

# Natural Selection, Scarcity and Evil: Reflections on the Fittingness of Evolution as a Divine Instrument of Creation

**MATS WAHLBERG**

Umeå Universitet

[mats.wahlberg@umu.se](mailto:mats.wahlberg@umu.se)

ORCID: 0000-0002-7685-0285

**Abstract.** It is often claimed that our knowledge of the evolutionary process adds an extra dimension to the classical problem of natural evil and makes this problem worse. Especially the principle of natural selection is often portrayed as morally inappropriate or “unfitting” for a perfectly good God to use as a means for creating biological complexity. In this article, I argue that this common view is misconceived, and that natural selection is a wholly innocuous principle. The real source of evolutionary evils is the fact that resources in nature are scarce – a fact that was known long before Darwin. The problem of natural and evolutionary evil, therefore, is best construed as a question about why God permits scarcity in nature. I argue that recent research about the interrelation between competition and cooperation in the evolutionary process provides resources for answering this perennial question in a more satisfactory way than could be done before the advent of evolutionary theory.

**Keywords:** evolutionary theodicy, natural evil, natural cooperation, Thomas Aquinas.

## Introduction: Evolution and the problem of natural evil

It is often said that our current knowledge of the evolutionary process and evolutionary history makes the problem of natural evil worse.<sup>1</sup> Already Charles Darwin harbored such suspicions. In a letter to J.D Hooker he wrote: “What a book a Devil’s chaplain might write on the clumsy, wasteful, blundering low & horridly cruel works of nature” (Darwin 1856). What Darwin had in mind as a potential challenge against God’s existence or goodness was the enormous amount of suffering, premature death and extinction that are associated with the evolutionary process. More recently, the biologist David Hull has expressed this evolutionary challenge against theistic and especially Christian belief thus:

What kind of God can one infer from the sort of phenomena epitomized by the species on Darwin’s Galapagos Islands? The evolutionary process is rife with happenstance, contingency, incredible waste, death, pain and horror [...] Whatever the God implied by evolutionary theory and the data of natural selection may be like, he is not the Protestant God of waste not, want not. He is also not the loving God who cares about his productions. He is not even the awful God pictured in the Book of Job. The God of the Galapagos is careless, wasteful, indifferent, almost diabolical. He is certainly not the sort of God to whom anyone would be inclined to pray (Hull 1991, 486).

If we put on our analytic glasses, we can see that Hull points to two different problems for theists in this quote. The first is often referred to as the problem of animal suffering, which Hull expresses by talking about the “death, pain and horror” that accompany the evolutionary process. However, although animal suffering might present a problem for theists, this problem has virtually nothing to do with evolutionary theory. After all, it was not Darwin who discovered that nature is “red in tooth and claw” and that animal life is a struggle – people have always known this. What evolutionary theory has contributed is the insight that animals have been around and suffered for much longer time than people previously thought. This knowledge, however, is irrelevant for the question

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of whether God was justified in creating animals and permitting them to suffer in the way they do. Either the existence of animals that prey on each other and suffer is a good thing or it is not. If it is a good thing, then why would it not also be good for animals to exist for millions of years? If the existence of animals that suffer is not a good thing, however, then it does not matter whether they have been around for a short or a long time, since a good God should not have created them at all, or at least he should not have let them suffer. If there is a specific *evolutionary* challenge against theistic belief, therefore, it must be something else than the problem of animal suffering.<sup>2</sup>

There is a second problem that Hull brings to our attention in the passage I just quoted, however, and this problem might fit the bill. It concerns the way that evolution works, and we may refer to it as “the problem of the *prima facie* unfittingness of natural selection as a method of divine creation”. Natural selection drives the evolutionary process by separating winners from losers in the competition for survival and reproduction. The elimination of the losers in this competition is a necessary condition for the development of advanced biological adaptations through evolution. As Holmes Rolston has put it, “The cougar’s fang has carved the limbs of the fleet-footed deer, and vice versa” (Rolston 2006, 134).

A process that builds biological complexity by sorting out the less well adapted can seem to conflict with the character of a perfectly good and loving God, especially as portrayed in the Christian tradition (see Peels 2018). Natural selection means that the fittest will inherit the earth, rather than the humble (Matt 5:5), and this can seem to undermine or threaten belief in a God who, like the biblical God, cares especially for the poor, the sick, and the oppressed. According to Friedrich Nietzsche, Christianity “thwarts the whole law of evolution, which is the law of natural selection. It preserves whatever is ripe for destruction; it fights on the side of those disinherited and condemned by life” (Nietzsche 1924, §7).

Perhaps, then, it is the fact that evolution happens through natural selection that presents a problem for the theist and that we should focus on. Is a process of this kind morally appropriate or fitting as an instru-

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<sup>2</sup> For a more thorough argumentation, see Kojonen 2022.

ment of creating for the Christian God? In this article, I will argue for an affirmative answer. There is nothing about the evolutionary process that exacerbates the problem of natural evil or constitutes good evidence against belief in the Christian God. I will begin to make my case by taking a closer look at the phenomenon of natural selection and its relationship to another important force in evolutionary development, namely natural cooperation.

## 1. Natural selection and natural cooperation

Natural selection is something that happens when self-replicating systems – such as biological organisms – interact. Replication is always imprecise to some extent, which means that different variants of replicators will arise. If this random variation affects their replication rate, then some variants will increase in frequency relative to others. This is what natural selection means, and the only attribute that is directly selected is higher replication-rate, in the sense that this attribute is what causes a variant to increase in frequency relative to other variants (Bell 2008, Ch. 1.5).

In its essence, therefore, natural selection is a wholly harmless process that can happen without the elimination of the less fit. In a very benign environment where the resources needed for replication are unlimited – for example in a laboratory setting – all variants of replicators will be able to replicate at their own different rates, and those that replicate faster will become more prevalent in the population. They will, in other words, be selected. The “losers” in this selection-process, however, are only losers in a relative sense: they will gradually constitute a smaller and smaller percentage of the total population, even though they might not decrease and can even increase in absolute numbers.

However, in nature there is no benign environment of this kind. When organisms reproduce outside of the laboratory, there will sooner or later be a shortage of the resources they need. This means that different lines of replicators must take resources from each other in order to continue to replicate. Competition will thus arise, and the losers will be eliminated.

It is hence scarcity of resources that creates the “struggle for existence” that Darwin talks about (Bell 2008, 4). If God can be accused of anything in this context, it is not that he permits natural selection but that he permits scarcity.

Competition for resources, however, is also what drives the evolution of biological complexity. This can be seen by an example. The simplest replicators are RNA viruses, and if these are cultured in a tube where the supply of the resources needed for replication (replicase) is abundant, the viruses will become smaller and simpler, since smaller molecules can replicate themselves more rapidly than larger ones (Bell 2008, Ch. 1.6). However, outside of the laboratory, in their natural environment, RNA viruses need to infect bacteria in order to replicate, and this means that they need to be more complex. In general, when the resources are scarce, successful replication depends on an organism’s ability to seize resources from competitors (Bell 2008, Ch. 1.11). This drives the evolution of abilities and traits that are useful for scavenging and for out-maneuvering others, and this is an important explanation of the emergence of biological complexity.

However, competition for scarce resources is only part of the story about how complex organisms have evolved. Already in 1902, Peter Kropotkin wrote: “Beside the law of *Mutual Struggle* there is in Nature *the law of Mutual Aid*, which, for the success of the struggle for life, and especially for the progressive evolution of the species, is far more important than the law of mutual contest” (Kropotkin 2021, x). The mathematical biologist Martin Nowak has studied the relationship between competition and cooperation in the evolutionary process. He describes the central question within his field of research in this way:

Evolution is based on fierce competition between individuals and should therefore only reward selfish behavior. Every gene, every cell, and every organism should be designed to promote its own evolutionary success at the expense of its competitors. Yet we observe cooperation on many levels of biological organization. Genes cooperate in genomes [...] Cells cooperate in multicellular organisms. There are many examples for cooperation among animals [...] The question of how natural selection can lead to cooperative behavior has fascinated evolutionary biologists for several decades (Nowak 2013, 99).

By natural cooperation, Nowak and his collaborators mean “a form of working together in which one individual pays a cost (in terms of fitness, whether genetic or cultural) and another gains a benefit as a result” (Nowak and Coakley 2013, 4). Cooperation can enhance the fitness of individuals and groups, but there is a conflict of interest between the individual and the group that can be characterized in terms of “social dilemmas”, such as the Prisoner’s Dilemma (PD) (Hauert 2013, 118). Such dilemmas are common in nature, and occur every time there is a cooperative arrangement whose benefits an individual can enjoy even while defecting. In the simplest version of the PD, selection always favors defectors over cooperators in populations where these two categories are well mixed (Nowak and Highfield 2011, p. 269). This means that natural selection slowly increases the number of defectors until all cooperators are gone. However, this is disadvantageous for the group as a whole, which gets a higher average fitness through extensive cooperation. How, then, can cooperation ever arise? Nowak points to a number of mechanisms that can “solve” social dilemmas and generate cooperation (Nowak 2013). The most well-known mechanism is kin-selection, which can induce individuals that are genetically related to pay a cost in order to help each other. Two other mechanisms are “network reciprocity” and “multilevel selection”. Network reciprocity means that cooperators can increase their fitness by forming network clusters with each other and exclude individuals who are unwilling to cooperate on equal terms. Such networks make cooperative behavior more rewarding than it would be in a well-mixed population where cooperators and defectors encounter each other randomly. The second mechanism, multilevel selection, is more commonly known as “group selection”. If a population is subdivided into groups, there will be competition not only among the individuals in each group, but also between the groups themselves. This means that selection will act both on the level of individuals and on the level of groups. On the individual level, selection favors defectors, while selection on the group level favors cooperators, since groups with many cooperators flourish and grow faster than other groups. If a group reaches a certain size, it may split, and if the resources are limited, this means that some other, less

successful group will be eliminated. Through this mechanism, cooperative behavior can lead to evolutionary success.

Mechanisms such as these explain, according to Nowak, “how cooperation arises out of competition, even though the two are locked together in ceaseless conflict” (Nowak and Highfield 2011, 269). Nowak describes the principle of cooperation as the “architect” of evolution because it “can draw living matter upward to higher levels of organization”. “Cooperation built the first bacterial cells, then higher cells, then complex multicellular life and insect superorganisms. Finally cooperation constructed humanity” (Nowak and Highfield 2011, 280).

## 2. Two lessons from evolutionary theory

What implications does all this have for the problem of whether the evolutionary process is a fitting or morally appropriate instrument of divine creation? There are two lessons I think we can extract. First, we have seen that natural selection in its essence merely means that the replication rate of different organisms varies. Evils such as extinction and struggle for life are aspects of the process of natural selection that arise under conditions of scarcity. It is scarcity of resources that transforms a competition to reproduce into a struggle for existence where winners take all. This means that our knowledge of the fact that organisms evolve by natural selection does not add some new and sinister aspect to the “old” problem of natural evil. People have always known that animals and other organisms compete for scarce resources and that the losers in this competition perish. When the biologist Hull appeals to the phenomenon of natural selection as a reason for disbelief in God, he is therefore wrong. If something is a reason for disbelief in God in the present context, it is the fact that biological creatures must compete for scarce resources.

However, a second lesson we can learn from the previous reflections is that competition naturally gives rise to cooperation in nature, through the kind of mechanisms I have just described. It is the very fact that organisms compete for scarce resources that makes cooperation between organisms rational in terms of fitness. If resources were infinite, organ-

isms would not need to cooperate in order to sustain themselves and reproduce, and this would entail less complexity in nature. As Nowak puts it: “Like day and night, or good and bad, cooperation and competition are forever entwined in a tight embrace” (Nowak and Highfield 2011, 269).

What this means is that evolutionary theory actually makes the problem of evil in nature less serious than it was prior to the discovery of evolutionary mechanisms. Previously, we knew that nature operated under conditions of scarcity that give rise to fierce competition. Now we know that this competition has not only bad consequences such as death and extinction, but that it is also the driving force behind the evolution of cooperation and complexity. This means that we are in a better position to explain why God permits scarcity of resources in nature than people were prior to the discovery of natural selection and the evolutionary mechanisms behind natural cooperation.

### **Conclusion: Two explanations of why God permits scarcity in nature**

In order to substantiate this claim, I will now suggest two possible explanations of why God permits scarcity in nature, one traditional explanation and one that draws on evolutionary theory. The two explanations are compatible, and theists can appeal to both. The traditional explanation highlights the fact that the kind of biological organisms that actually exist in our world (including those that have existed earlier in evolutionary history) could not have existed under natural conditions without competing for scarce resources. The reason for this is that biological species constitute *each other's* necessary resources – in other words, they feed on each other. The gazelle, for example, is a vital resource for the lion, which means that the two species necessarily compete. God could have created only herbivores, or he could have created the species that presently exist in our world but let them live under non-natural conditions – for example by separating the lions from the gazelles and miraculously feeding the lions. However, it is not obvious that a world with only herbivores or a world where organisms exist under non-natural conditions would be

equally valuable as the present natural world.<sup>3</sup> St. Thomas Aquinas seems to think that this explains why God permits death and corruption in nature: “It belongs to His providence”, writes Aquinas, “to permit certain defects in particular effects, that the perfect good of the universe may not be hindered [...] A lion would cease to live, if there were no slaying of animals” (Aquinas 2012, *ST I*. q. 22, a. 2, ad 2).

However, besides the intrinsic value of the present, predator-containing ecosystem – which necessarily entails scarcity and strife – God could have another reason to allow scarcity, or to set things up in a way that makes scarcity unavoidable. It can be argued that a creation that is allowed to “create itself” to some extent – through an evolutionary process – is more valuable than a creation that is created directly by God. What I mean by self-creation in this context is that nature is allowed to develop in accordance with natural principles and laws from a primitive state to a more complex state through causal interactions between things. Many contemporary thinkers have claimed that a world that evolves in this way is more valuable than a ready-made world (for example, Polkinghorne 2011, 82; Haught 2000, 53; Murray 2008, Ch. 5.1.2; Eikrem and Søvik 2018; Wahlberg 2023). However, the Dominican theologian and biologist Nicanor Austriaco has defended this claim in a particularly interesting way by reference to the traditional idea that creation’s purpose is to manifest God’s goodness and perfections “outside” of God (Austriaco 2019). Austriaco points out that one of God’s perfections is his causal agency, his status as First Cause. Creation can participate in this

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<sup>3</sup> I here presuppose the reasonable principle that a creation with a certain autonomy (nomic regularity, intrinsic order) is more valuable than a creation where God governs by constant “intervention”. It should be pointed out, however, that the kind of autonomy I have in mind does not necessarily require that God “withdraws” from natural processes by relinquishing control or causal influence over the world in certain respects, as some authors have argued (Peacocke 1993; Murphy 2007; Polkinghorne 2005 and 2011). These authors tacitly assume that creaturely autonomy/freedom and divine causality are competitively related (in the manner of a “zero-sum” game). Rejecting this view, I have elsewhere suggested that creaturely autonomy merely requires that God governs things in accordance with their natures, which entails nomic regularity and the absence of (too frequent) divine action outside of the laws of nature (Wahlberg 2022). Creaturely autonomy is therefore completely compatible with a Thomistic view according to which God is causally involved in everything that happens. (For a non-classical critique of the “zero-sum” view, see Peters 2007.)

divine perfection by exercising secondary causality. If creation is allowed to structure itself through immanent, causal mechanisms, then creation exercises more secondary causality – and therefore participates more in God’s creative causality – than if God does all the structuring directly by himself. Since it is by participating in God’s perfections – by reflecting God through analogical likeness – that creation manifests God’s goodness and glory, it follows that a creation that is allowed to structure itself through immanent causal mechanisms manifests God’s glory to a higher degree than a creation that is not allowed to structure itself. Since it is the purpose of creation to manifest God’s goodness, it follows that the capacity to structure itself makes the world more valuable.

Evolution by natural selection is the only way we know of through which nature could create itself, in this sense. Moreover, as we have seen, it is only under conditions of scarcity that natural selection gives rise to cooperation between biological entities and thus complexity. Hence, even if God could create a world where organisms do not feed on each other and do not compete for food in other ways, such a world could probably not be self-creating in the sense just explained. It would not be causally involved in its own structuring, and therefore would not participate in God’s goodness as First Cause to the same degree as the present, evolutionary world.

This possible explanation of why God permits scarcity and life-and-death competition was not available before Darwin and the advent of evolutionary theory. What was available before that time, however, was knowledge of the ubiquity of scarcity and strife in nature. This means that evolutionary theory, far from making the problem of natural evil worse, provides us with resources for addressing this problem in a more satisfactory way.

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