

# Two realms, one winner? Scientific vs. Religious ‘Knowledge’ in Evolutionary Perspective

## Scientific vs. Creationist worldviews in Evolutionary Perspective

Dr. Michael Blume, Study of Religion, Friedrich-Schiller-University Jena

Mail: [michael.blume@uni-jena.de](mailto:michael.blume@uni-jena.de)

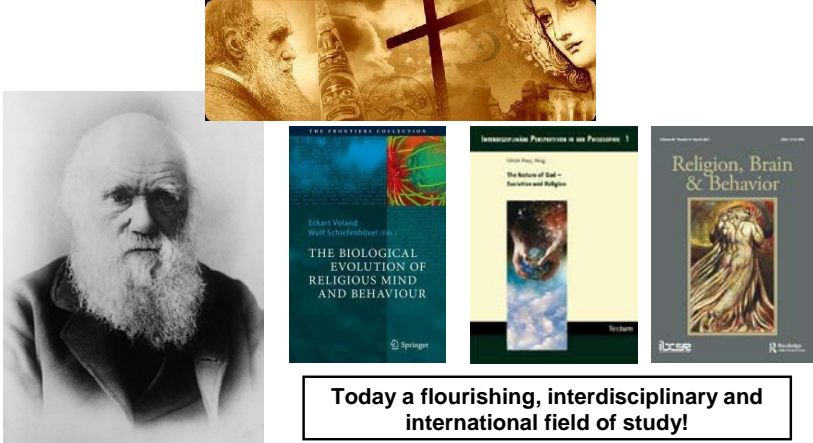
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**Abstract** Throughout the 20<sup>th</sup> century, evolutionary and religious explanations of life have mostly been discussed as conflicting and exclusive. Even those models that tried to separate these perspectives into non-overlapping magisteria indicated that religious lore would lose parts of its functionality. But during the last years, new and interdisciplinary evolutionary studies of religiosity and religions yielded empirical findings supporting a hypothesis first formulated by Friedrich August von Hayek in 1982: Religious beliefs in superempirical agents may be adaptive even if they clearly conflict with modern scientific knowledge. For example, religious demography has been able to explain a central factor in the ongoing struggles between proponents of evolutionary theory and advocates of religious creation mythologies in the US, Israel and other countries: Although Evolutionists emphasizing empirical methodology tended to bring up far more scientific arguments, Creationists believing in a God endorsing community and family life tended to bring up far more children. This holds true even if other variables such as education, income or urbanization are controlled for. And the philosophical weight of these findings is indicated by a central assumption of evolutionary theories of cognition and evolutionary epistemology: All of our senses are assumed to have been evolved by approximating aspects of reality, with “better” informations resulting in higher chances of survival and reproduction. Therefore, recent evolutionary and cognitive studies indicate the need to reassess our established perspectives on the functionality of scientific vs. religious ‘knowledge’.

2 Blume, M. 2011: "Two realms, one winner? Scientific vs. Religious 'Knowledge' in Evolutionary Perspective." Lecture at "Reason and Belief in the Societies of Knowledge", University of Barcelona, 5<sup>th</sup> - 6<sup>th</sup> July 2011

## 1 Evolutionary Studies of Religiosity and Religions

**Evolutionary Studies of Religiosity and Religions**

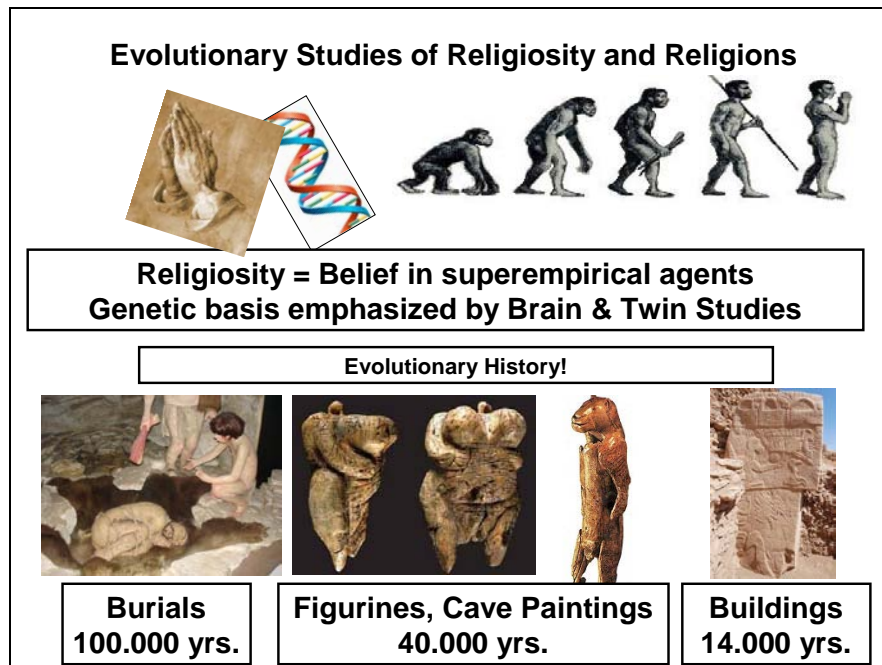


**Today a flourishing, interdisciplinary and international field of study!**

**Initiated by Charles Darwin, including a chapter in his „Descent of Man“, 1871**

More than a century before evolutionary theories in a modern sense were formulated, David Hume assumed a "Natural History of Religion" (1757) in a text with this very title. And after Charles Darwin published his "Origin of Species" in 1859, a range of hypotheses and theories concerning the evolutionary history not only of human beings but also of their religiosity appeared (e.g. Jaeger 1869). Being a graduate in theology, Darwin himself included a chapter and a range of hypotheses concerning the evolution of religiosity and religions in his "Descent of Man" (1871), some of whom appear surprisingly viable (Blume 2010).

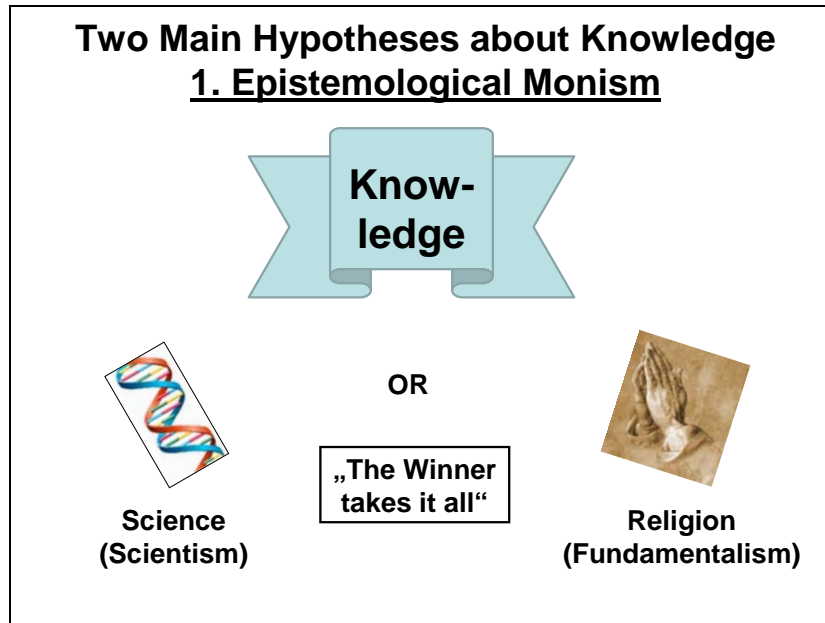
But, sadly enough, it took more than a century before the topic was rediscovered in the scientific discourse with the empirical scrutiny it deserved. Within the last years, more and more enterprising colleagues started to bridge the gap between their scientific disciplines, forming collaborative networks, conferences, books, institutions, blogs and a journal exploring the evolutionary history of religious beliefs and behaviors. After the success of the "Explaining Religion"-conference in Bristol (cp. Blackmore 2010), I am honoured to be given the opportunity to present respective findings to this well-designed conference here in Barcelona. The organizers asked me to offer a brief introduction into some key findings in the expanding field of evolutionary studies of religiosity and religions.



From evolutionary perspectives - and very close to the terms used by Charles Darwin himself -, religiosity can be defined as “beliefs in superempirical agents” such as ancestors, spirits, demons, angels, hidden space aliens, god or God. As any other biocultural trait, it seems to have emerged in evolutionary history by bringing together older foundations into a new system of thoughts, emotions and behaviors (Wilson 2002, Volland & Schiefenhövel 2009, Feierman 2009, Frey 2010). Although there have been assumptions about much earlier origins, the first widely acknowledged burials - emerging among Homo sapiens and Homo neanderthalensis! - have been dated to about 100.000 years, while symbolic figurines and cave paintings have been around for at least 40.000 years. Recent findings of a complex temple site at Göbekli Tepe are even refuelling the debate whether religious behaviors may have initiated the formation of settled civilizations (Mann 2011).

But why did - and does! - it take so long for many to accept the obvious argument already formulated by Charles Darwin himself - that religiosity turns out to be an adaptive and successful trait in human evolution?

The root of the assumed and popular “conflict” between science(s) and religion(s) is a philosophical one. Many self-declared “darwinists” added an epistemological monism to their worldviews that the learned theologian Darwin himself never formulated nor endorsed: They assumed (and are assuming) that there is only one kind of knowledge which should be accessed exclusively by empirical science(s).



In accepting this seemingly stringent monism, some religious proponents retaliated by insisting on the absoluteness of their religious “knowledge”. Thus, the first half of the 20<sup>th</sup> century saw the rise of dominantly non- and anti-religious scientisms on the one side and its religious, nativist and fundamentalist counterparts on the other side, both needing the other (Numbers 2006). In their shared views, our knowledge is one-dimensional with either science or religion being “true”.

As an example, Sam Harris is arguing in “[Science must destroy Religion](#)” (2006):

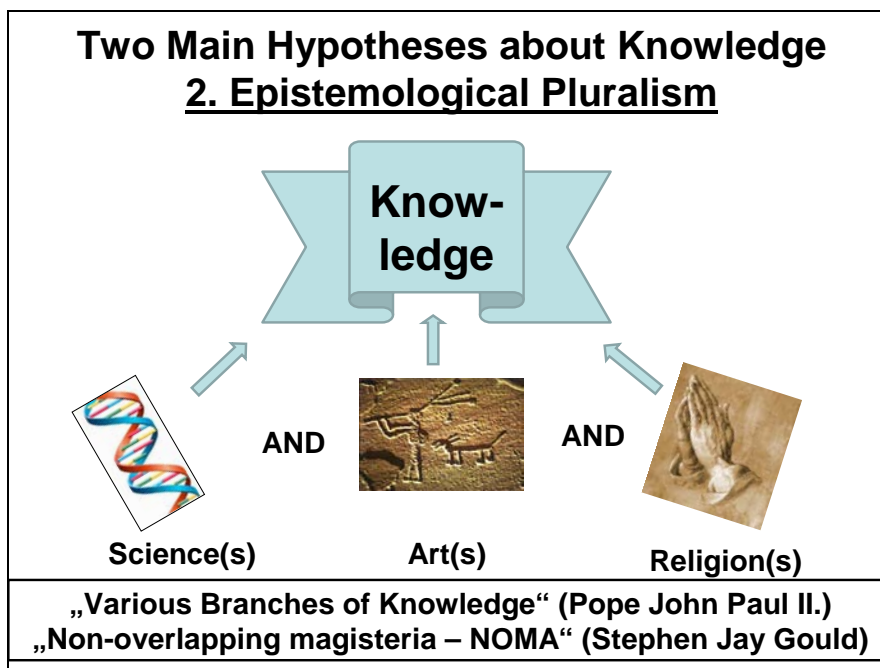
“The conflict between religion and science is inherent and (very nearly) zero-sum. The success of science often comes at the expense of religious dogma; the maintenance of religious dogma always comes at the expense of science.”

Correspondingly, the fundamentalist evangelicals from Answers in Genesis are [stating their faith](#) (2009):

“The view, commonly used to evade the implications or the authority of biblical teaching, that knowledge and/or truth may be divided into *secular* and *religious*, is rejected. By definition, no apparent, perceived or claimed evidence in any field, including history and chronology, can be valid if it contradicts the scriptural record. Of primary importance is the fact that evidence is always subject to interpretation by fallible people who do not possess all information.”

Obviously, there can be almost no reasonable dialogue or even cooperation between these extreme positions. Instead of bringing science(s) and religion(s) forward, these camps brought about bitter and overwhelmingly fruitless conflicts without any side attaining a decisive victory.

But then, do epistemological monists really have the position to speak for “the” sciences or “the” religions? The answer is - no.



Ranging from the ancient Greeks right through great philosophers such as Immanuel Kant to contemporary evolutionary epistemology (Vollmer 2010), there has been the explicit observation that “knowledge” is multi-dimensional by nature. Therefore, it is best explored by various means such as empirical science, arts and metaphysics. In his explicit acknowledgement of evolutionary theory as “more than a hypothesis”, Pope John Paul II. repeatedly referred to the “various branches of knowledge”. Correspondingly, the eminent evolutionary biologist Stephen Jay Gould (a non-believer with Jewish background) accepted the “non-overlapping magisteria (NOMA)” of science(s) and religion(s) (Gould 1997).

## Arts & Religions – Not inferior but „other“ branches of Knowledge?



Pablo Picasso, „Guernica“ (1937)

„The Creation of Adam“,  
Michelangelo (ca. 1511)




For example, we might readily acknowledge that the famous painting “Guernica” by Pablo Picasso does not compete with an empirical photograph of the destroyed city, nor does it offer any peer-reviewed, scientific and statistical data about the attack. But formed in the mold of a Christian triptych, it is conveying a specific kind of “knowledge” about the terror and the losses caused by the merciless war, that has prompted numerous human beings to remember the fate of Guernica ever since. We could argue that no scientific paper could have incited the same kind of “knowledge” that this piece of art brought to the world.



In the same way we could ask whether religious myths such as God creating Adam may be offering “symbolic truths” as a special kind of knowledge, as formulated for example by Nobel laureate Friedrich August von Hayek (1988). And we might want to take notice that Michelangelo painted his image of God in the form of a human brain, maybe preceding respective “neurotheologies” by about five centuries... (Cp. Blume 2011)

But then, we do no longer have just to speculate on these topics. After all, evolutionary theory is offering us a way of empirical testing the conflicting hypotheses of epistemological monism and epistemological pluralism!

**Let's test it evolutionary & empirically!  
The first commandment given by  
God according to the Bible?**



***„Be fruitful and multiply!“***  
**Genesis 1,28**

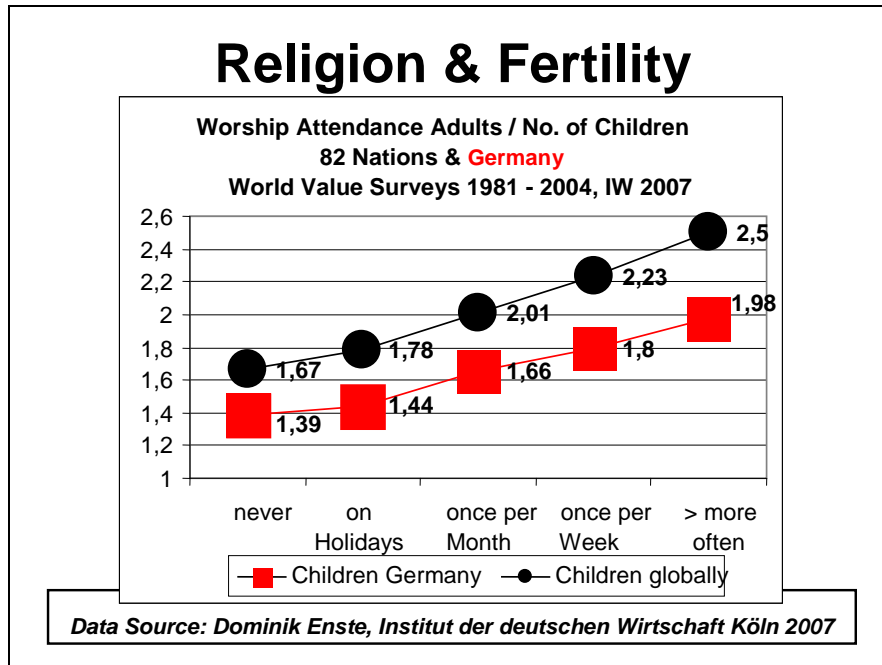



If religious myths would constitute no more than an outdated or inferior kind of “knowledge” as assumed by scientist monisms, its application to life should lower the average reproductive success of its adherents, that is: its evolutionary fitness.

In contrast, if religious lore would constitute a magisteria or realm of real knowledge beyond the reaches of empirical science(s), it should go with higher numbers of offspring throughout subsequent generations.

## **2 The Reproductive Potentials of Religiosity**

Although I would like to reserve the idea of this empirical testing of competing epistemological positions as one of my own, this would not be true nor fair. In fact, I found it in a nearly-forgotten lecture given by the already-mentioned Friedrich August von Hayek in 1982. Therein and in his final chapter in 1988 finished just before his death, the economist and evolutionary philosopher noticed that the first commandment given by God to the freshly created human pair is to “be fruitful and multiply”. And he noted that this myth could be one of many nurturing human life and culture in the course of its evolutionary history “because” it reached beyond rational, scientific and immanent arguments (von Hayek 1982, 1988). After years of researching and probing this assumption, I do no longer hesitate to acknowledge that von Hayek has been right with this: Religious lore is even more adaptive than he or Darwin could have imagined! In fact, it may even be evolved into a necessity for human culture(s) to survive the centuries.

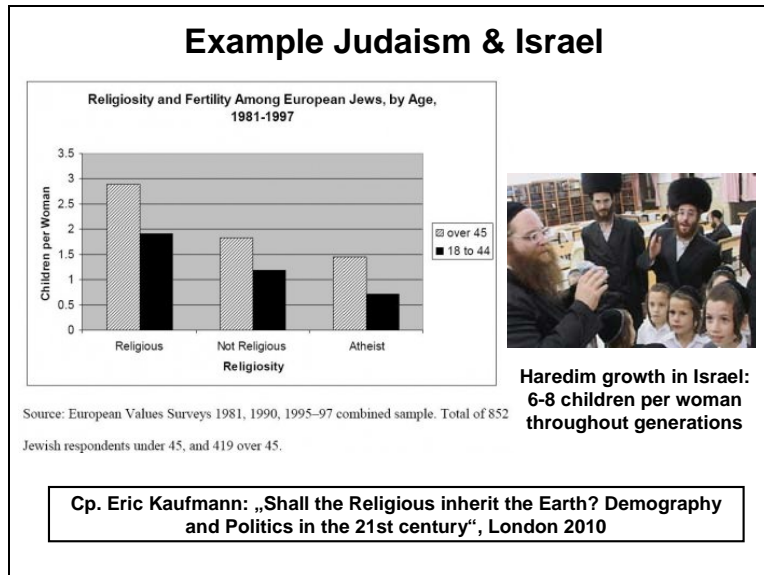


As one of many examples, Dominik Enste tested the correlation of worship attendance and the average number of children with data from waves of the World Value Surveys spanning 82 countries from all continents and world religions. The result was crystal clear: Regardless of denomination, the devout tended to have far more children among Christians, Muslims, Jews, Hindus, Buddhists and other religions (Enste 2007). **Religiously affiliated humans reproduce (on average) more successfully than their secular peers.**

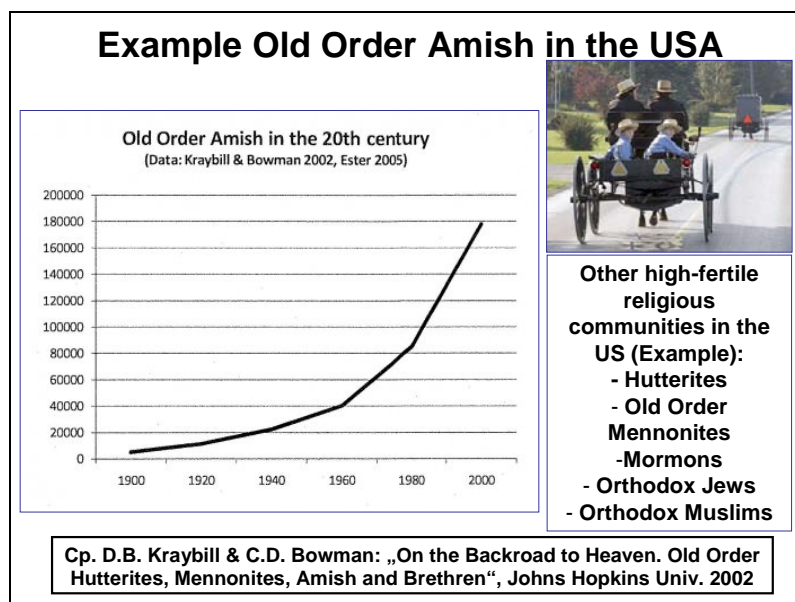
It turned out that there have been numerous variants of non-reproductive religious variants such as the Christian Shakers - but that only those traditions survived to grow into world religions that endorsed marriage and large families. **Of course, this doesn't mean that Religion is the ONLY demographic factor, but that it is an INDEPENDENT one.**<sup>1</sup> Finally, the findings do help to understand why scientific monists have not been able to defeat their fundamentalist adversaries: **While non-religious Evolutionists tend to bring up far more scientific arguments, religious Creationists tend to bring up far more children!** This is a surprising stalemate with a deep and informative, evolutionary irony.

<sup>1</sup> As a resource to help your research, I put an (expanding) „[Web-Resource of Religion & Reproduction](#)“ to my homepage [www.blume-religionswissenschaft.de](http://www.blume-religionswissenschaft.de), listing studies of religious demography from colleagues around the world.





In fact, the far higher numbers of children among the religious has just become a central topic in sociology and political science, for example reshaping the demography of the United States, Turkey and Israel. And please note that specific religious traditions such as Orthodox Judaism managed to retain extremely high fertility throughout subsequent generations both with state support in Israel and without it in the USA (cp. Kaufmann 2009, Berman 2009).



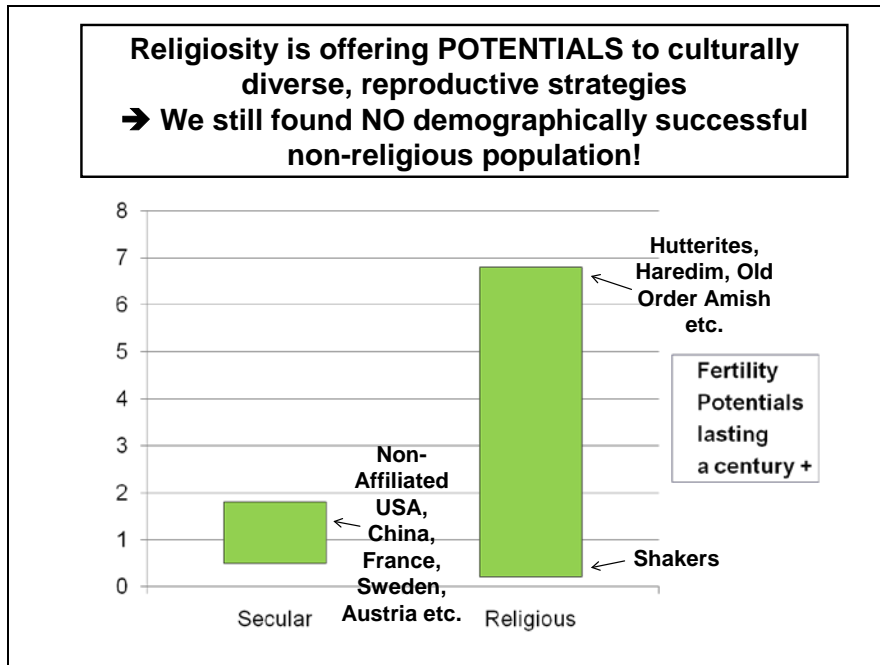
10 Blume, M. 2011: "Two realms, one winner? Scientific vs. Religious 'Knowledge' in Evolutionary Perspective." Lecture at "Reason and Belief in the Societies of Knowledge", University of Barcelona, 5<sup>th</sup> - 6<sup>th</sup> July 2011

The Old Order Amish constitute another case which I had the opportunity to study in detail. Although they hesitate to accept converts and are losing defectors in every generation, their numbers have been doubling throughout the 20<sup>th</sup> century every 15 to 20 years! (Blume 2010b)

Other examples of high-fertile religious traditions in the Americas are Hutterites, Old Order Mennonites, Mormons, the evangelical Quiverfull movement and orthodox Muslims (e.g. Kraybill & Bowman 2002, Joyce 2009). Some of them even actively avoid higher scientific education in order to secure their religious world-views, lifestyles and, ultimately, their evolutionary success.

	Swiss Census 2000 Denominational category	(CFR) Births per woman	% academic education	% higher occupational class
	Hinduism*	2,79 (1)	17,0% (12)	7,4% (14)
	Islam*	2,44 (2)	11,4% (15)	6,1% (15)
→	Jewish	2,06 (3)	42,7% (1)	42,4% (1)
	Other (smaller) Protestant	2,04 (4)	20,1% (5)	19,2% (6)
	New Pietism / Evangelical	2,02 (5)	19,2% (6)	17,9% (8)
	Pentecostal	1,96 (6)	17,1% (11)	15,7% (10)
→	Other (smaller) Christian	1,82 (7)	39,1% (2)	31,8% (2)
	Didn't answer	1,74 (8)	19,1% (7)	5,3% (16)
	Christian-Orthodox*	1,62 (9)	18,0% (10)	9,8% (13)
	<b>Swiss Average</b>	<b>1,43</b>	<b>19,2%</b>	<b>19,6%</b>
	Buddhist*	1,42 (10)	20,3% (4)	13,4% (11)
	Roman-Catholic	1,41 (11)	16,8% (13)	18,5% (7)
	New Apostolic	1,39 (12)	13,9% (14)	17,6% (9)
	Reformed Protestant	1,35 (13)	18,9% (8)	22,2% (4)
	Yehova's Witnesses	1,24 (14)	6,8% (16)	11,2% (12)
	Christian-Catholic	1,21 (15)	18,4% (9)	22,2% (5)
→	Non-affiliated	1,11 (16)	30,6% (3)	26,7% (3)
	r / Spearman Rank Correl.		0,054	-0,269

In European societies with lesser levels of religious and educational liberties such as Switzerland, the demographic potentials of religiosity are visible, too. Please note that the religiously non-affiliated do show the lowest fertility rates in comparison to "all" religious denominations differentiated by the Swiss Office of Statistics. And Jewish as well as some smaller Christian denominations managed to combine higher percentages of academic education and leading occupational classes with nearly double as many births than the non-religious (cp. Blume 2009).



Finally, I would like to point out another empirical finding with maybe far-reaching implications: In exploring the reproductive outcomes of diverse human populations, communities and traditions, we found a lot of religious variants that managed to retain very high levels of fertility throughout many generations. But in contrast, **we still did not find even a single example of any strictly non-religious human group past or present that attained at least the replacement level of two children per woman for a century.**

### 3 The Proximate Mechanisms linking Religion & Evolutionary Fitness

After years of respective research, I may use the opportunity of this conference to speak out the empirical finding: **As far as we can see, any human population that completely abandoned religious beliefs inevitably went for demographic (and that is: evolutionary) extinction!** Religious “knowledge” might not only be socially helpful in human survival and reproduction - it might even be necessary!

Of course, the proximate mechanisms linking religious affiliation to evolutionary potentials are complex and indirect: At the individual level, the (bio-)cultural evolution is selecting for prolific religious commandments such as injunctions to marry early, to have many children and not to kill them but to regard them as a duty as well as a blessing from the superempirical agents.



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At the social level, commandments are selected for if they manage to bolster in-group cooperation such as long marriages, in-group loyalty and reciprocal charity. In this sense, religiosity can be analyzed as a cooperative tool, with reproductive potentials just constituting one of his many possibilities.

And at the institutional level, those religious traditions endorsing institutions of child care such as kindergartens, schools, home-schooling networks or hospitals enjoy on average higher demographic and thus (bio-)cultural success.

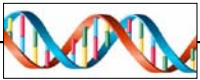
Actually, a range of diverse religious traditions even established celibate role models that do not support families of their own, but are trying to support the community of "brothers and sisters" by service and example. In diverse configurations, such "helpers at the nest" are found among many animal species, too. And it is interesting to see that, for example, the term Nun shares its etymological root with the family-supporting Nanny. Berman et al. even probed to measure this reproductive impact of religious alloparenting in a special index: Children per Nun. (Berman 2004)

**Personalities may give commandments while non-personal principles may not!**

 **Comparative Examples:** 

**„Be fruitful and multiply!“, Bible, Genesis 1.28**  
**→ Authoritative Motivation for Believers**

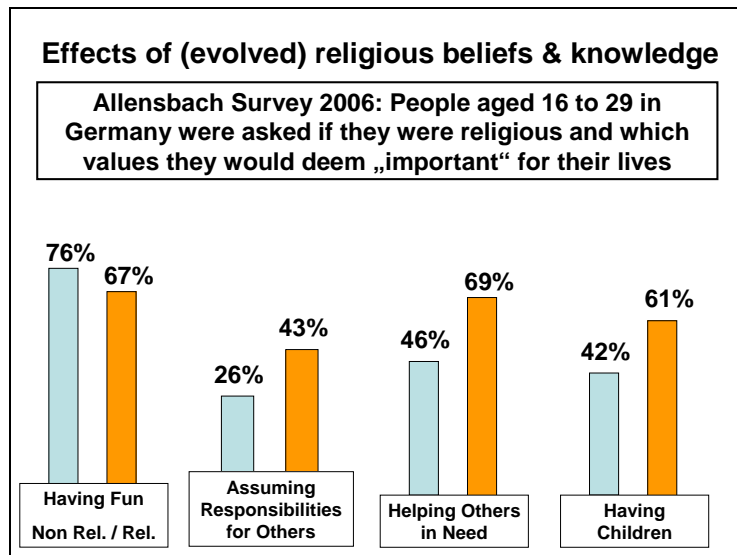
**„Reproductive success is defined as the passing of genes onto the next generation in a way that they too can pass those genes on.“, T. H. Clutton-Brock, University of Chicago 1990**  
**→ Explanation. Motivation would constitute a Naturalistic Fallacy**



If broken down to a single mechanism, the core, evolutionary potential of religiosity lies in its possibility of personal attachment by providing culturally "tested" mythologies, rituals and symbols about "watching" superempirical agents and their behavioral expectations (Shariff, Norenzayan & Henrich 2009). We are not evolved to accept "commandments" by non-living things, but instinctively ready to adjust our behaviors if we believe to be observed and judged by specific and relevant others. (Bering 2011)

Thus, although evolutionary scholars agree on the central importance of intergenerational, differential reproductive success as the main indicator of evolutionary fitness, most wouldn't accept this finding as a personal commandment to have many children, rightfully discovering that this would constitute an ontological fallacy. There is no direct way from the empirical and evolutionary "is" to a binding "ought".

But if we believe to be observed, judged and maybe even loved and awaited by specific superempirical agents, that's quite another situation. The ancestors might expect us to cooperate faithfully among our extended as-if kin "brothers and sisters". And God may command us to have children in His name because "children are an heritage of the LORD: and the fruit of the womb is His reward. As arrows are in the hand of a mighty man; so are children of the youth. Happy is the man that hath his quiver full of them" (Psalm 127: 3 - 5, see Joyce 2009 for the Quiverfull movement). There's a motivational potential in religious beliefs that can be shaped into such diverse forms as extreme submission to hierarchies, to terrorism or even outright suicide as well as into prosocial activities and dedicated family life. But, of course, religious communities endorsing those latter rules helping them to prosper throughout subsequent generations will tend to do just that. Thus, (bio-)cultural evolution is skimming religious lore towards adaptivity (cp. von Hayek 1988, Wilson 2002, Shariff, Norenzayan & Henrich 2009). Non-religious are no less able to live moral and happy lives than the religious, but shared beliefs in superempirical agents such as Ancestors, Spirits and God are able to motivationally augment evolved bodies of traditions and cooperative networks among believers in a substantial way.



## 4 Conclusions

So I would like to end this lecture by formulating three main hypotheses based on recent findings in the field of evolutionary studies of religiosity and religions.

### **1. Religiosity is evolutionary adaptive. By motivating believers, the trait is showing the potential and tendency to raise the reproductive success throughout generations**

Of course, this does not prove the existence of superempirical agents, but neither does it prove the opposite. It is still possible to interpret these evolutionary findings in the frame of an "adaptive illusion" (e.g. Bering 2011). But then, it is possible to see it as a strong indicator that there is a Mind at work while successful religious traditions are bringing forth specific knowledge approaching a fundamentally personal and social reality (e.g. Dowd 2009). Non-religious might welcome the possibility of a comprehensive and evolutionary understanding of some seemingly "odd" beliefs and behaviors of their religious contemporaries. Jewish scholars already brought some of their evolved traditions, i.e. concepts of Yetzer, into a fruitful dialogue with biologists (Goldberg 2009). Christian theologians started to explore the nature of "Homo religiosus" and its "Sensus Divinitatis" from this new angle. And Muslims may rediscover the classic Quranic concept of "Fitrah" through the fresh and scientific lenses of evolutionary studies.

### **2. The Role of Women in the Evolution of Religiosity and Religions has been greatly underestimated**

Drawing on antique observations, David Hume assumed in his "Natural History of Religion" that women had had a say in founding early religious communities and traditions. But although Darwin was influenced by Hume in many respects, he did not follow this argument. The Victorian scholar discussed the evolution of religiosity and religions only in terms of intra-male competition and especially warfare.

But the recent empirical findings as well as the rich stone-age-artwork found by paleoarchaeologists such as Nicholas Conard at Tübingen University all seem to indicate that religiosity did not evolve as a means to primarily augment cooperative killings, but cooperative breeding. As forcefully described by Sarah Blaffer Hrdy, the role of women and childcare has been greatly underestimated in evolutionary studies of humanity far too long, as evolutionary narratives were confined to all-male "hordes" with strong "leaders" hunting and battling for the "conquest" of shy and passive females (Blaffer Hrdy 2009). Not ideological concerns but empirical data strongly indicate the need to reassess the various impacts of sex, gender and celibates in the evolutionary history and present of religiosity, religious traditions – and beyond (cp. Blume 2009, Slone 2008).

### 3. Epistemological monism is refuted empirically. Sciences, Arts and Religions are offering different kinds of knowledge(s)!

The empirical data presented indicate that both scientific and religious radicals got it wrong: Religious mythologies are not primarily scientific hypotheses, but symbolic narratives motivating believers by communal attachment to superempirical agents. Religious traditions such as the Old Order Amish or Hutterites manage to flourish by abstaining from scientific knowledge that they call “worldly wisdom”. In contrast, we do not know of any human community past or present that has been able to survive demographically just by empirical science(s). These findings support the findings of leading colleagues such as Robert McCauley whereas “Religion is Natural and Science is not”. Although this cannot be a normative argument, it is a discovery worth reflecting.

Evolution shaped us to be epistemological pluralists capable of valuable discoveries in the “various branches of knowledge” of science(s), art(s) and religion(s). Instead of wasting more years and funds into fruitless strife among antitheist and fundamentalist radicals, we should proceed in our shared quests of inquiry with open-minded curiosity and the resulting readiness for dialogue and mutual learning.

Finally, let me dedicate this text to Carles Salazar, Maria Coma and Joan Bestard as a way of saying **special thanks** for organizing this interdisciplinary and intensive conference in Barcelona so well!

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