6

A Carnapian Argument from Evil (Welcome Back, Skeptical Theism)[1]

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Discussions of the problem of evil have often made use of logical tools developed by philosophers. For example, Plantinga's use of modal logic and subjunctive conditionals greatly increased our understanding of the deductive argument from evil (Plantinga 1974). The use of these formal tools allows us to see more clearly various assumptions that were often made in the literature, and to generate powerful critiques of certain arguments. Recently, Michael Tooley (2012, Plantinga and Tooley 2008) has attempted to apply insights from inductive logic to the inductive or probabilistic argument from evil. Tooley believes the only way to show certain evidence makes it more likely than not that God does not exist is by bringing inductive logic to bear on the question (Tooley 2012, 146). Tooley's resulting arguments are the most sophisticated and detailed versions of the inductive argument from evil that have been presented to date. Although Tooley uses inductive logic to critique previous versions of the inductive argument from evil, in this chapter, we will limit ourselves to discussing arguments from evil that Tooley develops. In the first section, we will begin by briefly looking at some background information. The second and third sections will present Tooley's arguments, and the last two sections contain detailed analyses of these arguments.

Rightmaking and wrongmaking properties

Tooley's arguments make use of rightmaking and wrongmaking properties; the basic idea is that if an action possesses at least one rightmaking property and no wrongmaking property, then the action is morally obligatory or morally permissible. And if an action possesses at least one wrongmaking property and no rightmaking property, then the action is morally wrong.[2] Tooley further assumes that these two properties are quantitative and that we can

1 The subtitle of Tooley (2012) is "Farewell to Skeptical Theism."

2 One might object that the rightness or wrongness of an action is relevant to agents; some acts permissible for God may be impermissible for humans. We will ignore this worry here.

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measure and compare degrees of rightmaking and wrongmaking properties. An action is *prima facie* wrong if, relative to our information about its rightmaking and wrongmaking properties, the weight of its known wrongmaking properties is greater than the weight of its known rightmaking properties (Plantinga and Tooley 2008, 116). Tooley's first argument considers a specific evil and our knowledge of rightmaking and wrongmaking properties, and claims that it is prima-facie wrong for God to allow that evil to occur. The conclusion of Tooley's first argument is the "somewhat modest, though not insignificant" conclusion that the probability of God existing at a certain time is less than 1/2 (Plantinga and Tooley 2008, 135). His second argument looks at the consequences of there being many cases of evil that are *prima facie* wrong, and he uses this to argue for the stronger conclusion that the existence of God is extremely unlikely, all things considered.

The principle of indifference

Although many philosophers doubt the existence of any adequate account of objective probability, let us suppose that Tooley is correct and that some adequate account of objective probability can be developed. One way to assign objective probabilities is to appeal to the principle of indifference and the classical interpretation of probability. The classical interpretation defines probability in terms of the ratio of favorable to equiprobable cases, and relies on the principle of indifference to determine what cases are equiprobable.[3] According to the principle of indifference, two propositions are equally probable if there is no reason to favor one over the other. As is well-known, this results in inconsistent probability assignments to the same proposition (van Fraassen 1989; Hájek 2010). van Fraassen (1989) gives an example of a cube about which we know each side is between 0 and 1 in long; thus, the area of the side of the cube is between 0 and 1 in^2, and the volume of the cube is between 0 and 1 in^3. Consider the following three propositions about the cube:

A: The side of the cube is between 0- and 1/2- in long.
B: The area of a side of the cube is between 0 and 1/4 in^2.
C: The volume of the cube is between 0 and 1/8 in^3.

As for A, there is no reason to prefer a side of the cube being between 0 and 1/2 in, and between 1/2 and 1 in, so the principle of indifference would have us assign a probability of 1/2 to the length being between 0 and 1/2 in^2. As for B, there is no reason to prefer one of the following four possibilities: the area of a side is between 0 and 1/4 in^2, the area is between 1/4 and 1/2 in^2, the area is between 1/2 and 3/4 in^2, or the area is between 3/4 and 1 in^2. We thus assign 1/4 to the probability of the area being between 0 and 1/4 in^2. As for C, there appear to be eight possibilities that we have equal reason for: the volume could be between 0 and 1/8 in^3, between 1/8 and 1/4 in^3, . . ., or between 7/8 and 1 in^3. Thus the principle of indifference has us assign a probability of 1/8 to the volume being between 0 and 1/8 in^3. But these three probability assignments are inconsistent, because propositions A, B, and C are equivalent, yet receive three different probabilities. The principle of indifference has directed us to assign probabilities of 1/2, 1/4, and 1/8 to the same proposition. Because of this, the classical interpretation of probability must be rejected. This problem

3 See Hacking (1984) for an insightful discussion of the classical interpretation and the principle of indifference.

arises when the principle of indifference is unrestricted and applies to all propositions. Philosophers who wish to defend the principle of indifference need to limit the domain of propositions that it applies to; it cannot apply to all propositions without inconsistency. In what follows, we will see that Tooley's arguments make use of a restricted version of the principle of indifference.

Tooley's First Argument

Although Tooley presents his first argument with great precision in 21 steps, going through each step runs the danger of missing the overall force of his argument. However, giving a brief summary of his argument risks missing important subtleties and details of his argument. In what follows, we will try to steer between these two errors, hoping to bring out the most important steps in his argument. To that end, the structure of Tooley's argument is as follows:

(1) We know that choosing not to prevent the Lisbon earthquake of 1755 is *prima facie* wrong. In other words, this action has a wrongmaking property (over 50,000 people died) and we do not know of any rightmaking property of sufficient strength that counterbalances this wrongmaking property.
(2) For any action whatever, the logical probability that the total wrongmaking properties of the action outweigh the total rightmaking properties – including ones of which we have no knowledge – given that the action is *prima facie* wrong, is greater than one half.
(3) The logical probability that an action is morally wrong, all things considered, given that the action is *prima facie* wrong, is greater than one-half (from (2) and basic truths about logic and ethical concepts).
(4) The logical probability of choosing not to prevent the Lisbon earthquake is morally wrong, all things considered, given that choosing not to prevent the earthquake is *prima facie* wrong, is greater than one-half. (from (1) and (3))
(5) The logical probability that God does not exist, all things considered, given that choosing not to prevent the Lisbon earthquake is *prima facie* wrong, is greater than one-half (from (4)).
(6) The logical probability that God does not exist, all things considered, is greater than one half. (from (1) and (5)).[4]

It is clear that this argument is probabilistic, concrete, and deontological. Tooley notes that the crucial and most controversial step is (2), which brings in the probabilistic elements of

4 I emphasize that this is a very brief summary of Tooley's argument; his complete argument can be found in Tooley (Plantinga and Tooley 2008). Our version uses the concept of being *prima facie* wrong, whereas Tooley's argument uses the concept of having "a wrongmaking property that we know of, and that there are no rightmaking properties that are known to be counterbalancing." Tooley's argument also uses the concept of God not existing at the start of the Lisbon earthquake; I have replaced that by God not existing, since most theists think it a necessary truth that God does not begin to exist. The statements in this version of the argument are very similar to statements in Tooley's argument. Our premise (1) corresponds to Tooley's (15); our premise (2) corresponds to Tooley's (16); our (3) corresponds to Tooley's (19); our (4) is Tooley's (20); and our (5) is Tooley's (21). Tooley does not draw the conclusion (6), but I include it because many will make this inference.

his argument. It is important to note that this argument is not claiming that there is a *prima facie* reason to think the probability of God existing is less than 1/2. The argument begins with the Lisbon earthquake being *prima facie* wrong and has the strong conclusion that all things considered, the probability that God does not exist is greater than 1/2.

Tooley's Second Argument

Tooley's second argument looks at multiple simultaneously preventable evils and has the "much stronger conclusion that the existence of God is extremely unlikely" (Plantinga and Tooley 2008, 117). The basic idea is to extend the conclusion of the first argument by looking at cases where God was obligated to prevent several states of affairs. The premise is that there are states of affairs $S_1, S_2, \ldots S_n$ at some time such that allowing each of these to occur is *prima facie* seriously wrong, based on the known rightmaking and wrongmaking properties; Tooley gives the example of death and aging as examples of evils God should have prevented (Plantinga and Tooley 2008, 142). Tooley's second argument uses ideas from Carnap's work on inductive logic to conclude from this that the existence of God is extremely unlikely. Tooley argues that the individual pieces of evidence have a cumulative impact, and this results in a much stronger conclusion than that of the first argument. Remarkably, Tooley does not use the controversial inductive premise (2) from his first argument in this second argument. By using Carnap's inductive logic, Tooley is able to avoid the use of premise (2) and end up with an even stronger conclusion.

Non-Carnapian version of Tooley's second argument

Tooley's argument has not received much discussion in the literature, and one reason may be the difficulty in understanding Carnap's ideas on probability. This is unfortunate, for it deserves serious consideration. Although Tooley's second argument relies heavily on the framework of Carnap's inductive logic, in this section, we will modify his argument so that it uses a more general approach to logical probability without relying on the details of Carnap's approach. It may be easier to understand Tooley's second argument if we first develop a version of his argument that does not rely on Carnap's theory, before looking at his actual argument. This will introduce us to the basic structure of Tooley's argument, without being distracted by the details of Carnap's theory.

Suppose probability is based on a measure applied to possible worlds; each world will receive a weight (possibly all the same), and the probability of a statement will be the sum of the weights of the worlds it is true in.[5] We could then say that two or more statements are equally probable if the weights of the worlds they are true in are equal. So, for example, the probability of a coin coming up heads on a certain toss is equal to its coming up tails if the weights of all the worlds in which a toss comes up heads equals the weights of all the worlds in which the coin comes up tails. Of course, developing a theory of logical probability along these lines is far beyond the scope of this chapter, if it is even possible, but we only need the basic intuitive idea of this approach for our purposes.

5 I leave open whether this is defined for all worlds, or only a specified set of worlds. I will also ignore serious technical problems that arise in trying to formulate an adequate probability function that ranges over uncountably many worlds.

We assume there are n events that are *prima facie* wrong; each is such that given what we know, it is wrong for God to permit the event to occur. Consider the following statements:

None of the events are permissible by God.
Only one of the events is permissible by God.
Only two of the events are permissible by God.

All but one of the events are permissible by God.
All of the events are permissible by God.

Each of these statements are true in various possible worlds, and the worlds in which each statement is true have a basic structure in common. So, for example, worlds in which only one of the events is permissible by God are worlds that may differ on which event is permissible by God, but they share the fact that only one of those n events is permissible by God in that world. And worlds in which only four of the events are permissible by God will differ on what four events are permissible, but they all share the feature that only four events are permissible. We will say these worlds share a basic world structure; they differ only on what individuals have certain properties.

The crucial premise for this version of Tooley's argument is that each world receives a weight such that each of these world structures are equally probable. From this, it immediately follows that each of the earlier statements are equally probable. Since there are n + 1 equally probable statements, each receives a probability of 1/(n + 1). In the earlier statements, we are interested in the last one, which is that all of the n events are permissible by God; this is because that statement is the only one of the earlier statements that is consistent with the existence of God. God's existence implies that every event that occurs is permissible by God, and if even one of the n events that occurs is not permissible by God, then God does not exist. This immediately implies that the probability of God existing is less than or equal to the probability that all of the n events are permissible by God. Since the probability that all of the events are permissible by God is 1/(n + 1), It follows that the probability that God exists is less than or equal to 1/(n + 1). Since the number n of events that are *prima facie* wrong is very large, the probability of God existing is very low.

Admittedly, this is a very crude and simplified version of Tooley's second argument, but it captures much of the structure of his argument while having the virtue of being easier to understand. We will now turn out attention to Tooley's actual second argument. In order to do so, we must first look at some of Carnap's ideas about logical probability.

Carnap's inductive logic

Carnap's Logical Foundations of Probability (Carnap 1950) was the most detailed study of logical probability and inductive logic of its time. Even today, Carnap is the philosopher we think of when we mention inductive logic or logical probability. Although the details of Carnap's theories can be very complicated, the ideas are usually simple and intuitive. Carnap defined several logical relations in languages that could play the role of logical probability. Although more metaphysically minded individuals may wish to define logical probability in terms of measures over possible worlds, Carnap chose to instead define it in terms of complete descriptions within a language, which he calls "state descriptions."

Carnap uses versions of the principle of indifference in assigning probabilities, but he restricts the application of the principle. This results in a consistent theory that still makes use of the principle of indifference.

To begin, assume we have a first order language with identity in which there are a finite number of basic one-place predicates; there are no relations. According to Carnap, state descriptions are descriptions of possible states of the universe describable by the language. Roughly put, they are maximal consistent conjunctions of atomic sentences such that every atomic sentence or its negation will be a conjunct in the state description. This is easiest to see by example. Suppose we have a language with three individuals and one basic property; we then have eight state descriptions:

(1) Fa & Fb & Fc
(2) Fa & Fb & ¬Fc
(3) Fa & ¬Fb & Fc
(4) ¬Fa & Fb & Fc
(5) Fa & ¬Fb & ¬Fc
(6) ¬Fa & Fb & ¬Fc
(7) ¬Fa & ¬Fb & Fc
(8) ¬Fa & ¬Fb & ¬Fc

For every individual, each state description either affirms that the individual has that basic property or denies that the individual has the property. These state descriptions are complete descriptions of possible worlds in the language.

Once we have state descriptions, we can use them to define various concepts of logical probability. The basic idea is that the probability of a sentence, such as Fa, will be a function of all the state descriptions that the sentence is true in. The simplest way to get the probability of a sentence, proposed by philosophers such as Pierce, Keynes, and Wittgenstein, is to simply divide the number of state descriptions in which the sentence is true by the total number of state descriptions. Although this is a perfectly consistent probability function, Carnap rejects it because it has the consequence that the probability of Fa is independent of whether individuals b and c also have predicate F (Salmon 1967). The claim is that this probability relation should be rejected because it precludes learning from experience.

To avoid this problem, Carnap notes that we can assign different weights or measures to the individual state descriptions, and base the probability on these measures.[6] We will say that the weight of a statement is the sum of all of the weights of state descriptions in which the statement is true. We can then identify the probability of a statement with its weight, and the conditional probability of h given e as the measure of the weight of h&e divided by the measure of the weight of e.[7] So, for example, the probability of Fa is the sum of the weights of state descriptions 1, 2, 3, and 5, the probability of Fb&Fc is the sum of the weights of state descriptions 1 and 4, and the probability of Fa given Fb&Fc is the weight of state description 1 divided by the sum of the weights of state descriptions 1 and

6 The sum of the weights of the state descriptions must sum to 1, and each state description receives a weight greater than 0.

7 Here, with Carnap, I assume the conditional probability of h given e is equal to the probability of h&e divided by the probability of e.

4. It is clear that different ways of assigning weights to the state descriptions will result in different probability functions. The simple probability function discussed earlier resulted from assigning each state description equal weight. Carnap introduces the notion of structure descriptions as a way to retain the intuition behind the earlier probability function while avoiding the problems it faces.

According to Carnap, structure descriptions are descriptions of possible structures the world might have; they do not tell us which individuals have various properties, but only that the world has a certain structure. So, for example, our language with one property and three individuals has four structure descriptions: all individuals have property F, two individuals have property F, one individual has property F, and no individuals have property F. Carnap proposes that we assign equal weight to all structure descriptions, instead of equal weight to all states descriptions. Carnap also says two state descriptions are isomorphic if they have the same structure without regard to individuals. Carnap thinks that inductive logic, like deductive logic, should treat all individuals equally, with none getting special treatment. For this reason, he also proposes that all isomorphic state descriptions get the same measure.[8] The following chart shows the weight assigned to each state description, given that equal weight is assigned to structure descriptions and to isomorphic state descriptions.

Structure Description	State Description	Weight
All have F	{(1) Fa&Fb&Fc	1/4
Two have F	(2) Fa&Fb&¬Fc	1/12
	(3) Fa&¬Fb&Fc	1/12
	(4) ¬Fa&Fb&Fc	1/12
One has F	(5) Fa&¬Fb&¬Fc	1/12
	(6) ¬Fa&Fb&¬Fc	1/12
	(7) ¬Fa&¬Fb&Fc	1/12
None have F	{(8) ¬Fa&¬Fb&¬Fc	1/4

We thus see that the probability of Fa is the sum of the weights of state descriptions 1, 2, 3, and 5, which is 1/4 + 1/12 + 1/12 + 1/12 = 1/2. The probability of Fb&Fc is the sum of the weights of state descriptions 1 and 4, which is 1/4 + 1/12 = 1/3. Thus the probability of Fa given Fb&Fc is equal to the weight of state description 1 divided by the sum of the weights of state descriptions 1 and 4, which is 1/4 divided by 1/3 = 3/4. This probability function, which results from assigning equal measures to structure descriptions and to isomorphic state descriptions, is what Tooley uses in his argument.[9]

Tooley's use of Carnap's theory

Tooley is interested in situations in which we have n events, all of which are *prima facie* wrong for God to allow. The problem is to determine the probability that there are

8 These are known as symmetrical measure functions

9 For ease of presentation I am ignoring Tooley's use of maximal predicates, which are maximal combinations of basic predicates in the language. See Plantinga and Tooley (2008, 138). There are many problems facing Carnap's theory of probability. For some recent discussion of his theory applied to philosophy of religion see Pruss (2010).

unknown rightmaking and wrongmaking properties such that it is permissible for God to allow all of the events to occur. Clearly, it would be extremely difficult to calculate this probability using Carnap's system; Tooley notes that there could be an infinite number of possible unknown properties with different strengths. For this reason, Tooley does not attempt to calculate the probability that it is permissible for God to allow all of the n events. Instead, Tooley's strategy is to calculate an upper bound for that probability. Tooley makes various assumptions that will overestimate the probability that it is permissible for God to allow all n events to occur. This means that the actual probability that it is permissible for God to allow the events must be less than the value Tooley arrives at. Tooley argues that this upper bound is extremely low, and from this it follows that the actual probability that it is permissible for God to allow all the n events is also extremely low.

To understand Tooley's argument, let us say that a structure description is seemingly negative if at least one of the n events is such that it is *prima facie* wrong for God to allow it to occur. We will say a structure description is unknowingly positive if all of the unknown rightmaking and wrongmaking properties are such that all actions of allowing those events are morally right. In other words, if we look only at the unknown properties, none of the actions of allowing those events is either morally wrong or neutral.[10] We will also say that a structure description is completely acceptable if none of the actions are morally wrong, when all of the rightmaking and wrongmaking properties are taken into account, whether known or unknown.[11] In other words, when we use both the unknown and known properties to judge the actions, the structure description is completely acceptable if it is permissible for God to allow all of the events to occur. Thus, we see that the concept of being unknowingly positive looks only at the unknown properties, but the concept of being completely acceptable looks at both the known and unknown properties. Clearly, structure descriptions that are seemingly negative cannot be completely acceptable without also being unknowingly positive. Since we are assuming that each of the n actions are morally wrong for God to perform, if judged only on the known rightmaking and wrongmaking properties, in order for all of these actions to be permissible for God, it must be the case that there are unknown rightmaking properties that counterbalance the known wrongmaking properties. Thus, our structure descriptions being completely favorable implies that they are also unknowingly positive. From this, it follows that the probability that one of our structure descriptions is completely favorable is less than or equal to the probability that the structure description is unknowingly positive; the probability of the structure description being unknowingly positive places an upper bound on the probability that it is completely acceptable.

Tooley then develops a formula that gives an upper bound on the probability that a structure description is unknowingly positive, given that there are k unknown morally significant properties. To do this, Tooley applies a second-order principle of indifference to the situation where there are k first-order unknown properties:

10 The accounts of Plantinga and Tooley (2008) and Tooley (2012) differ here; I am following the approach in the latter.

11 For ease of understanding I have slightly changed some of Tooley's terminology. My concept of a structure description being unknowingly positive is the same as Tooley's concept of a structure description being positive, and my concept of a structure description being completely acceptable is the same as his concept of a structure description being favorable.

> The central point here is that each of the (k+1) possibilities with regard to the number of unknown properties that are rightmaking rather than wrongmaking must be treated as equally likely. . . . so when the method of structure-descriptions is applied to properties and properties of properties, if one has two first-order properties, and a second-order property, it must be taken as equally likely that none of the first-order properties has the second-order property, that one first-order property does, and that both first-order properties do. (Tooley 2012, 156)

Thus Tooley assigns each structure description equal probability. So, for example, if we have one unknown property P and n actions, it will be equally probable that none of the actions have P, that one of the actions has P, that two of the actions have P, . . . , and that all n of the actions have P.

If we have k unknown properties and n actions, Tooley uses P(k,n) to designate the probability that a structure description is unknowingly positive (Tooley 2012, 156). Tooley shows this is equal to

$$P(k,n)=\left(\frac{k}{k+1}\right)\left(\frac{1}{n+1}\right)$$

From this, we can get an upper bound on P(k,n):

$$P(k,n)\leq\left(\frac{1}{n+1}\right)$$

(Plantinga and Tooley 2008, 141; Tooley 2012, 159)

Thus, we see that $1/(n + 1)$ is the maximum value of the probability that one of the structure descriptions could be unknowingly positive. From this, it follows that $1/(n + 1)$ is also the upper bound of the probability that a structure description could be completely favorable.[12]

Tooley uses this to argue that the probability that God exists is extremely low. We have shown that the probability that it is morally permissible for God to allow all of those n events to occur is less than $1/(1 + n)$. Tooley then notes that the number n of events that are *prima facie* wrong for God to permit is very high; he gives death and dying as examples (Plantinga and Tooley 2008, 142). From this, it immediately follows that $1/(1 + n)$ is extremely low, which is the probability that all of the events are permissible by God. What this means is that it is extremely likely that some event occurs that it is morally wrong for God to allow. This immediately implies that it is extremely unlikely that God exists, given what we know about evil in our world. What is remarkable about this second argument is the conclusion does not depend upon the number of unknown properties or on the proportion or strength of unknown properties that are rightmaking as opposed to wrongmaking; it only depends upon the number of events that are *prima facie* evil.

12 It is worth noting that if instead of basing inductive logic on structure descriptions we were to use the state description approach we discussed, then the upper bound on P(k,n) would be $1/2^n$ (Plantinga and Tooley 2008, 150). For $n > 1$, this is less than the upper bound of P(k,n) that we get by using the structure description approach. Thus, using the state description approach instead of the structure description approach actually gives a lower upper bound for the probability that all of the events are permissible by God.

Problems Facing Tooley's Second Argument

In order to understand some of the problems with Tooley's second argument, it may help if we first look at an argument that Tooley does not explicitly develop or endorse.[13] Suppose that we have n *prima facie* wrong events and that whether or not there are unknown rightmaking properties that justify God in permitting these events are independent of each other. Furthermore, suppose that for each of these, the probability that there is an unknown rightmaking property that justifies God in permitting the event is 99; thus the probability that there is no unknown property that justifies God in permitting the event is .01. If there are 69 of these independent events, according to this argument, the probability that all of them have some unknown rightmaking property that justifies God in permitting them is less than 1/2; this follows from the conjunction axiom of probability. If there are 250 of these events, the probability drops to less than .01. There are many events (more than 250) that we do not know of a good reason for God to permit, and thus the probability that God has good reasons to permit all of them is less than .01. Since God existing implies that God has a good reason to permit any evil that occurs, the probability that God exists given the facts about these evils is less than .01.

The central assumption of this argument is that God having a good reason to permit each evil is independent of God having a good reason to permit other evils. In other words, whether God has a good reason to permit a specific evil is independent of whether God has a good reason to permit any of the other evils, or even all of the other evils. We have good reason to reject this independence assumption; there being a good reason to permit one evil makes it more likely that there is a good reason to permit the other evils. For example, suppose there is a good reason for God to permit a certain earthquake to occur; given this, it is now more likely that there is a good reason for God to permit other earthquakes to occur, and more likely there is a good reason to permit other events, such as hurricanes, to occur. Various proposals as to what reason God could have to permit natural evils to occur have been proposed, and these proposals often apply to many types of natural evils. For example, some have proposed that natural evil, such as humans dying in earthquakes, is a result of God creating an orderly and predictable world (Swinburne 1998; van Inwagen 2006). According to these proposals, the value of a world that is regular and governed by physical laws is worth the cost of the suffering that various natural events bring about. It should be clear that if a proposal such as this was successful in giving God a good reason to permit a specific earthquake, such as the Lisbon earthquake, it would also be successful in giving God a good reason to permit other specific natural disasters. We have no reason to think that whether the various events are ultimately permissible by God are independent of one another. For this reason, the argument we are considering fails; it makes an assumption that we have good reason to reject.

Now let us consider Tooley's second argument. Tooley notes that the central assumption is that each structure description is equally likely. This means that it is equally probable that God has a good reason to permit all of the events, that he has a good reason to permit

13 See Plantinga and Tooley (2008, 135) for Tooley's reasons for rejecting it. A version of this argument can be found in Hasker (2010, 25).

only one of the events, only two of the events, only three of the events, . . . , and all of the events. However, we have reason to reject this assumption, just as we rejected the independence assumption in the earlier argument. Crudely put, it seems implausible that the probability that God has a reason to permit exactly one hurricane is the same as the probability that he has a reason to permit exactly 35 hurricanes, or exactly a million hurricanes. I am not arguing in favor of any specific theodicy, but am only pointing out that Tooley's argument relies on a very controversial assumption. One might appeal to the principle of indifference, but there is no reason to think the principle of indifference should be used here to support assigning structure descriptions equal probability. Tooley needs to provide a reason to assign equal probability to the structure descriptions; without this, his argument will be unconvincing. Thus, Tooley's main argument fails, because it is based on an assumption that many will reject. Furthermore, it is worth noting that this argument cannot be salvaged by appealing to the state description approach to inductive logic. Assigning all state descriptions the same probability faces the same problems as earlier.

Tooley's second argument was an attempt to strengthen the more "modest" claims of his first argument, by looking at the number of evils for which we do not know a good reason for God to permit them. The problem with this approach is that God's reason for permitting one of these evils will most likely apply to other evils, and we have been given no reason to reject this view. For this reason, Tooley's second argument is not successful.

Problems Facing Tooley's First Argument

Given that Tooley's second or main argument is unsuccessful, let us turn our attention to his more modest first argument. The key premise in Tooley's first argument is (2), which is equivalent to the following:

> (2) For any action whatever, the logical probability that the total wrongmaking properties of the action outweigh the total rightmaking properties – including ones of which we have no knowledge – given that the action has a wrongmaking property that we know of, and that there are no rightmaking properties that are known to be counterbalancing, is greater than 1/2. (Plantinga and Tooley 2008, 120)

One very natural way to support (2) would be to argue that it is the result of a simple inductive generalization. Given that all rightmaking properties that we know of are insufficient to counterbalance the wrongmaking properties of various natural evils, one might extend this and conclude that no rightmaking properties are sufficient to counterbalance the wrongmaking properties of natural evil. This approach is the basis of Rowe's (1979) influential argument, which is arguably the most widely recognized version of the inductive argument from evil. However, Tooley rejects this argument, because any defense of it would rely on very controversial assumptions (Plantinga and Tooley 2008, 125–126).

Since Tooley rejects the most common way of supporting claims like (2), he gives an alternative justification for (2) based on what he sees as general considerations about inductive logic. Tooley thinks that the probability that there is an unknown rightmaking property of certain strength is equal to the probability that there is an unknown wrongmaking property with opposite strength. Given this, Tooley proposes the following symmetry principle:

> *The Symmetry Principle with Respect to Unknown, Rightmaking, and Wrongmaking Properties:*
>
> Given what we know about rightmaking and wrongmaking properties in themselves, for any two numbers, M and N, the probability of there being an unknown rightmaking property with a moral weight between M and N is equal to the probability of there being an unknown wrongmaking property with a (negative) moral weight whose absolute value is between M and N. (Plantinga and Tooley 2008, 129)

This symmetry principle supports premise (2). Since actions such as the Lisbon earthquake have wrongmaking properties that we know of, the question is how likely it is that it has unknown rightmaking properties that can counterbalance the known wrongmaking properties. According to Tooley's symmetry principle, it is just as likely that any unknown properties relevant to the Lisbon earthquake are wrongmaking as they are rightmaking, and thus it is just as likely that the Lisbon earthquake is worse than we thought as it is that it is better than we thought, when all properties, known and unknown, are taken into account. According to Tooley, even if we appeal to unknown properties, it is still more likely than not that events such as the Lisbon earthquake are seriously wrong, and should not be permitted by God.

Many philosophers, independently of Tooley's argument, are skeptical of abstract metaphysical principles, such as the symmetry principle. For example, Peter van Inwagen argues that although we may be reliable in making local moral judgments, there is little reason to suppose we are reliable when making moral judgments that are far from our experience (van Inwagen 2006). Although van Inwagen does not discuss Tooley's argument, his reasoning can easily be extended to claim we have little reason to think our minds are reliable when making second-order probability judgments about ethical properties. One can be skeptical about abstract principles, such as the symmetry principle, without being skeptical about ordinary moral judgments. Tooley's argument will be ineffectual against those inclined toward van Inwagen's approach.

Plantinga responded to Tooley's argument by claiming that we have no reason to think the symmetry principle is correct. Plantinga admits we have no reason to think it is incorrect, but that does not mean that we should think it correct:

> Well, I'd certainly concede that it [the Symmetry Principle] doesn't seem particularly implausible; but of course that's not the same as its seeming plausible. I can't see how we could have any reason at all for thinking it true – or, for that matter, for thinking it false. How would we know? (Plantinga and Tooley 2008, 173)

Tooley needs to give us a reason to accept it; merely not having a reason to reject it is not a reason to accept it. In what follows, I will argue that using the symmetry principle to support (2) is very problematic, and we have reason to think the symmetry principle is false. I will first argue that rationality does not require us to accept the symmetry principle. I will then argue, *contra* Plantinga, that we have reason to think the symmetry principle is false.

Let us begin by considering two number guessing games that will help us understand our intuitions surrounding the symmetry principle. In the first game, suppose you are told we have a finite collection of positive and negative integers, but you do not know what specific integers are in it. Integers can appear more than once in the collection, or not at all. You are then asked how likely you think it is that the sum of the integers in the whole collection is greater than 0.

There are various ways one might reason about this situation. One might use something like the symmetry principle and reason that for any integer n, it is just as likely that n is in the collection as –n being in the collection. Based on this, one might think it very likely that the sum of the collection is equal to 0. One problem with this reasoning is that there seems to be no reason to support the claim that n and –n are equally likely to be in the collection, over several other possibilities, such as:

For any positive integer n, –n is as likely as n^2 to be in the collection.
For any positive integer n, n is as likely as –n/2 to be in the collection.
For any positive integer n, –n is as likely as n + 10 to be in the collection.
For any positive integer n, the probability of –n being in the collection is 0.

If any of these are true, one might think that it is more likely than not that the sum of the collection is greater than 0. The issue comes down to whether we have reason to adopt the symmetry principle over any number of other alternatives. Without further information about the collection, it is difficult to see any reason to prefer one of these possibilities over the others.

When faced with no reason to adopt one position over another, some recommend the policy of assigning each position equal probability; this is the intuition behind the principle of indifference. However, the principle of indifference is very problematic, and we have no reason to think it applies to situations like this. In situations like this, one need not form the strong belief that the positions are equally probable; forming the belief that they are equally probable goes beyond our evidence, which is that we do not see any reason to prefer one option over the other. It is for this reason that Salmon (1967) described basing probability values on ignorance as "epistemological magic."

Now some rational people may go beyond our evidence in this way, but other rational people may be more modest in their epistemic commitments and will hesitate to commit to firm beliefs about probabilities in these situations. Their response is to simply withhold judgment on whether the sum is greater than 0. We are told very little about the numbers in the collection, and thus we have no basis for forming beliefs about the probabilities of numbers in the collection. Simply being ignorant of the distribution of numbers in the collection is no reason to assign equal probability to the collection containing n and –n. Assigning an event probability of 1/2 is to make the strong claim that the event and its negation are equally likely, but, as in situations like this, we may have no reason to think that is the case. Because of this, withholding judgment is a safer response. Although going beyond our evidence and assigning the events equal probability may be rationally permissible, we certainly are not obligated to do so.

The relevance of this to Tooley's use of the symmetry principle is clear. Just as we knew nothing about the distribution of numbers in the earlier game, we know little about the distribution of unknown rightmaking and wrongmaking properties. Tooley has given us no reason to assign probabilities in accord with the Symmetry Principle; thus, we may rationally reject Tooley's symmetry principle and premise (2), and instead simply withhold judgment on these probabilities. It may be rationally permissible to accept the symmetry principle and assign probabilities in accord with it, but it is certainly not rationally obligatory. Rationality permits us to withhold judgment about whether unknown wrongmaking properties of a certain strength are as likely as unknown rightmaking properties of opposite strength. As Plantinga says, "The right attitude, here, is abstention, withholding belief" (Plantinga and Tooley 2008, 173).

But we can go further and give reasons why someone who does not want to withhold judgment should reject the Symmetry Principle. Suppose we consider a different game that relaxes one of the restrictions on the first game. In this game, we remove the restriction that the numbers in the collection be finite, and we allow positive infinite numbers into the collection.[14]

For reasons that will become clear shortly, we do not allow negative infinite numbers into the collection. So, for example, the collection could contain Aleph-Null, but not negative Aleph-Null. In this situation, many may still want to withhold judgment about how likely the sum of the collection is greater than 0. After all, we still have been told nothing about how numbers came to be in the collection. But others will be inclined to say the sum is greater than 0. In this game, there is clearly no symmetry between positive and negative values, and because of this, some may hold that it is more likely that the sum is greater than 0. In this game, one can withhold judgment or hold that the sum is greater than 0, but one should not hold that the sum being less than zero and the sum being greater than zero are equally likely. In other words, the Symmetry Principle has no appeal for this game and should be rejected.

Now suppose that the situation concerning rightmaking and wrongmaking properties is analogous to this second game: there can be infinitely strong rightmaking properties but no infinite wrongmaking properties. In this case, there is no symmetry between rightmaking and wrongmaking properties, because there are no unknown wrongmaking properties of infinite strength. But then Tooley's premise (2) should be rejected; we have no reason to think that relevant unknown wrongmaking properties are as probable as unknown rightmaking properties.

There are many similarities between the situation concerning rightmaking and wrongmaking properties and this second game. Tooley claims that judged from an *a priori* point of view, the likelihood of there being a relevant rightmaking property of a certain weight is no greater than the likelihood of there being a relevant wrongmaking property of the same but negative weight. (Plantinga and Tooley 2008, 128). He then says that we do not know anything that changes this judgment, and so from an *a posteriori* point of view, the existence of a wrongmaking property of certain weight is no less likely than the existence of a rightmaking property with opposite weight (Plantinga and Tooley 2008, 128). This is the basis of Tooley's Symmetry Principle, but traditional theists will reject this argument. According to traditional theism, good and evil do not differ simply with one having opposite strength of the other. Instead, evil is seen as a distortion or perversion of the good (Augustine 1955, book VII, chapter XII). Thus, one can have good without evil, but there is no evil without good; there is pure good, but no such thing as pure evil. Good and evil are asymmetrical in very important ways; not every good has a corresponding evil of equal but negative strength. Because of the asymmetry between good and evil, theists will not hold that unknown rightmaking and wrongmaking properties are equally likely. Thus, theists have good reason to reject Tooley's premise (2), which is the central probabilistic assumption in his argument. Tooley's argument relies on very controversial assumptions; thus, his more modest first argument is not successful.

14 For our purposes, we can here ignore any difficulties in defining summation for this collection.

Conclusion

Tooley has presented a very sophisticated version of the problem of evil that has doubtless furthered our knowledge of the issue. His precision and use of formal inductive logic is impressive, and hopefully will receive more attention in the literature. In this chapter, we were only able to briefly look at two of his arguments, and we were unable to discuss many of the issues that arise in these arguments. Ultimately, Tooley's two main arguments fail, because they rely on very controversial assumptions. However, Tooley's discussion of the problem of evil is notable for its scope and comprehensiveness, and provides material for much further research.

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