

Introduction to the Italian Translation of Darwin's Cathedral

I thank Gilberto Corbellini for the opportunity to provide an update on *Darwin's Cathedral* on the occasion of its Italian translation. It was doubly controversial upon its publication in 2002. First, studying religion from an evolutionary perspective was regarded as a fringe topic. Second, group selection has been controversial within evolutionary theory for many decades. Explaining religion as (primarily) a group-level adaptation therefore made me an outlaw among outlaws.

Today, I am pleased to report that *Darwin's Cathedral* has become less controversial in both senses. Studying religion from an evolutionary perspective has become fully respectable; indeed, I am confident that it will become the theoretical framework of choice, as for the study of all other aspects of humanity. And group selection has finally become respectable again, as Edward O. Wilson and I review in two recent articles titled "Rethinking the Theoretical Foundation of Sociobiology" (2007) and "Evolution 'For the Good of the Group'" (2008).

Why is evolutionary theory so insightful for the study of religion? It provides a number of major hypotheses for the evolution of *all* traits. Is a given trait an adaptation that evolved by contributing to survival and reproduction? If so, what is the unit of selection? Did it evolve by virtue of causing groups to survive and reproduce better than other groups (a product of between-group selection)? Or by causing individuals to survive and reproduce better than other individuals within the same group (a product of within-group selection)? With cultural evolution there is a third possibility; because cultural traits are transmitted from person to person, they bear an intriguing resemblance to parasitic organisms. Just as parasites often evolve to benefit themselves at the expense of their hosts, cultural traits can potentially evolve merely to perpetuate themselves, at the expense of both human individuals and groups.

In addition to these three adaptation hypotheses, there are also a number of non-adaptation hypotheses. Not everything that evolves is adaptive, as the late evolutionist Stephen Jay Gould never tired of pointing out. A given trait might have been adaptive in the past but not the present, such as our eating habits, which make great sense in environments of food shortage but are killing us in today's fast food environment. Or, a trait can be a costly byproduct of another trait. Moths, for example, navigate by celestial light sources such as the moon and stars, which is highly adaptive, but also causes them to become fatally attracted to earthly light sources such as a street lamp or a candle flame. Finally, some traits are neutral with respect to survival and reproduction and merely drift into a population. Many genes are selectively neutral, and perhaps at least some culturally evolved traits associated with religion are neutral as well.

Another major insight provided by evolutionary theory is the distinction between proximate and ultimate causation. Proximate causation addresses the question of how a given trait exists in physical terms, which involves a consideration of genetics, development, physiology, neurobiology, and so on. Ultimate causation addresses the question of why a given trait exists, compared to many other traits that could have existed. This involves a consideration of how the trait contributed to survival and

reproduction in the past (adaptation) random factors (drift) and historical factors (phylogeny). Everything that evolves requires both explanations, which do not substitute for each other and must be studied in a complementary fashion.

These major hypotheses and the proximate/ultimate distinction organize the study of the biological sciences. Remarkably, they serve just as well to organize the study of humanity, including the study of religion. They can even classify past theories of religion that were formulated without using the E-word, as I describe for the tradition of functionalism represented by Emile Durkheim and more modern sociological theories of religion represented by Rodney Stark in chapter 2 of *Darwin's Cathedral*.

Thus, one contribution of evolutionary theory for the study of religion as a natural phenomenon is to provide an elegant accounting system that includes all reasonable possibilities. The next challenge is to determine which of the major hypotheses are most salient for the genetically and culturally evolved traits associated with religion. Evolution is a messy and multifactorial process. Religion is a notoriously fuzzy set of traits. All of the major hypotheses are therefore likely to be relevant to some degree, but some will be more relevant than others when the elements of religion are examined on a case-by-case basis.

Until recently, evolutionists who study religion could be described as agreeing about the accounting system but disagreeing about which major hypotheses are most relevant. According to authors such as Pascal Boyer (2001) and Scott Atran (2002) religion is primarily a byproduct of psychological adaptations that evolved in non-religious contexts. According to authors such as Richard Dawkins (2006) and Daniel Dennett (2006), religion is primarily a cultural parasite with negative effects on human welfare. Other authors interpret empirical evidence for benefits of religion, such as health benefits, as evidence for individual-level selection. All of these seem to stand in contrast with my own emphasis on religion as adaptive at the group level. This lack of consensus might seem like a weakness—and would be if it continued indefinitely—but it can also be regarded as the scientific process in action. The best that a theory can do is outline a number of plausible alternative hypotheses; then empirical research must take over to evaluate the alternatives and formulate a more refined set of hypotheses. Progress results with each cycle of hypothesis formation and testing.

I'm glad to report that this kind of progress has been taking place within the nascent field of evolutionary religious studies. A consensus is forming on the following major issues, as I report in my recent article titled "Evolution and Religion: The Transformation of the Obvious" (Wilson 2008), which can be briefly summarized here.

- **The communitarian nature of most enduring religions can be accepted at face value.** Durkheim was right that religions are (largely) built and designed to provide secular utility to their members. In my survey of a sample of religions drawn randomly from Eliade's (1987) *Encyclopedia of Religion*, which I began in *Darwin's Cathedral* and continued in Wilson (2005), the communitarian nature of most religions in the sample was undeniable, including religions such as Jainism that superficially appear to support the cultural parasite hypothesis. This does not mean that we can return to the tradition of functionalism in its original form, but we do need to create a tradition of neo-

functionalism based upon the concept of major transitions, one of the most important developments in the history of evolutionary theory.

- **Religions reflect multi-level selection, not just group selection.** A major transition occurs when selection within groups is suppressed, enabling selection among groups to become the dominant evolutionary force. Selection within-groups is never entirely eliminated, however, even in multi-cellular biological organisms. Thus, no one should be surprised to see free-riding, cheating, and active exploitation in religious groups, just like all other human social organizations. Moreover, religions often represent a multi-tiered hierarchy of groups within groups within groups. Cooperation and social control come naturally at the level of small-scale groups but become increasingly difficult at larger scales. The history of the rise and fall of religions, along with other human social organizations, can be regarded as an exquisitely detailed fossil record of multilevel cultural evolution (Turchin 2005).

- **Between-group selection sometimes--but not always--takes the form of between-group conflict.** Popular discourse on religion invariably includes the observation that religious groups often engage in between-group conflict, as if this is somehow hypocritical or antithetical to the true nature of religion. This evaluation is supremely naïve from a multilevel evolutionary perspective. The general rule multilevel selection is that “adaptation at a given level requires a process of selection at the same level and tends to be undermined by selection at lower levels.” This means that the morality and prosociality encouraged by religions are primarily within the group and adapted for between-group competition in the broad sense. However, the broad sense does not necessarily mean violent between-group conflict. Darwin was careful to stress that nature is not always red in tooth and claw. A drought-resistant plant can “outcompete” a drought-susceptible plant in a desert environment without any direct interactions among the plants. Similarly, groups can “outcompete” other groups simply by functioning better as collective units. This is a form of between-group competition that we should all welcome—who wants to be a member of a dysfunctional group? Relationships among biological species span the full range from predation, to parasitism, to competition, to coexisting without directly interacting, to facilitation, to obligate mutualism. Relations among human groups, including religious groups, can be expected to span the same range. In my random sample of religions, I was gratified to discover that the majority did *not* spread by violent between-group conflict—think of early Christianity and Mormonism.

- **Individual thriving does not equal individual-level selection.** Suppose that I give you a million dollars, which you invest wisely in your own welfare. You thrive as an individual, but that does not provide evidence that you have a trait enabling you to survive and reproduce better than other members of your group. On the contrary, we need to explain how giving people like me persist in the world. By the same token, religions often provide services that enable their members to thrive as individuals in purely secular terms. The mere fact of individual thriving does not provide any evidence whatsoever that the elements of religion responsible for the thriving evolved by a process of within-group selection. On the contrary, they are much more likely to result from public goods that require time, energy, and risk on the part of someone to produce, and which persist primarily on the strength of between-group selection.

• **Adaptation and byproduct hypotheses need to be evaluated separately for genetic and cultural evolution.** According to authors such as Boyer (2001) and Atran (2002), some elements of religion evolved by genetic evolution for reasons that have nothing to do with religion per se, such as a mental bias toward attributing agency to events. Their religious expression therefore qualifies as a byproduct as far as genetic evolution is concerned. However, genetic byproducts can easily become adaptations as far as cultural evolution is concerned. Most adaptations, for biological and cultural evolution alike, are derived from structures and behaviors that served different purposes (or no purpose) in the past. The status of a given element of religion as an adaptation vs. byproduct therefore must be determined separately for biological and cultural evolution. This means that the genetic byproduct hypothesis associated with authors such as Boyer and Atran can be compatible with the cultural group-level adaptation hypothesis that I develop in *Darwin's Cathedral*.

• **There is very little evidence for the cultural parasite hypothesis.** The titles chosen by Richard Dawkins (*The God Delusion*), and Daniel Dennett (*Breaking the Spell*) for their books illustrate their reliance on the cultural parasite hypothesis as their primary explanation of religion. This is a perfectly respectable hypothesis, as I stressed earlier. However, there is very little empirical evidence that religious beliefs harm the believer in the same way that disease organisms harm their hosts. Examples that superficially give this appearance, such as suicide terrorism and the extreme ascetic practices associated with religions such as Jainism, turn out to be much more complicated and oriented toward Durkheim's concept of secular utility upon closer examination.

• **We should look for examples of religious drift.** No one would claim that religion in its entirety is selectively neutral, but the concept of "religious drift" might still explain particular elements of religion. I recently encountered a potential example at a workshop on the Golden Rule in religious traditions around the world (Neusner and Chilton 2009). It is often remarked that all major religions embody the injunction to "Do Unto Others," but the workshop revealed a more interesting and complicated story. Most enduring religions are indeed adaptive at the group level, but this requires a large number of rules that are employed in a context-specific manner, not any single rule, as I stressed in my contribution titled "The Golden Rules of Religion" (Wilson 2009). Moreover, as one of many rules, the specific injunction to treat others as one would like oneself treated is featured much more prominently in some religions than others. Judaism is centered on the principle of "measure for measure" which is not the same as the Golden Rule. The Golden Rule would have been highly maladaptive in Hellenic society. Confucianism prescribes rights and responsibilities to people occupying different positions in a stratified society, and so on. Thus, the Golden Rule is hugely consequential and therefore has a "distribution and abundance," (to use an ecological term) in how it is invoked contextually, both within and between religions. A more nuanced distinction, however, is between the positive and negative version of the Golden Rule. According to the workshop participants, most religious traditions do not make an important distinction between the two versions, which might therefore count as an example of religious drift. It will be interesting to test this hypothesis in detail using the same methodological tools that evolutionary biologists have developed to study genetic drift.

For more on these and other topics, please visit the website that I and my colleagues have created to establish the new field of Evolutionary Religious studies, including a model research project on religious conceptions of the afterlife from an evolutionary perspective (<http://evolution.binghamton.edu/religion>). For a thorough introduction and examination of the foundational issues, however, *Darwin's Cathedral* is still the best way to start. I am delighted that it is now available to an Italian audience.

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