologie*. Kaiser: München, 1976).
4. 'Spatial turn' is a concept coming from modern, i.e. postmodern geographies to social theory and cultural anthropology. The 'third space' here opens up new room for civil society, 'in between' politics and economics. For a

general introduction see Soja, E.W. and Döring, J., Thielmann, T. et al. as listed in the bibliography.

5. For an introduction see books of Hock, K., Küster, V. and Wrogemann, H. as listed under bibliography.
6. In Germany a leading institution is the university of Hildesheim, Prof. Dr. Rolf Elberfeld and the Society for Intercultural Studies in Cologne.
7. D'Costa for example (who more and more stresses the necessity of a Trinitarian approach to questions of pluralism and uniqueness as well as the ecclesiological background of these questions) in following Alisdair MacIntyre and John Milbank is very concerned that there is no neutral Archimedean reference point for 'judging'. In fact, he can go so far to claim exclusivism as the most open attitude in taking o(O)therness serious: see bibliography
8. I owe this insight to 'Radical Constructivism' which traces its arguments back to relevant positions in Nietzsche and Schopenhauer. One of his founders is Paul Watzlawick: see bibliography.
   Other introductions into thoughts and methods of Radical Constructivism such as by Glasersfeld, E., von, and Schmidt, S. J.: see under bibliography.
9. Turner (see bibliography) differentiates three phases: separation, transition and reincorporation. The phase of transition is liminal, is in between ('betwixt and between') what human beings were and what they will be. This phase is ambiguous, ambivalent and in a certain way amoral let me add.
10. see bibliography. Although Jaspers conclusions because of his, what I would like to call 'metaphysical existentialism', and because of his philosophy of history to a certain extent cannot avoid a more Eurocentric and hegemonic world view, his analysis is extremely helpful in order to understand what we explain here as 'liminality'.
11. The famous Jewish philosopher of religion Emmanuel Levinas, influenced by Husserl's phenomenology and Heidegger's thinking, has elaborated on the term „subject': it „becomes' subject only in being „subjected' to the imperative postulate of the Other (another individual). All other ethical considerations are secondary when it comes to wage what ethically is to be said concerning the other person/s. Maybe we could call this a 'Jewish response' to existentialism in the footsteps of metaphysics (and critical idealism). The egocentric and anthropocentric elements of existentialist thought are seriously questioned by this proto-ethics. Theology is possible only within ethics. God is 'falling' into thinking in the 'face' of the Other. (see bibliography).
12. The term comes from transpersonal psychology and psychotherapy. An informative introduction would be: Wilber, K. (see bibliography).
13. Merton for example understands salvation not in a material sense but – close to Buddhism – as the 'status of non-space'. For him liminal space is sacred space. (see under bibliography).
14. Kant in his 'Critique of Judgement' teaches us, that, other than still and to a certain extent is the case for morality, i.e. ethics, aesthetics is nothing but subjective. But this does not mean that it is immoral (as Kierkegaard as well as Nietzsche in various ways showed, differentiating a-morality from immorality on a higher level).
    And since ontological truth is generally non-metaphysical, i.e. Kant's critical idealism has a certain deontological aspect, especially in his ethics, aesthetics cannot be part of metaphysics in its deepest sense.
    In "Erscheinungsdinge..." Figal, in analysis of Kant's Philosophy, develops a phenomenological aesthetic. Figal is trying to distance himself from attempts to explain art in the framework of metaphysical systems (as for example in Hegel, Heidegger and also Gadamer). He calls the latter „philosophy of art' and differentiates it from what he then calls „philosophical aesthetics'. Husserl is quoted in that it is necessary to go back to „things themselves' instead of following „wrong theories'. This for Figal becomes concrete in aesthetics as appropriation to work of arts as objects which are eminently phenomenal. They are called "Erscheinungsdinge" („objects of appearance'). What makes them art is their „decentralised/peripheral order'. This order is not structured conceptually. There is a „free play' in the experience of art, but it is not a play of subjective capability but as phenomenal impact of art works themselves.
15. see Otto, R. under bibliography.
16. The complexity of reality is seen in more spatial terms as dependent co-origination – to borrow this Buddhist term again and so represents an alternative to Newtonian linearity in defining reality.
17. Flow taken here as a (psychological) state and feeling of total concentration – a state of neither mental underload nor overload. See under bibliography: Schmaus, Th. (2012).

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Searching for Neurobiological Foundations of Faith and Religion

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Abstract:
Considering that the brain is involved in human thinking, feeling and behaviour, we must also ask the question of whether finding neural correlates of religious experience is not just a matter of time. The questions 'if' and 'how' human brain responds to or generates religious experience capture the interest of researchers from various fields of science. Their joint efforts and scientific discourse lead to implementation of bold interdisciplinary research projects, with a far-reaching goal of explaining the mystery of faith and religion. Studies conducted at the meeting point of empirical and theological sciences raise controversies and criticism. Examples include the discussions on natural and theological experiments, collectively called neurotheology.
Keywords: neurotheology, mind, brain, religion, religious experience, neurotheological experiments.

1. Preliminary Remarks

The term 'neurotheology' is applied to research and analyses aimed at identifying neuronal foundations of religious experience. Such activity is human-specific. Therefore, it is specific for humankind to create and profess certain beliefs and convictions included in myths and religions. Anthropologists agree that there are no human cultures without a mythology or religion [12], [8]. In recent years, researchers have focused also on specific behaviour of hominids (in particular in *Homo Sapiens Neanderthalensis* and *Homo Heidelbergensis*) which may indicate that they had religious or mythological beliefs about life and death. Cultural anthropologists argue that evidence for this hypothesis may be found i.a. in preserved grave sites, traces of decorating the dead with flowers, special burial sites and remains of special purpose constructions [11]. Therefore, searching for relevant and universal forms of brain and mental activity justifying such behaviour seems sanctioned in both scientific and cultural terms.

The term 'neurothology' was popularised by James Ashbrook, a theologian who studied neuroscience [1]. He believed it justified to rationalise the phenomenon of religious experience by describing and analysing with methods used in natural and psychological sciences, in particular

those allowing to investigate human cognitive and brain activity. The aim of the research was to explain why humans need to have beliefs in the form of religions and myths.
It is worth noting that the term 'neurotheology' is applied to the majority of interdisciplinary studies and analyses which combine empirical methods of medical and neurobiological sciences and the study of religious experience. Neurotheology comprises the studies which use neuronal activity imagining, as well as genetic studies and projects from the field of molecular biology.

2. Areas of Study

Proponents of neurotheological approach believe that faith is related to human brain structure and its functioning patterns. Studies to confirm this hypothesis are conducted using various empirical methods that are specific to natural sciences. Research projects use neuroimaging methods (e.g. PET, SPECT, fMRI), techniques affecting the cortex activity (e.g. TMS), genetic and molecular research. Interestingly, those projects are interlinked and build on earlier research results and their interpretation.

The fundamental proposition behind neurotheological projects is that religious experience is linked to the functioning of human brain. The resulting assumption is that the study of human brain activity allows to identify such forms of brain structure activity which are specific and exclusive for religious experience, and to determine their parameters. Therefore, it is possible to obtain information on its intensity, course, nature and location in brain structures. Those hypotheses were of key importance for research aimed at analysing brain activity during religious experience, i.e. prayer, meditation and open or concealed manifestation of religious beliefs and faith. Those preassumptions also determined the experiments focusing on investigation of artificially induced sensations similar to religious the religious ones.

Such studies were conducted in the 1980s by Michael Persinger et al. Building on medical theories pointing to the link between brain functioning distortions and experienced consciousness disturbances, Persinger assumed that specific sensations may be artificially evoked. He based his assumptions on observations of altered states of consciousness occurring in e.g. epileptic attacks [16]. Persinger also took into account the fact that brain function disorders may be caused by physiological factors (oxygen deficiency, malnutrition, inappropriate arousals caused by trauma or disease, etc.), chemical factors (pharmacological agents, psychedelic drugs, etc.) or by using the devices stimulating specific brain areas electrically or magnetically. This last fact was used by the Persinger's team to build the essential device for their experiment. It was a type of helmet with appropriately placed solenoids generating magnetic field. When put on the head of a volunteer and activated, it caused temporary disturbance in the cortex activity in frontal, temporal and occipital lobes. Brain activity was monitored with EEG. The device, also called the God helmet, was tested on 600 volunteers who were also asked to fill in a questionnaire. The analysis of EEG readings, subjective and individual description of experiences and information obtained from the tests revealed that over 80% of the volunteers reported sensations described as non-empirical and mystical, and corresponding to their religious beliefs [15], [19]. At the beginning of the 21st century, a similar study consisting in eliciting specific states of consciousness by disturbing the brain field activity was conducted by a team headed by Peter Granqvist who, however, obtained different results [14].

Andrew Newberg et al analysed brain activity during the performance of religious activities using the SPECT (single-photon emission computed tomography) neuroimaging technique, which allows to measure the level of metabolism and blood flow in specific parts of the body. Further research included scanning of the brains of several dozen people who prayed and meditated, achieving the state that they described as 'onesness with the universe'. When the subjects achieved the sense of unity with the Absolute/God, scans were taken that presented the fields of brain activity [14], [7]. The studies using the PET (positron emission tomography) technique were performed by Nina P. Azari et al. Religious and non-religious volunteers read the same excerpts from the Bible, fragments of neutral texts and recited child verse, while their brains were scanned. The scans

revealed that different regions of the brain were activated, depending on the type of text [2], [7]. Similar studies were conducted by Mario Beauregard and Vincent Paquette who analysed brain activity using EEG and fMRI. Volunteers (Carmelite nuns) had their brains scanned when recalling 'mystical states' occurring during deep meditation and prayer. The records were compared with the resting state brain activity [4]. Other similar studies include research by Vilayanur Subramanian Ramachandran, who measured galvanic skin responses to various images, including religious ones, in patients suffering from temporal lobe epilepsy. Religious images elicited particularly high responses in volunteers, which was interpreted as the confirmation of correlation between sensitivity and susceptibility to religious images and activity of temporal lobes [18].

Another group of studies comprises biological and molecular research, the aim of which is to i.a. search for genes responsible for generating specific religious attitudes. Such studies were conducted i.a. by behavioural geneticist Dean Hammer. According to him, acceptance of the hypothesis of neuronal foundations of faith requires determination of whether the process is genetically programmed and whether there are genes responsible for this phenomenon. Their presence would not only be an argument in favour of uniqueness of the humankind, but would also justify the special need of humans to perform religious rituals [10]. Hammer used the reports of mental sensations occurring during mystic experiences as his starting point. He focused on 'out-of-body' and 'mind extension' sensations experienced during the performance of specific religious activities, such as meditation, prayer, contemplation, etc. Similar sensations may also be elicited artificially, using pharmacological or psychedelic drugs. Hammer asked the question whether there were any natural chemical compounds generated in our brain that were similar to pharmacological substances generating or controlling specific states of consciousness? If so, which genes code such neurotransmitters? Together with George Uhl, neurobiologists from the National Institute of Drug Abuse, they focused their work on VMAT2 gene responsible for delaying the release of neurotransmitters (monoanimes) in synapses. According to the scholars, activity and an appropriate variant of this gene may be linked to intensity and duration of the sensation of 'onesness with the universe', experienced during religious activities [13].

The last group of studies includes experiments evoking specific states of consciousness using specific chemical substances. Psychoactive substances, occurring naturally in the human body, raise particular interest. Many of those compounds are also found in plants. Such psychedelic substances include DMT (dimetylotryptamine). Some ritual beverages (e.g. ayahuasca), used in numerous cultures or South America and Africa, include DMT-rich plant extracts or animal parts. Rick Strassman and colleagues performed an experiment consisting in injection of large doses of this psychedelic and found that 20% of volunteers participating in the study described their hallucinations as contact with non-human creatures. The researchers found that DMT-induced sensations may be identical to religious experiences [21].

3. Context of Neurotheological Experiments

For several decades, neurotheology has raised fierce discussions between supporters of naturalist concept of religion and mystics, between theists and atheists. Attempts to find evidence for faith being generated by specific brain structures or neurophysiological determinants are closely followed by scholars and the general audience. Some claim that the results of neurotheological experiments could disprove the belief in the existence of God, while others argue that they could sanction the phenomenon of religion and faith as resulting from biological foundations of human brain.

The question of whether religion is a natural phenomenon specific for humans is not a matter of recent decades. Already at the time of Darwin, people began to wonder whether religion may be the product of evolutionary transformations occurring in the course of human race development. Much earlier, already in the Antiquity, scholars pointed out to co-existence of specific states of increased brain activity and sensations classified as religious experience. Literature on the history of medicine includes treaties on religious states occurring in somatic or mental diseases, or

after the application of hallucination inducing and psychedelic drugs [5], [6]. However, as late as in the 20th century, attempts were made to find correlation between religious experiences and parametrised activity of human brain. This claims raised numerous objections and reservations, in particular among comparative religion experts.

Classic study of religion is based on two axes: diachronic and synchronic, supplemented by phenomenological and hermeneutic discourse. Along with the development of sciences, sociological, psychological and cultural anthropology discourses also appeared. In the second half of the 20th century, a new area of studies, called cognitive, appeared. The progress in natural and mathematical sciences led to the formation of new scientific disciplines, such as neurobiology, systems theory, information theory, linguistics, cognitive psychology, etc., allowing to initiate religious discourse of an unprecedented scope [20]. Research on biological determinants of religious behaviour started at the beginning of the 20th century, when Oskar Goldberg described the impact of rituals on racial genetic, ethnogenetic and biological processes. In the 1960s J.S. Huxley investigated religious rituals in the context of their biological and evolutionary determinants. Similar considerations may be found in the work of ethologists, such as K. Lorentz and N. Tinbergen. In the following years, religious behaviours, in particular rituals, were analysed in the context of ecological, neuropsychological and evolutionary theories. It was found that religions share numerous similarities, e.g. rituals, behaviour, ideas. Widespread occurrence of religious life is also striking. Non-cultural similarities between religious phenomena are analysed using theological, phenomenological and cognitive approaches [22].

According to the theological approach, an explanation for similarity of religious phenomena may be the fact that they refer to transcendental reality. In the phenomenological interpretation, the essence of religious phenomena, which is common for all, is manifested in various religions in different ways. In line with the third approach, supracultural similarity of religious phenomena results from the uniqueness of human brain [22]. Supporters of the last approach assume that there are cognitive mechanisms or processes that may determine religious phenomena. Such mechanisms could explain the observed supra-cultural repeatability and universality of religious experience. Being specific for human brain, they would be responsible for surprising similarities of behaviour and phenomena in different religions. In view of such significant objectives, enthusiasts of the cognitive approach believe that religious phenomena can and should be investigated using the methods specific for cognitive sciences and neurosciences. The remaining problem is the selection of the analysed aspects. Cognitive approach is thus searching for answers to two important questions. First, why people have religion and second, why there are similarities in religious experience, its diversity and abundance [22]. Cognitive approach to the study of religion is also linked to an approach which uses evolutionary arguments. Therefore, religion may be treated as a mechanism of social involvement developed in the process of natural selection. It requires the analysis of the cognitive structure of human brain, in particular its evolution and influence on formation of religious engagement [3].

Attention must also be paid to the issue of recording the brain activity. Despite increasingly technologically advanced methods of analysing brain structure, little is still known on how their activity translates into specific behaviour. Moreover, even very thorough knowledge about the structure of a given nervous system does not allow to identify specific structures responsible for specific activities. It is clearly demonstrated in research on the behaviour of *Caenorhabditis elegans*. In 1986, its connectenome, i.e. a complete map of connections between its 302 nervous cells, was published. However, despite many years of research, scientists are unable to identify how those connections allow to perform specific actions, including such essential ones as eating. It remains unknown how neuronal impulses translate into behaviour. The interpretation of brain activity recordings becomes even more complicated in more complex organisms. Information obtained from brain scans illustrates the activity of individual brain regions, but does not mean that specific behaviour is generated by specific structures, and only signals that they are activated during a given action. Such discoveries, as the identification of the ‘Aniston neuron’, i.e. nervous cells responding only to specific forms of activity (e.g. a photo of actress Jennifer Aniston), still do not

have any satisfactory explanations [17]. Therefore, calls are made to develop the methods allowing to monitor brain activity that would be superior to the currently used neuroimaging methods. Identification and description of specific patterns of neuronal activity within the widest possible scope could allow to obtain essential information on how specific behaviours, states of consciousness, etc. are generated [23].

The results obtained in neurotheological experiments thus far failed to provide explicit answers. Numerous studies were challenged due to their methods and the lack of methodological precision. Some experiments could not have been repeated, while in other cases the results differed considerably from the previous ones. Numerous articles are devoted to critical analysis of the performed studies, their assumptions, methodology and interpretation.

4. (Over)Interpretation of Neurotheological Experiments

Studies on correlation between brain activity and spirituality are thoroughly scrutinized. On the one hand, as in neurobiological sciences, the verified aspects include research procedures, selection of volunteers, conditions and course of procedures, research assumptions and hypotheses, methods of obtaining the analysed results, etc. On the other hand, specialists in theological sciences and comparative religion experts analyse the studies in detail from the point of view of their subject. When subject to such thorough analyses, neurotheological studies seem to provide too weak grounds for proposing arguments about neurobiological determinants of religion. It is worth looking at reservations formulated with respect to neurotheology.

The first group of reservations concern methodological, philosophical and theological aspects of research. The analysis of preassumptions of neurotheological studies justifies the claim that they most often focus on a specific type of religious experience, such as meditation or prayer. The decisive factor in those research is the experience intensity. It is due to possibilities of the applied neurobiological procedures resulting from the selected neuroimaging techniques or measured physiological parameters. In consequence, religion and faith are reduced to the selected religious experiences that are measured. However, the results are interpreted in the context of faith understood as broadly as possible and extrapolated to all religious doctrines [12, p. 51]. The complexity of religious experience is reduced to language, the sociological and ethnological connotations of which become the main motive of interpretation and blur the research results [12, p. 62]. Attempts were also made to define universal supracultural elements of religious experience in the preassumptions, but with their simplified understanding this leads to unfounded and far-reaching reductions (studies by Newberg et al. [14]).

Critics point out that the fundamental concept for neurotheological research is the common belief that religious phenomena are natural, which leads to disregarding the multidimensionality of religious experience and to simplification of complexity of religion and faith [7, p. 121]. It is also worth noting that numerous scholars try to distinguish between mystical and religious experience, adopting operational terms that are appropriate for individual research projects. In consequence, definitions of religious experience in neurotheology are imprecise and inconsistent.

Experts in religious and philosophical sciences also voice reservations about the language and methodology of neurotheology. They put forward accusations of unfounded extrapolation from neurobiological sciences to theological language and subject [12, p. 52]. Furthermore, theological language is used for describing psychosomatic sensations in research results. Therefore, claims are made that neurotheology lacks conceptual apparatus and methodology [7, p. 121].

Another controversial issue is the maximalist objective of neurotheology, which is to find the ultimate answer to the question of God's existence or non-existence, determined for research with a minimalist objective, which is to discover neurological or physiological correlates of religious experience [12, p. 53].

In addition, the analyses of results, the experiments themselves and research projects are ideologically oriented, which excludes the objectivity of interpretation. As a result, already in preassumptions, in the 'leftist' interpretation, faith is treated as the effect of electrical and chemical

brain activity, whereas in the 'rightist' interpretation, the co-existence of brain activity and religious experience demonstrates that the transcendental aspect of faith is embedded in human nervous system [12, p. 53].

The second group of reservations refers to methods used in neurobiological studies. It concerns, first of all, research groups, their number and selection of volunteers. The latter are often persons from groups selected because of occurrence of specific disorders (e.g. in research by Ramachandran et al. [18] and Persinger et al. [15], [16], [19]). Some analyses rely on case studies, which precludes their application to the entire population [12, p. 58]. In other studies, groups are very small, which also makes extrapolation difficult. Another reservation concerns the lack of possibility to repeat the performed tests on groups of volunteers selected using different criteria, but the same procedure (e.g. studies by Granqvist et al. [9]). It is also argued that the sensations experienced by volunteers are influenced by the specific definition of research objectives and that the tests are often distorted, e.g. by the need to self-control the religious experience during the experiment (studies by Newberg et al. [14]).

Critics often point out that regardless of the adopted assumptions and the applied empirical methods, neurotheological studies are in fact studies visualising only the brain activity during specific states of consciousness. The causal-mechanistic model or the neurocomputational model used in neurobiological sciences is insufficient for neurotheological analyses [7, pp. 120-121]. Cognitive sciences are founded on models rooted in the synthetic theory of evolution, neurobiology, cognitive linguistics, cognitive psychology, etc., which seem inadequate when applied to religious sciences [20, p. XIII].

Another problem is the location of religious experience in the brain. According to some researchers it is related to a specific structure (studies by Persinger [15], [16], [19], Azari [2], Ramachandran et al. [18]). However, others argue that religious experience may be linked to activity of the entire brain (Newberg studies [14]). Therefore, preassumptions include the need to identify the physical location of such experience in brain structures, and to establish the scope of observations, which determines the interpretation of results.

5. Final Remarks

Neurotheology, contrary to expectations of numerous scholars, seems to be an interdisciplinary research programme or project that should not be treated as a scientific discipline on its own. As a research programme, it may inspire and encourage questions and new scientific challenges. The lack of a well-developed methodology, language and assumptions hampers the interpretation of results. Worldview determinants and context of research also lead to excessive extrapolations. It seems that the most adequate role for neurotheology is inspirational. It may thus be expected that questions and research proposals formulated by neurotheology proponents will contribute to better understanding of the basics of human brain functioning. However, finding the neurological correlates of faith seems as unattainable goal as explaining the mystery of life.

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Reliability and Adaptability of Religious Beliefs in the Light of Cognitive Science of Religion

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Abstract:
Cognitive approach towards the study of religion is a good and promising way. However, I think that this approach is too narrow and it would be better to use some basic concepts of CSR as a starting point for further, not cognitive explanation of religious. I suppose that religious beliefs should be explained also by their pragmatic functions because they were probably always associated with some pragmatic purposes at the group or at the individual levels. To develop further this last approach, the good explanatory way is the evolutionary study of religion.
Keywords: cognitive science of religion, evolutionary science of religion, by-product, adaptation.

Whereas the ease with which humans acquire fear of snakes
presumably evolved in response to snakes themselves as a survival threat,
the ease with which humans acquire belief in gods
is not thought to have evolved in response to gods [4].

1. Introduction

Cognitive science is a research method for looking at behavior or beliefs. Cognitive Science of Religion (CSR) is not a singular entity. CSR has many different points of view, probably as many as there are people that use cognitive scientific methods to conduct their investigations. I am aware of this complexity when I use the general term 'Cognitive Science of Religion.' I will discuss some concepts and explanations developed within CSR and I will refer to the evolutionary study of religion and religious beliefs.

As one might expect given the name of the field, CSR purports that religious beliefs are cognitively natural [6]. 'Naturalness' as it is used in CSR generally bears a favorable implication for the concept it describes. If a concept is natural, it may imply pragmatism, epistemic reliability, and intuitive acquisition. However, naturalness may also undermine justification and reliability of a concept by explaining it away as a by-product of evolution or as an adaptation evolved by natural selection. Thus there is a tension involved when a concept is deemed natural or not. Typically, CSR

describes religious beliefs as natural and intuitive with agnosticism toward the reliability of religious beliefs to describe reality. In contrast, the non-natural ideas like those that belong to science are far more reliable. This idea is epitomized in the words of Robert McCauley who argues that "religion is natural and science is not" [21]. Thus naturalness develops a negative implication for ontological veracity in CSR. This topic can be connected with evolutionary debunking arguments that state that the evolutionary origin of a given belief raise questions about its truthfulness and justification.

While CSR bears many useful and important insights concerning the development and use of religious beliefs, CSR is not justified in describing religious beliefs as natural in all the ways, including in intuitiveness, adaptability, and unreliability. What is more, it is not clear that the descriptor of 'naturalness' undermines a concept's reliability. Factors beyond the scope of CSR must be considered to conduct such an evaluation.

In this paper I argue that religious beliefs:

1. are a function of past adaptability rather than current adaptability. However, this topic – evolutionary explanation of religious beliefs in terms of survival and reproduction – is very complex and complicated and it depends on the way adaptation is interpreted (when one uses a strict or broad definition of adaptation). Jay Feierman discusses in a detailed way one of the possible biological approaches to religion looking for religious roots of evolution of eusociality (Jay Feierman's paper in this issue) [13],
2. never were reliable and cannot be evaluated in epistemic terms,
3. may be understood as natural only in their particular environmental contexts (Hans Van Eyghen's paper in this issue is focused on topics of naturalness and trustworthiness of religious beliefs) [11],
4. are not intuitive because they cannot be any kind of intuition,
5. function uniquely as adaptive traits.

It seems that religious/theistic intuitions do not exist because they work on other non-religious intuitions. Some scholars like Helen de Cruz and Joseph de Smedt suggest that human beings can have some religious or even theological intuitions based on the so-called design stance or a theological approach that can be interpreted as theological or co-opted with religious contents [9]. However, I mean evolutionary debunking argument that suggests that intuitions have evolved in the past environment and religious beliefs never were intuitions evolved by natural selection as specially designed for religious contents [7]. Consequently, it becomes evident that these CSR interpretations of religious beliefs that explain them as by-products or side effects of natural selection are fundamentally flawed. I think that the CSR approach gives only proximate, not ultimate explanations of the origin and acquisition of religious beliefs. In this sense it could be said that every human belief is a by-product of natural cognition because cognition itself was not specially designed for any cultural contents. However, I suggest that naturalness of religion hypothesis describes technical work of human cognition when it meets religious contents. This approach does not say anything about their evolutionary, functional origin. I assume that reference to the pragmatic contexts of religious beliefs may radically change the meaning of their naturalness.

2. Religious Beliefs and Intuitions

CSR generally assumes that religious beliefs are intuitive and counterintuitive; intuitive in the sense of their acquisition and transmission but counterintuitive in the sense of their content, which often breaks intuitive expectations of ontology [2], [3]. In this understanding, a quandary arises: intuitively acquired beliefs that are counterintuitive in content may contradict other intuitively acquired beliefs. And yet, CSR scholars like Pascal Boyer, Justin Barrett, or McCauley contend that such ontologically counterintuitive beliefs remain intuitive in regard to their acquisition. But if an intuitively acquired belief can contradict another intuitively acquired belief, then it seems the significance of defining a belief as intuitive is limited to meaning that it is simple but without any

relevance to reliability. Such a restriction throws into doubt the claim that religious beliefs are intuitive at all, either in content or in acquisition.

Intuitive acquisition as it is understood here describes ideas (called intuitions) obtained in a fast, direct, and unreflective way. But perhaps it would be better to distinguish between the acquisition of intuitions and the appearance of intuition. It is assumed that intuitions or ideas interpreted as intuitive have long evolutionary histories [9]. Selective pressures appropriate for one particular environment have affected particular ways of thinking and interpretations of the world. Consequently, the most adaptive kinds of behavior have endured. In this place it is worth making a distinction between two levels: non- or a-religious intuitions that are a cognitive base for religious contents, and religious and theistic intuitions. CSR assumes that human beings have some basic cognitive mechanisms and processes which work in intuitive and spontaneous ways [2]. They do not have religious and any other cultural content. On the other hand, we can ask whether there are some possible religious or theistic intuitions that are intuitive in the sense described above. It seems that in this case we should say rather about culturally contaminated intuitions. We can find some approaches that suggest that human beings, especially children are intuitive theists [16], [18], [19], [26]. However, in this matter it is worth bearing in mind a difference between strictly religious or theistic nature of intuition and its cultural contamination which can cause that in some cultural conditions religious reference seems to be more natural and intuitive than atheistic or non-religious. In the light of recent discoveries that suggest that basic emotional reactions are not universal for the entire humankind [8], we can doubt if such specific beliefs like supernatural ones can be rooted in any universal religious/supernatural intuitions.

Intuitions that work in the current environment usually were evolved in the past. They could be adaptive in the past environment when we assume that selective pressure has been looking for adaptive strategies. There is only one of the possible explanations because a feature that has particular function can be a result of by-product of other adaptation, the result of phylogenetic history, or the product of genetic drift [14], [15]. Let us assume this first explanation that states that intuitions could be adaptations at least in the past environment. We can assume, like Kelly James Clark notes, that these intuitions are not reliable. Perhaps their main purpose is usefulness and adaptability, not reliability. Clark notes that these intuitions theoretically could be truth-tracking in that past environment but in the current world they may be unreliable [7, p. 1]. This point of view is one of the crucial elements of the main idea of CSR supported by many scholars within CSR that religious beliefs are the by-product of natural cognition. Religious beliefs are not evaluated epistemically in terms of truth and falsity within CSR. However, they are not evaluated also pragmatically in the evolutionary terms of survival and reproduction [24, p. 243]. It appears that the cognitive scientific approach excludes both epistemic and pragmatic kinds of analysis of religious beliefs. In this paper I suggest that religious beliefs should be interpreted in an adaptive way and it is worth bearing in mind their alleged usefulness – today or at least in the past.

Looking for an evolutionary history of current intuitions may function as a kind of evolutionary debunking argument. The core idea of this kind of argument assumes that the explanation of an evolutionary origin of a given feature leads to undermine its justification and reliability. In other words we can say, like Guy Kahane, that the “aetiology of a belief can undermine its epistemic standing” [17, pp. 103, 105]. Religious intuitions (if we can say about these kinds of intuitions) have a secondary nature because they are strictly connected with evolutionarily prior intuitive mechanisms that are blind in the sense of their contents. In this context we agree with the main paradigm of CSR that religious beliefs are affected by automatic natural cognitive mechanisms like some kind of agency detection or a design stance. However, we treat these cognitive modules like proximate, not ultimate causes for acquisition and transmission of religious beliefs. Concerning evolutionary debunking argument we can say that this evolutionary perspective undermines the reliability of religious beliefs because human beings probably do not have any specific mechanisms that have evolved for religious purposes. We find that in the case of moral matters we could try to look for evolutionary mechanisms that where specially designed for moral purposes. We mean moral emotions or evolutionarily deeply rooted “tit for tat’s” rule that is the

basis for selfish and altruistic behaviors as well [31], [34], [36]. However, we do not find any similar mechanism that could have evolved for religious contents. This is why we can accept evolutionary debunking arguments within the framework of religious beliefs. Consequently, this point of view excludes the possibility of looking for epistemic value in religious beliefs.

It seems that so called religious or theistic intuitions are based on other non-religious intuitions that also can be maladaptive in the current environment. This issue is a part of the debate between adaptations and by-products as well as traits that have lost their adaptive functions [28].

3. Naturalness of Religious Beliefs

The question of the naturalness of religious beliefs and religion was discussed in another paper in reference to the question of the naturalness of atheism in the sense of ultimate explanation [33]. Here we would like to briefly recall the possible basic meanings of the term naturalness in the context of religious beliefs. In light of CSR, religious beliefs are explained as natural ones because they are non-supernatural in the sense of proximate explanation. This point can be a starting point for all ideological interpretations of CSR. For example, the naturalness of religion hypothesis in the sense of its non-supernatural nature may be interpreted as an argument for an atheistic worldview. However, this claim refers rather to proximate, not ultimate mechanisms and shows that religious beliefs work on the basis of natural cognitive mechanisms. This proximate explanation excludes theistic and atheistic ways of interpreting the naturalness of religion hypothesis.

Another meaning of "naturalness" focuses on the intuitive nature of religious beliefs. In this context we assume that a feature or a trait that is intuitive and in some sense automatically or spontaneously acquired or perceived, is natural. Here we have to refer to McCauley's distinction between maturational and practical naturalness [21]. However, it is worth bearing in mind that the intuitive nature of a given trait is context-dependent. It refers to many different traits like morality, culture, religion, etc. Consequently, we can interpret many different traits and features as intuitive. We only should underline what type of origin – innate or culturally acquired – we mean. Of course, the amount of innate traits is very limited. We can assume that some religious forms will be interpreted as intuitive because they are culturally dominant and in a particular cultural context they will be a "natural" starting point. It is similar to "the Baldwin effect" when a feature or behavior that is useful is acquired by, for example, imitation, and then is culturally inherited from one generation to another. Finally, this behavior could become our "second nature" and in some sense it can function as an intuition [15].

The third meaning is strictly associated with the latter one and it refers to a trait that is cognitively effortless. This feature refers to the way of acquisition of a trait. Religious beliefs within CSR are understood as natural also in this sense. However, consider the following virtual comparison between religious and atheistic beliefs (or, perhaps it would be better to say about a lack of religious beliefs). It is not clear whether we can separate these two kinds of beliefs according to the level of intuitiveness and cognitive easiness. In this case we should compare plasticity of individual imaginations and an ability to accept competitive worldviews. It seems that it is not easy to strictly separate a domain of natural cognition from a domain of cultural and educational training [20]. We suggest that the religious point of view can be interpreted as more natural in the sense of intuitiveness and cognitive easiness because it is a result of cultural training and it is a core element of given cultural environment. Analogically, an atheist or non-believer probably in the same way would have some troubles in acceptance religious understanding of the world. Consequently, we find that demarcation line lies in cultural context, not in specific nature of natural human cognition.

We prefer to explain the universality of religious beliefs via the concept of convergent evolution rather than by the concept of the same cognitive background. We mean similarity by analogy when the same feature has evolved by the same or very similar pressure in different and independent lineages [14]. We treat cognition like a secondary feature. We suggest that religious beliefs are universal because they were favored by natural selection for achieving the same

psychological and social purposes. In this sense, their occurrence is casual. It seems that cognitive explanation of origin and transmission of religious beliefs should lead to their necessary validity. However, we know that they are not obligatory human features and that even religious people do not treat consistently their beliefs. In this sense we conclude that cognitively affected religious beliefs should be more deeply rooted in the human mind. It is obvious that their impact is not so great. This is why we suggest that their origin is rooted in their evolutionary adaptive nature. This adaptive nature can explain why these beliefs sometimes can strongly affect human decisions and actions, and why sometimes they do not. We suppose that this difference is caused by an individual and group opportunity of reference to different biological or cultural tools that could serve as tools for solving problems. This choice is very context-dependent. For example, an individual or a group can choose this feature that is or that seems to be more efficient or less costly. We mean especially the rational choice theory of Rodney Stark. He finds that believer can reject religious point of view or rather religious way of solving problem when he sees that other solutions that are more efficient or less costly are available [29]. Of course, cultural religious training can have great impact for individual or group enhancement of religious point of view.

We can find also the fourth meaning of naturalness of religion and religious beliefs. Naturalness may mean something that is evolved by natural selection. In this sense that is difficult to strictly demarcate adaptation and by-product. It seems that this question is a matter of concepts and definitions. We can find several features that should be done by a trait that is called an adaptation. Let us in the following paragraph refer to this fourth meaning of naturalness and mention these features and let us consider whether religious beliefs could meet these criteria.

4. The Fourth Meaning of Naturalness of Religious Beliefs

Adaptation can be a trait that is genetically inherited. This narrow definition would exclude religious beliefs because there are no genes directly associated with religious phenomena. However, a broad definition of adaptation not only allows for epigenetic inheritance of adaptation but also suggests that adaptation does not have to be inherited [12], [35]. We can imagine a situation when someone has adaptation but he does not reproduce. We do not doubt that religious beliefs can be inherited only via culture and education.

Another feature required for adaptation is being a product of the historic process of selection. It seems that religious beliefs fit this criterion. For instance, we find historical records for Christian beliefs first in the Gospels. Then we find their further historical development. We know that religious beliefs have evolved and they were the subject of controversies and arbitrary decisions, like in the case of councils in the institutional Christianity. In this context we can say that these beliefs were a matter of historical selection. Selection in historical process makes pressure for seeking the most adaptive and useful traits. In this sense perhaps it would be possible to explain at least some beliefs as a result of historic process of selection. We mean especially the oldest kind of beliefs like the concept of an afterlife or shamanism [23].

Adaptation should be specially designed by natural selection for the purpose of a particular function. This function should be adaptive in the current environment or at least in the past. It is not important whether religious beliefs or rituals are the current adaptations or whether they are maladaptive today but they were adaptive in the past. This question also depends on a given theoretical approach. We can take a perspective that excludes the possibility of interpreting cultural phenomena in the terms of adaptations evolved by natural selection. However, we accept this possibility and we assume that some religious beliefs and behaviors as well as religions could be interpreted as features specially designed by natural selection. We take an approach developed by David Sloan Wilson who claims that religious faith can be understood as an adaptation when it affects group behaviors that turns this group into adaptive unit [36]. We mean “specially designed” by natural selection like a process in which natural selection promotes development of – in this case – these cultural traits that are adaptive in the terms of survival and reproduction. In this sense we can evaluate religious beliefs as specially designed by natural selection if they are useful in

evolutionary sense. We can go a step further and assume that cultural evolution is affected by sexual selection and in the field of ultimate explanation perhaps all or at least many different cultural phenomena have evolved because supposed direct or indirect attractiveness for mate. Males who have better access to resources can be more attractive for females who can think resources necessary for survival of her offspring. We can interpret as adaptations all mechanisms that increase the amount of material resources [14].

Another feature of adaptation is an ability to produce individual benefits. That is unquestionable feature of many religious beliefs and practices that they are very useful. We know about the phenomenon of religious coping. We find that first religious beliefs and practices probably were associated with a positive impact on health. Societal impact was also very important but probably is much younger component of religious beliefs and religion in their history. We suggest that this feature of adaptation is fully met by religious beliefs and practices today and in the past. Of course, this adaptive component has changed over time and some beneficial parts of religious beliefs and practices could lose their beneficial nature. We mean, for example, that the process of secularization may be a critical factor in which religious beliefs can lose their positive power. However, it seems that this component of religious beliefs is in general rather independent of historical and cultural changes. A believer who shares some religious beliefs can receive profits from his religious practices especially in the psychological sense [27]. Another field where this criterion is commonly realized is the life of clergy. In many religions clergy is the social cast that has specific laws and has privileged access to resources.

Finally, we find fitness maximization as a very important feature of adaptation. Religious beliefs and religion can efficiently meet this criterion. We know correlation between high level of religiosity and high level of fertility and reproduction [5]. Perhaps this correlation is a stable feature when the level of religiosity is enough high. In secularized Western Europe Christian beliefs have lost their adaptive nature in this sense as a group level adaptation which motivates to reproduction. In the past, religious beliefs in this part of world were efficient cultural tool that motivate to high level of reproduction [36]. Despite loss of real impact, institutionalized Christianity, especially the Roman Catholic Church until today is focused in its social and cultural policy on sexual matter connected with the question of reproduction. This approach is especially developed in Poland where the Church has fighted against proclamation of “The Council of Europe Convention on preventing and combating violence against women and domestic violence” [32]. When we are brought up in the cultural framework after the Second World War in which human rights and the concept of equality are natural starting points we can be a bit surprised and confused that the Church in Poland was (and perhaps still is until today) against this law. However, it is possible to find rational motivation for this statement when we refer to the subordinated role played by women whose main purposes in this framework is reproduction and the care of offspring. In this sense, the catholic approach is even more radical than hunter-gatherer communities living in the Pleistocene. Among hunter-gatherer groups women could and had to look for food [10]. In the catholic tradition, women could only cook this food, but not look for them outside households.

5. Adaptability of Religious Beliefs

We suggest that the main purpose and cause of the existence and persistence of religious beliefs and religion were their adaptive functions. In the history of religion we find that probably psychological functions were chronologically first. Peoples et al. find that among communities of hunter-gatherers the most popular kind of belief is animism. Then we find belief in an afterlife and shamanism [23]. We can suppose that these kinds of beliefs had and can have in the current societies psychological functions. This question of religious coping underlines the adaptive nature of religious and supernatural beliefs that had and have positive impact on psychical and physical health. It seems to be obvious that these beliefs had to be adaptive in the terms of survival and reproduction. Different situations when these kinds of beliefs could occur seem to be too far from evolutionary rationality that favors the simplest and the least costly mechanisms and solutions. Religion can't be an

adaptation because it is too broad and heterogeneous to be a structural design feature. However, beliefs in general and religious beliefs in particular, because they are made of information, are physical structural design features and can be culturally transmitted adaptations when adaptation is defined in the broad sense [12].

If we assume that religious and supernatural beliefs are rather cost in the sense of energy and time because they direct attention to non-real objects, we would find the great evolutionary or genetic fallacy when natural selection could enable emergence of these kinds of non-real beliefs. This is why we suggest that they had to be pragmatic. In this sense we assume that the CSR approach is not right when it is focused on the by-product and casual nature of religious beliefs that have occurred "spontaneously" because they were casually favored by natural cognition, especially agency detection device. This explanation seems improbable from the evolutionary point of view. In this context we suggest that – especially in the light of mentioned above research of Peoples et al. – religious/supernatural beliefs have emerged for pragmatic, psychological purposes. We mentioned animism, the concept of an afterlife and shamanism. Then, especially after the Agricultural Revolution, we find the dead ancestor worship and high moralizing gods/God worship. In this period of human evolution we can find new social problems which were not known for small hunter-gatherers societies. This new level of human organization – large groups of unrelated individuals – has caused new social and ethical problems [30]. These problems probably could not be solved by natural biological mechanisms. However, we can refer to the concept of Wynne-Edwards who suggests that group selection leads to group adaptations. We find on the other side George Williams' approach that rejects the idea of group selection. Williams states that individual selection that favors selfishness is a more powerful mechanisms because individual changes occurs much frequent than changes at the group level [14]. Natural selection has looked for new solutions like cultural tools. One of them was mentioned in two kinds of worships (ancestors and then gods/God). These supernatural observers theoretically were good candidates for social disciplinary tools [22].

To sum up we suppose that CSR, especially the first standard model fails because it underestimates the pragmatic usefulness of religious/supernatural beliefs and overestimates the role played by natural cognitive mechanisms whose nature could be attractive for the occurrence of these beliefs. We claim that natural selection in some sense specially has designed these beliefs to enable solution of first psychological, and then social problems. In the natural history of human beings these prior psychological functions have work all time and today we can find that psychological usefulness of religious beliefs is probably their main function. It is possible to state that religious beliefs in this context are not adaptations but exaptations. We can observe that in the secularized West religious beliefs also today work as adaptive trait but rather in psychological than social sense. We can find examples of religious groups that probably work as adaptive groups until today [36]. This topic suggests that religious beliefs cannot be interpreted nor in cognitive nor in epistemic terms. Cognitive explanation does not introduce anything new because natural cognition is normal and basic ground for other kinds of beliefs. When we take the CSR approach we should assume that all adaptations are by-product because they always use other mechanisms and elements that were not designed for a given feature.

6. Reliability of Religious Beliefs and Factual Versus Pragmatic Realism

CSR rather excludes an opportunity to interpret religious beliefs in epistemic terms of truth and falsity. It seems that this question is beyond its focus for at least two reasons. First, CSR presents a functional approach and explains rather than justifies the work of cognitive mechanisms. Second, cognitive mechanisms are interpreted in evolutionary terms of increasing chances for survival. In this sense, they are not understood as truth-tracking but as fitness maximization oriented [9]. From this point of view the reliability of natural cognition is not very important.

At the basic level of survival and reproduction natural cognition should work in a reliable way because we need to have an efficient system for defense and for looking for food. Reliable

interpretation of the external world usually can be required to achieve these purposes. However, at the higher level of social organization we can find in the human history that our natural cognition was not truth-oriented. Human beings have created different fictive belief systems that were focused on pragmatism rather than truth. Effective religious system does not have to be reliable. We find some basic concepts like, for instance, eight rules of big gods that probably have worked effectively independently on their reliability [22].

This topic is a domain of a difference between factual and pragmatic realism. Religious beliefs like many other belief systems are a domain of this latter one. Perhaps science is the only unique belief system that is fully truth-oriented [36]. How in this context can we interpret the cognitive approach to religious beliefs that are explained as a by-product or side-effect? Our approach is as follows. On the one side, we accept this point because in the sense of proximate explanation natural human cognition is not religiously oriented. Religious beliefs perhaps work and react better and faster with these cognitive mechanisms than other kinds of beliefs. Perhaps their contents make them better candidate for parasitizing on cognition than other beliefs. We mean agency detection, Theory of Mind, or anthropomorphic inclinations of human cognition.

On the other side, we think that this interaction with natural cognitive mechanisms does not matter because cognition is a natural and necessary starting point for all kinds of beliefs. Even if religious beliefs are better candidates for global transmission than others we suggest that their universal presence is a domain of convergent evolution and adaptive usefulness for solving psychological and social problems. As we said earlier, we suppose that it seems to be improbable that such a costly energetically system could spontaneously evolved as a non-controlled by natural selection its by-product.

7. What For Do We Need a By-product?

We assume that religious beliefs are not by-products in functional sense. We suggest that natural selection in some sense specially designed these kinds of beliefs when it “has looked for” new tools that could be useful for solving new problems. This is why we suppose that standard model of CSR in a bit wrong way presents its story about origin of religious beliefs as a by-product of natural selection. It is worth to bear in mind particular, perhaps the same in different cultures and regions, functions that have been played by religious beliefs, rituals, and religions. Perhaps some religious systems were focused more on other fields than other religious systems. However, it seems that probably majority of them was oriented on solving psychological and social problems. Consequently, they were and are also today adaptive at least for the clergy whose can effectively accumulates material resources and prestige by reference to the unique theistic license in morality and metaphysics.

Even in the current secularized societies in which religious systems do not work as a group-level adaptation, they can effectively work as individual-level adaptation. We mean psychological coping and stress reduction. In this matter we find unbroken continuity from the Paleolithic shamanistic rituals to the current positive impact of religious beliefs and practices for psychical health. We suppose that this adaptive explanation works better than the by-product hypothesis. Religious beliefs usually were and are associated with particular pragmatic functions and it seems improbable that their evolution is a domain of not designed evolutionary side-effect. We accept the point of view of Rappaport and Corbally that suggest that it is possible to interpret as adaptation all these mechanisms that have served for evolution and enhancing sociability [25. p. 99]. There is no doubt that religious beliefs were very useful and perhaps necessary in the natural history of humans for the evolution of ultra-sociality and cooperation.

8. Conclusion

We are aware that there are possible different explanations of the origin and nature of religious beliefs among cognitive and evolutionary studies of religion. Beside these two approaches we find

many others, more traditional ways of – rather understanding than interpreting – religious beliefs. It seems that perhaps the more useful way it would be some kind of combination of these more scientific with more humanistic and social ways of analyzing of religious beliefs.

I wanted to show that the cognitive approach towards the study of religion is a good and promising way. However, I think that this approach is too narrow and it would be better to use some basic concepts of CSR as a starting point for further, not cognitive explanation of religious. I suppose that religious beliefs should be explained also by their pragmatic functions because they were probably always associated with some pragmatic purposes at the group or at the individual levels. To develop further this last approach, the good explanatory way is the evolutionary study of religion.

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