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The Theology of Simone Weil and the Topology of André Weil

The theology of Simone Weil is part of the revival of the theology of the cross in the twentieth century. The theology of the cross argues that the main kerygma of Christianity is God's compassion for suffering beings. God suffers with our suffering like He suffered with Jesus's suffering on the cross. However, has God the infinite power to create the world? One suffers because of the boundaries of one's power. Why does God suffer although His power is infinite? This is the logical contradiction. This article tries to resolve this contradiction by likening God to a topological space. General topology was constructed by Bourbaki whom André Weil, Simone's brother, led. Although infinite, a topological space can be bounded. If God may be likened to a topological space, God is able to be infinite and bounded. If so, it is possible for God to have infinite power and suffer because of the boundaries of His power. There will be no contradiction.

KEYWORDS: Theology of the Cross—general topology—topological theology—
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THE THEOLOGY of Simone Weil is considered to be a part of the restoration of the “Theology of the Cross” that formed one of the major currents of twentieth-century theology. It goes without saying that the Theology of the Cross is a theology that sees the compassion of God himself in the passion of Jesus Christ’s suffering on the cross: a theology that considers that God suffers along with human suffering, and has largely been expounded from a Protestant point of view. We can see the twentieth century as the period when the Theology of the Cross was restored by Jürgen Moltmann and others, with Dietrich Bonhoeffer firing the first salvos. The theology of Simone Weil can be considered to be a rediscovery, contemporaneous to Bonhoeffer, in the Catholic tradition of the Theology of the Cross. This article will first consider the placement of the theology of Simone Weil as the Theology of the Cross.

The Theology of the Cross, including that of Simone Weil, exposes us to the fundamental question of why God, whose power is unbounded and omnipotent, would reach the limits of his power when he suffered and died on the cross, and of why an omnipotent God would suffer. Opinions are divided as to whether the Theology of the Cross can adequately answer this question. This article provides a response to the question of whether God can actually suffer through likening André Weil’s mathematics, and in particular the general topology of Bourbaki, which was led by Weil, to the theology of his younger sister Simone. By likening God to a topological space, we can see for the first time a theoretical consistency in the Theology of the Cross, that of the theology of God’s suffering.

However, what does it mean to liken God to a topological space? To discuss through likening, or comparing, is—if we break down its constituent factors—nothing more than to discuss through a metaphor. As a result, to liken God to a topological space is to consider topological space as a metaphor for God. So what then is a metaphor? A metaphor is an attempt to apply a predicate to something that normally would not be able to have a predicate applied to it, and thus discover a new meaning to something, or in other words, the hidden attributes of it. Put another way, a metaphor is nothing more than an attempt to find the attributes that belong to a category that is different from normal. This is the interpretation of Paul Ricoeur’s “living metaphor” (RICOEUR 1975).

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This article uses the application of the predicate of a topological space to God, of which a predicate cannot normally be applied to, to not only discover a new meaning for topological space, but also to bring out the hidden attributes of God, the attribute of God's suffering. This is known as mathematical theology, or topological theology.

The Theology of the Cross

Simone Weil's theology is without doubt the Theology of the Cross. The Theology of the Cross starts with the story of the Passion, the suffering and death of Jesus on the cross. The suffering of Jesus was a suffering that took on all human suffering. Humans are physical beings with boundaries, whether these relate to health, wealth, love, or hope. These boundaries are what oppress humans to illness and poverty, and they suffer a lack of love and the loss of hope. Bound, finite humans are not able to escape suffering.

God pities such humans and suffers along with those humans. When people see someone else suffering together with them, do they not see some form of salvation in that? God was hung on the cross along with Jesus, and shared the suffering and death of Jesus, and thus brought about a form of salvation for humans. Salvation through the compassion of God: this is nothing less than the fundamental gospel of Christianity as understood by the Theology of the Cross.

In 1943, the year Simone Weil died of malnutrition at the age of thirty-four, she wrote the following comment in her notebook:

Christ on the cross encompassed compassion in his own suffering, as the suffering of humanity numinous within him. His cry of "My God, my God, why hast thou forsaken me?" was from the mass of humanity numinous within him.

(WEIL 2004, 365)

The suffering of humans is so sad and painful it feels like abandonment by God. In 1942, when she had to leave her homeland of France due to the repression of the Jewish people by the puppet government in Vichy, Weil wrote in her notebook:

In order to feel compassion in front of unfortunate people, the soul must be divided into two. The part that is perfectly protected from the various contagions of unhappiness, the risk of various contagions, and the part that is steeped fully in sympathy with the unfortunate person. It is the tension between these two parts that is passion, or in other words the sharing of passion, or compassion. The passion of Christ was this phenomena, created in God.

(WEIL 2004, 124)

There is no doubt that here we see the Theology of the Cross. Simone Weil was a theologian of the cross. However, was not sharing another's suffering to truly

love that person? Is not to love people to make their suffering your own suffering, just as their joy is your joy? The passion of God in terms of the passion of humans is nothing less than the love of God for humanity.

Weil wrote her final letter to Father Superior Perrin of the Dominican monastery in Marseilles, where she lived for a time after she escaped from Nazi-occupied Paris.

The pity of God shines within unhappiness. In the depths of suffering without solace, it shines at the centre. If still persevering in our love, we fall to the point where the soul cannot keep back the cry “My God, my God, why hast thou forsaken me?” if we remain at this point without ceasing to love, we end by touching something that is not affliction, not joy, something that is the central essence, necessary and pure, something not of the senses, common to joy and sorrow: the very love of God. (WEIL 1950, 69)

The love of God shines most brightly in suffering. The Christian teaching of “love thy neighbor” is nothing less than a command to share in your neighbor’s suffering—to have compassion. Weil wrote regarding the love of God, which she entrusted to Friar Perrin, who was an abbot of Dominican monastery at Mont-pellier:

Christ taught us that the supernatural love of our neighbour is the exchange of compassion and gratitude which happens in a flash between two beings, one possessing and the other deprived of human personality. One of the two is only a little piece of flesh, naked, inert, and bleeding beside a ditch; he is nameless; no one knows anything about him. Those who pass by this thing scarcely notice it, and a few minutes afterward do not even know that they saw it. Only one stops and turns his attention toward it. The actions that follow are just the automatic effect of this moment of attention. The attention is creative. But at the moment when it is engaged it is a renunciation. This is true, at least, if it is pure. The man accepts he will be diminished by concentrating on an expenditure of energy, which will not extend his own power but will only give existence to a being other than himself, who will exist independently of him. Still more, to desire the existence of the other is to transport himself into him by sympathy, and, as a result, to have a share in the state of inert matter which is his.

(WEIL 1950, 133)

To take on another’s suffering as your own is the abandonment of the self. It is this abandonment of the self that are the key words for the Theology of the Cross because God is omnipotent enough to both create or not create this world, and has infinite power, or *puissance*. Does this God suffer? Suffering is, after all, due to a person having boundaries. Humans, who have boundaries to their physical form, wealth, power, and knowledge, suffer illness, poverty, oppression, and

ignorance. Why does God, with infinite power, suffer? The idea of self-abandonment implies that God can abandon his own infinite power, limit himself, and suffer the same as finite humans. According to Weil, it is as follows:

Not even God has the puissance to make something that has once happened, not have happened. There can be no better proof that creation was an abandonment than this.

To God, is there an abandonment that can overcome time?

We are abandoned in time.

God is not within time.

Creation and Original Sin are different for us, but they are nothing more than the two aspects of abandonment, the only act of God. God made flesh and compassion are each one aspect of this act.

God stripped himself of his godhood and became empty, and fulfilled us with false godhood. Let us strip off this false godhood and become empty. This very act is the ultimate purpose to creating us.

Now, at this instant, God maintains me in existence through the will of creation, so that I am able to abandon existence.

God is waiting patiently until the time that I finally agree to love him.

Ramrod straight, silent, waiting like a beggar in front of a man who might give him a crust of bread. Time is this anticipation.

Time is the anticipation of God, who begs for our love.

The constellations, the mountain slopes, the seas, and all else that can recall time pass on to us the supplication of God.

The humility of the waiting time likens us unto God.

God is only good. So God abides there, silent, waiting. Those that proceed, that talk, assert just the slightest power. But goodness that is only goodness merely continues to abide there.

A shamefaced beggar is the symbol of God. (WEIL 2004, 184)

According to Weil, God's creation of the world itself is already the self-abandonment of God. God, by creating the world and us in it, has abandoned part of himself. The reason is because we are not God; because God is the Other. God so loves us that he abandoned part of himself to ensure our existence. And God, moreover, underwent the passion on the cross to share our suffering with us. That too is the self-abandonment of God. God loves man so much he abandoned his own infinite power and set limits for himself so that he could suffer human suffering. God, according to Weil, "negated himself, became as a beggar, became the same as a man" (Phil. 2.7).

Should Prometheus and Zeus struggle with each other, all Zeus would have left is his puissance. Thus he must bring forth one who is more puissant than him. Puissance is the infinite we call "apeiron," or in other words, something that can bring forth greater quantities without tiring. No matter how great a

puissance may be, there is always the chance that a greater puissance is above it. Only the enlightened wisdom of God limits his puissance. *Philebus*. “The various existences of the eternal are composed of the infinite and the finite.” Which is to say, they are composed of wisdom and puissance. Wisdom is love. God limits his puissance through his love. (WEIL 2002, 251)

God limits his infinite puissance through love. Thus God can share the suffering of limited humans.

But is this in fact the case? On the one hand, God still has infinite puissance and infinite power, and on the other hand, he must breach the bounds of his power to suffer. In a previous *Theology of the Cross*, this contradiction was explained away as being thought of as God limiting his infinite power through his own will. For example, the creation of the world was not just a one-time occurrence, but can be thought of as always occurring as long as this world exists. In this unceasing creation of the world, is God’s limitless puissance needed? If God should abandon for a moment his own infinite puissance, then how can the world continue to exist after that?

It is possible to see the creation of the world and similar events as non-essential to the Christian gospels. However, if God, who exists as the Other that suffers along with human suffering, is not the almighty God of infinite power, then what is the salvation of mankind? If the other person who suffered along with your suffering is just another human, then what is the religion known as Christianity? Is it not by coming close to human suffering by an Other who is infinitely isolated from humans that we have religion? For Christianity, the contradiction between God being the Other with infinite power and being a neighbour just like us who suffers along with us is a contradiction that cannot end without choosing one over the other.

Can God suffer through bounds to his power at the same time as possessing infinite power? In other words, can God be finite at the same time as being infinite? This is the question that asks whether God can violate this logical contradiction. We can consider that since God is possessed of infinite puissance, God can—should he will it to be—easily violate the logical contradiction of being simultaneously infinite and finite. So this would mean that God can both create this world and not create it. However, is it possible that God could at once create this world and not create it? To violate this logical contradiction is to reply that this is possible. Is it not more reasonable to assume that God, even if he wishes it, cannot violate a logical contradiction?

If God is not to violate a logical contradiction, how can we consider the contradiction whereby God possesses infinite power at the same time as accepting suffering, which is perforce limited? For Christianity, God abides within our suffering and takes in the same limited power as we humans, yet at the same time is possessed of a limitless power that goes completely beyond humans. To discard

one of these contradictory choices is to deny the religion of Christianity. However, this contradiction is a logical contradiction and not even God himself can have both be valid. So how shall we resolve this contradiction?

At any rate, there is not much point in talking about the logical contradictions of religion. There is not enough space here to discuss all those who have or who still say this. However, this article does not take that position. It takes the stance that it will resolve the logical contradiction of thinking of God as simultaneously both infinite and finite. And this is where mathematics—general topology—enters the picture.

To jump ahead to the conclusion, in a topological space the infinite can be infinite and yet at the same time have limits. General topology is of course mathematics, so it is not possible to have a logical contradiction. As a result, if we add a predicate that describes God as a topological space, then we can see the hidden attributes of God being infinite at the same time as being finite. The phenomenon of God being infinitely beyond at the same time as being finitely abiding within can be thought of as a phenomenon where the two are logically able to exist coherently.

But let us not get too far ahead of ourselves. Weil was extremely forward about applying mathematics to theology. According to her, mathematics was the original form of theology:

The faith of the Greeks, the very faith stimulated by the love of Christ, gave them a thirst for accuracy, and brought about the invention of geometry. Their tenacity towards accuracy, too, was as their mathematics was theology.

(WEIL 2002, 394)

According to Weil, that which in existing philosophical languages was contradictory, was not so in mathematical languages:

What for natural reason is a contradiction, for supernatural reason there is no contradiction. However, we have no choice but to use the vocabulary of natural reason even with supernatural reason. Nevertheless, the theories of supernatural reason are even stricter than the theories of natural reason. Mathematics represents this hierarchical order.

(WEIL 2004, 139)

Weil considered mathematical limit theory as a specific candidate to apply to mathematical theology:

Also apply the move to mathematical limits to metaphysics. In calculus calculations, mutually contradicting things can be true. Nevertheless, these do include strict demonstrated proof.

(WEIL 2004, 132)

In addition, Weil also included in her target the application to theology of the general topology itself, created in the 1930s by making mathematical limit theory abstract.

One field of mathematics that deals with all the diverse sorts of orders (set theory and general topology) is a treasure-house that holds an infinity of valuable expressions that show supernatural truth. (WEIL 2004, 342)

This was written in 1942, when Bourbaki's *Elements of Mathematics*, which determined modern general topology, had just been released, and as Weil had attended an overnight seminar held by Bourbaki, of which her brother André was a key member, this could be termed the sort of surprising insight we might expect from her. So, what is general topology?

General Topology

A topological structure is, along with an algebraic structure, one of the most fundamental structures of modern mathematics. It is well known that early modern mathematics began with the analytical geometry of Descartes, and the infinite analysis of Newton and Leibniz; general topology is the mathematics that deals with the most abstract infinite and its limits that the foundations of this analytical geometry and infinite analysis arrived at. Today's general topology is on the horizon that the Bourbaki group of mathematicians, of which André Weil was a founding member, arrived at in the 1930s. This article follows the Bourbaki group's interpretation of topology (BOURBAKI 2007).

We will now consider set X and the set of its subsets Y . At this point, if the union with the given set O_i (including infinite numbers) which belongs to Y ,

$$\cup O_i$$

also belongs to Y , and the intersection set of the finite number sets O_1, O_2 which belong to Y ,

$$O_1 \cap O_2$$

also belongs to Y , then we call X topological space, and the element O_i of Y the open set. Let us express this definition using mathematical symbols. First, we call the set of all subsets of set X the power set, and write it as:

$$P(X)$$

The definition of the topological space X , in subset Y of the power set $P(X)$ of X ,

$$Y \in P(X)$$

becomes

- (1) $O_i \in Y \rightarrow \cup O_i \in Y$
- (2) $O_1, O_2 \in Y \rightarrow O_1 \cap O_2 \in Y$

This is the most abstract definition. Let us look at an example. We shall consider the natural numbers:

$$0, 1, 2, \dots n, n+1, \dots$$

A given natural number n is always followed by the natural number $n+1$, so there are no limits to natural numbers. In other words, there is an infinite number of natural numbers.

Let us express these natural numbers as a set. We think of the set which has no elements of any kind, or the empty set, as the natural number 0. The natural number 1 is thought of as the set that has only the empty set 0 as its element:

$$1 = \{0\}$$

The natural number 2 is thought of as the union of 1 and the set which only has 1 itself as an element:

$$2 = 1 \cup \{1\}$$

As a result, we get

$$2 = 1 \cup \{1\} = \{0\} \cup \{1\} = \{0, 1\}$$

so 2 is a set with two elements, 0 and 1.

Generally, we think of the natural number $n+1$ as the union of the natural number n and the set which only has n as its element:

$$n+1 = n \cup \{n\}$$

You will see that $n+1$ becomes the set with $n+1$ elements, from 0 to n :

$$n+1 = \{0, 1, 2, \dots n\}$$

So we have now been able to represent the entirety of natural numbers in a set. Next, we shall consider the set of all natural numbers, ω :

$$\omega = \{0, 1, 2, \dots n, n+1, \dots\}$$

where ω is clearly a set with an infinite number of elements, or in other words, an infinite set. As we saw above, the elements of ω are all sets. And furthermore, a given ω member $n+1$ is a subset of ω that uses the elements 0 to n of ω as its elements. In other words,

$$n+1 \in \omega \rightarrow n+1 \subset \omega$$

stands. The elements of ω are the subset of ω . This set of all natural numbers, ω , is the simplest example of topological space. Now, if we consider

$$\omega \cup \{\omega\} = \{0, 1, 2, \dots n, n+1, \dots \omega\}$$

as the set of the subsets of ω , then the union of given elements, including its infinite numbers,

$$\cup_n \cup \omega$$

is where \cup_n is the infinite set sequence

$$\begin{aligned} &0 \\ &1=\{0\} \\ &2=\{0, 1\} \\ &\cdot \\ &\cdot \\ &\cdot \\ &n \\ &n+1=\{0, 1, 2, \dots n\} \\ &\cdot \\ &\cdot \\ &\cdot \\ &\omega=\{0, 1, 2, \dots n, n+1, \dots\} \end{aligned}$$

limit

$$\lim_n n = \omega$$

Therefore, if we realize that

$$\cup_n = \omega$$

then

$$\cup_n \cup \omega = \omega \cup \omega = \omega \in \omega \cup \{\omega\}$$

In other words, the union of given elements in $\omega \cup \{\omega\}$ is once again the elements of $\omega \cup \{\omega\}$, and fulfils definition (1) where ω is the topological space (Ochiai 2009). It is easy to check that ω fulfils definition (2). In other words, it is:

$$n \cap \omega = n \in \omega \cup \{\omega\}$$

We have seen how the set of all natural numbers ω is an example of topological space. From this, we are able to begin to see what topological space is. What definition (1) of topological space requires is that the limits of the infinite set sequence n which is a subset of ω ,

$$\cup_n = \omega$$

once again exists as a subset of ω (the subset of a set includes that set itself). If the limit \cup_n of the infinite set sequence n of the subset of ω exists as a subset of ω , then ω fulfils definition (1) of topological space.

This fact means that topological space is infinite and yet bounded – in other words, it is a set with limits. Just as the simplest example of topological space, the set ω of all natural numbers is infinite and yet bounded (by ω itself), so topological space is infinite yet still a space that has bounds.

However, for an infinite set to have limits does not mean that the infinite set is finite. The infinite set and the finite set are mutually exclusive and cannot exist

at the same time. The infinite set has limits, or to be precise, limits in the sense of the minimum upper limit (or the maximum lower limit). However, if the minimum upper bounds of the infinite set are that set's elements (as distinct from a subset), then that infinite set can be treated as if it is finite. And this is the compactness of topological space.

The set X is equal to the union $\cup O_i$ of the open set O_i , or in other words, when it is

$$X = \cup O_i$$

the union $\cup O_i$ of the open set O_i is called the open cover of X . When the numbers of the open set O_i are finite, then we call the open cover that derives from that the finite open cover.

When the topological space X is compact, then the given open cover of X always includes the finite open cover. In other words, the definition of the topological space X being compact can be written as

$$X = \cup O_i \rightarrow X = O_1 \cup O_2$$

The set ω of all natural numbers is topological space but is not compact. This is because

$$\omega = \cup n$$

so $\cup n$ is the open cover of ω but $\cup n$ does not include a finite open cover. Incidentally, the union of ω and the set that only has ω as its element,

$$\omega \cup \{\omega\}$$

is compact. This is because

$$\omega \cup \{\omega\} = \cup n \cup \{\omega\}$$

so $\cup n \cup \{\omega\}$ is the open cover of $\omega \cup \{\omega\}$ but $\cup n \cup \{\omega\}$ includes the finite open cover

$$\omega \cup \{\omega\} = \omega \cup \{\omega\}$$

For ω to not be compact, and $\omega \cup \{\omega\}$ to be compact, even though the bounds of the infinite set sequence of elements of ω ,

$$\cup n = \omega$$

and the bounds of the infinite set sequence of elements of $\omega \cup \{\omega\}$

$$\cup n \cup \omega = \omega \cup \omega = \omega$$

are the same, in ω the limit ω does not attribute as its own element, and in $\omega \cup \{\omega\}$ the limit ω does attribute as its own element; in other words, $\omega \cup \{\omega\}$, where its own upper limit ω attributes to itself and is compact, and ω where its

own upper limit ω does not attribute to itself is not compact. In the finite set, for example natural numbers $n+1$,

$$n+1 = \{0, 1, 2, \dots, n\}$$

its own upper limit n is attributed as its own element. For its own upper limit to be attributed to itself is one of the fundamental characteristics of the finite set. In particular, for the topological space to be compact, the upper limit of that space must attribute to that space as an element. Thus a compact topological space can be treated as at once infinite and yet also as if it was finite.

Topological Theology

This article asks the following. God is God as he has infinite power that goes utterly beyond humans, yet it is due to that same God being bounded, suffering the same sufferings as humans, that there is salvation. How can we reconcile this contradiction? I believe like this: we can look at God using topological space as a metaphor. In other words, we shall give to God the predicate of topological space. Topological space is a space that is both infinite and at the same time, as if finite. To compare God to topological space, or in other words to give to God the predicate of topological space, a category different to any previous, enables us to discover anew, as an attribute that were not previously predicated to God, the attribute of topological space being both infinite and having limits. If we give to God the predicate of topological space, then even the slightest contradiction does not exist in the issue of God having infinite power and at the same time having limits to his power and suffering.

Moreover, we can give God the predicate of being compact. A compact topological space is one that is treated as both infinite and as if finite. If we give God the predicate of compact topological space, then God can suffer the suffering of his neighbors, just as finite humans do.

Incidentally, making topological space compact is always possible. As we saw in the previous section, the set of all natural numbers ω is topological space, but not compact. However, the union $\omega \cup \{\omega\}$ of the set $\{\omega\}$ that uses ω itself as its elements with ω is compact. This is nothing less than the compactification of topological space ω through union with $\{\omega\}$, and this form is called Alexandroff's one-point compactification.

As a result, if God is topological space, then by adding the set of God himself to God, God then becomes compact. God possesses infinite power and at the same time, suffers like those whose power is finite. The "Death Notice" of Bourbaki noted,

God is the Alexandroff compactification of the universe. (BOUBAKI 2007)

So what does it mean for theology to use mathematics as a model? We all know the rhetorical device of the metaphor. A metaphor is the application of a predicate that is not in the appropriate predicate category for the target that is being given a predicate—intentionally making a category mistake. This method allows a previously unseen essence or hidden attribute of that target to be made visible by creating a category mistake.

For example, people say “God the Father.” This is a metaphor—God cannot be, in the biological sense, the father of humans, and is not even male. By giving the object that is God the predicate of the father, we are making a clear category mistake. However, by using “God the Father” as a metaphor, can we not see some previously unseen attribute of God a little more clearly?

Or, we might say that God is an actual infinity. This again is a metaphor. Since we cannot know the nature of God, whatever God might be, then even if we give him the predicate of infinity, that still does not change the fact that it is a category mistake. However, by using the metaphor that God is an actual infinity, or an infinity with limits, perhaps we can get a glimpse of the hidden nature of God that shared our suffering with us.

We must rely on metaphors not only when making assertions about God, but when humans attempt to attribute predicates to the unknown. By comparing an unknown object with something else, we can get closer to what that object is. In the agency we call science, we call the thing to which we liken this unknown object to the object’s model. It goes without saying that mathematics provides this model to almost all sciences.

Therefore, the way mathematics becomes a model for theology is the same as giving the clearly categorically mistaken concepts of mathematics as a predicate to the objects of theology, of predicating the concepts of mathematics as a metaphor for the objects of theology. In other words, this is the same as using the concept of mathematics as a metaphor for the objects of theology. By doing this, theology is able to explain whether its own objects are logically consistent or not. This makes it possible for theology to be the apologetics of Christianity.

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