Can Fichte's Philosophy Handle Category Theory and Topology?

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Abstract

This document describes the relationship of Mathematics and Philosophy in Fichte's text *The Vocation of Man*. This paper will look at the implications of Fichte's mathematical philosophy when mapping it to different fields such as Topology and Category Theory.

1 introduction

I will attempt to extrapolate, reflect and evaluate upon Fichte's mathematical philosophy from his work *The Vocation of Man.* This text was originally written for the appeal of Jacobi against Fichte's *Wissenschaftlhre* for being Godless. (Breazeale 176) Fichte was teaching at the University of Jena, and having people proving that a person was godless meant that one could ultimately be kicked out of their professorship status. This happened to Fichte regardless when Fichte wrote *The Vocation of Man* to show that his theory of consciousness[1] does have a supreme entity.[2] *The Vocation of Man* mainly focuses on the existence of self, existence of others, an existence of a supreme entity, if a human can actually say that all three exist, what are the repercussions that are attributed to conscious thought, and will in regards to what Fichte calls *Nature*. (Fichte 5) However, he adds his mathematical philosophy into his work to prove points about his theory concerning consciousness.

Fichte's mathematical philosophy in *The Vocation of Man* is a beating pulse that is overlooked in academia and people should pay special attention to it because we rarely see any concern for mathematics as an entity in religious works. We see in *The Vocation of Man* Fichte's arguments falling apart by the seams when circles are introduced to his system. (Fichte 6) Any space or object for Fichte cannot be circular because the direction needs to be preserved with using a single line.(Wood 66) What I attempt to do in this paper is to present

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[1]See Kolkman's paper on Fichte's *Complete Consciousness* to get an understanding of what consciousness is to Fichte.

[2]Fichte was most concerned with becoming prey to the Spinoza's system such that there is only one substance in the world and that is God.(Fichte 111) One will see later on that the Fichtean conception of God and substance are way two different things mainly in accordance to substance. (Dunham 121)

two new arguments against Fichte's mathematical Philosophy encrypted in *The Vocation of Man*. To get to the two arguments we must understand Fichte's fundamental conception of space.

2 Space

Space, for Fichte, is is extended out from one's inner being such that there are an infinite amount of lines from within myself that come out from the self to form space. Starting in the inside of the being and projecting lines outwards from the self infinitely, a sphere is obtained. Space is spherical, and this space can contract to its origin, or expand subjectively for the human. (Fichte 30) Since space can contract or expand, it may be a hard problem for mental entities to grasp the distance or location of how something moved. (Wood 218)

Take his example of the grain of sand. (Fichte 6) For Fichte, there is an essence of time that is at work here since there has to be previous events such that a grain of sand moves from position A to position B, and position A does not equal position B. Then there must have been some event in which caused the grain of sand to move. This goes deeper into the sense of Fichte's principle of causality. However, what if we have a diagram for this piece of sand such that the grain of sand at position A returns to A after a set movements? What Fichte has dreaded most is circular argumentation and it seems as if he is about to get bit here by this reasoning. There is no way for an individual to know what has happened to the grain of sand. Circularity is destroying Fichte's argument for causality because there could have been a time where the grain of sand was not perceived. Therefore, to get out of this bind, the history of that object is

recorded in Fichte's concept of a universal consciousness. [3](Fichte 6, 10)
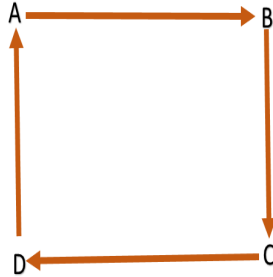
However, space for Fichte cannot be circular in any respect because direction needs to be preserved with using a single line. A line's essence is straightness and direction. A circle does not have a fixed direction unlike other geometrical shapes. [4] So draw a point $\mathbb{R}^3$ and draw lines going in the xy-plane direction. One can draw line after line and still when connecting the dots this does not result in a circle. Rather, it resorts to a polygon, which is not a circle.[5] To be a circle means that there have to be an infinite amount of points in a two dimensional space outside of the entity. However, the object can draw lines that are outside of the self that go up and down in direction as well. This makes space not being a circle any longer, but another entity, a sphere. We know that the spheres conic section is a circle, so a circle is still inscribed in the sphere so the concept of the circle is still present in Fichtean theory, but it results in the ideal

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[3]Yes, we see the blooming of Auguste Comte's *Positivism* theory of Perspectivism arising from this. Also seen in (Fichte 10) stating, "There is an infinite variety of possible individuals, and hence also an infinite variety of starting points of consciousness. This consciousness of all consciousness of all individuals taken together, constitutes the complete consciousness of the universe." Note this when we go over our Category Theory argument.

[4]Fichte acknowledges that circles are a perfect Form such that there needs to be an infinite number of straight lines in order to form a circle. (Wood 66)

[5]The problem of incommensurability is linked to this.

space that Fichte argues for. However, currently, people can create the plane through stereographic projection of Fichte's theory if we take the point at the end of the sphere and which to claim to be 'Nature' to form a plane out of it. Therefore, getting at another surprising result such that the plane is formed out of stereographic projection.

Mathematicians have obtained other spaces that have had profound impact on the structure of how humans live and how people direct themselves. One is the taxi-cab metric space and another is the probability space. The former space only allows the user to go left, right, up, and down. One cannot combine going left and down at the same time in this space. Therefore, we get a space that is representative of a cube. Probability spaces effect how much likelihood an object have a certain quality it may have. (Fichte 4) How do people know that human beings then are not instilled with these spaces instead of Euclidean spaces as presupposed by Fichte, or even a multitude of spaces? The fact is that people do not. People can only infer themselves and what space(s) they only see and use. We shall now move onto Substances and find that using Category Theory may heavily damage Fichte's Philosophy.

3   Substance and Something Into Nothing

It has been highly claimed throughout the history of philosophy that something can not turn into nothing. The counter movement of this has started of this started in the 1990's from the Metaphysical Nihilists whose claim of the subtraction argument were falsified in the 2000's. (Holt 52) However, the subtraction argument can be traced back to his definition of substance. Fitche

defines substance as the following:

That in every stage of progress an antecedent is necessary

supposed from which and through which alone the present has arisen;

in every condition a previous condition. In every existence another

existence and that from nothing, nothing whatever can

proceed.(Fichte 4)

Everything for Fichte can be traced through back sequential portions of time going back from the beginning. This beginning was nothing, in which God exists, since it is the positing to nothing.(Dunham 121) Fichte holds that when a person looked at the object, their consciousness defined the object as something with particular attributes in accordance to positing, counterpositing and limitation. (Dunham 122) So for nothing there is an counterpositing by the consciousness, which is God. However, we arise to the problem such that if there is something then there cannot be nothing because something is already there, mainly nothing itself. This possesses a difficult dialectic, and has been a question that has been unsolved. (Breazeale 189)

This quote presents new information about the history of nothing in philosophy and the subtraction argument residing in a text dating back to 1800. It may not be the same exact argument of what the Metaphysical Nihilists have brought forth, but it still holds the same essence since he is subtracting time and history, as well as objects from the world through sequential time. (Rodriguez-Pereyra 4-5) However, the flaw comes about if we bring cyclical argument into Fichte's philosophy, such that time and history becomes cyclic so

that the universe performs a cyclic birthing and dying process.[6] Thinking of the
time of the universe as a knot, S_1, then we have that we have no way to conclude
what is the end and what is the beginning.[7]

If we do not believe in cyclical arguments, then take the initial point t_0 such
there exists a t_1 that is epsilon away from t_0. Let nothing be at time t_0. Moving
to t_0 to t_1 and there exists a change happening between the moments of time.
Fichte calls this, "Nature's will presiding to change the universe." (Fichte 4)
However, if the universe is nothingness itself and nothingness cannot have an
attribute to it or else we would have to trace back even farther too some point
t_{-1} to constitute pure nothingness. There exists an epsilon between these two
points,t_0 and t_{-1}, as well. This constitutes the amount of time it takes for the
transformation to happen. If the transformation is continuous and in an ever
changing process however, then transformation of the entity happens at every
single point. But this resides back to the Euclidean argument concerning the
line. Euclid believed that a line is just a collection of a finite amount of points,
whereas Fichte believes that there is some time lapse between the changes of such
an entity and the most basic entity of things outside the self is a line. (Wood 98)

Therefore, later on in the text work, Fichte states:

> To nothing I cannot unite any being whatever; from nothing there
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> can never arise something; my objective thought is necessarily
>
> meditative only. But any being which is united to another being, does

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[6]Fichte does not believe the universe to be circular as stated: "The universe is to me no longer
that ever-recurring circle, that eternally-repeated play, that monster swallowing itself up, only
to bring itself forth again as it was before; it has become transfigured before me, and now bears
the stamp of spiritual life,– a constant progress towards higher perfection in a line that runs out
to the infinite." (Fichte 72)

[7]S_1 is the formality in Topology to describe the circle knot.

thereby, by means of this other being, become dependent; it is no

longer primary, original, and genetic; but only a secondary and

derived being. I am conscribed to unite myself to something, to

another being I cannot unite myself without losing that independence

which is the condition of my own existence. My conception and

origination of a purpose, however, is by its very nature, absolutely

free, – producing something out of nothing. To such a conception I

must unite my activity in order that it may be possible to regard it as

free and as proceeding absolutely from myself alone. (Fichte 40)

This shows that counterpositing is needed such that God exists in the dialectic of nothing existing. God would then be out of space and time itself. God would not have being, but is eternal in and of itself. However, for God to exist, there must exist the self in the world. God, consciousness, and being are all intertwined with one another and need to be together to compose the supposed reality that we see before us. We can show the relationship between being, consciousness, and God by using Category Theory.

One surprising result I found is that we may discuss Fichte's theory of the connection of human beings, universal consciousness, and God through the way of limits of sets based in category theory. One can take all the people of the world as a diagram D such that there is an antecedent to every being. When taking the co-limit of D we get make a category called U standing for the universal consciousness which is something that human beings are connected too such that there are morphisms from D to U. There also exists morphisms between a category D to G. G is God, or known as the infinite. Elements in D

try to strive towards G. (Wood 8) There then exists a unique morphism from U to G. Therefore, we get a universal cones that form a commutative diagram from human beings to universal consciousness and from humans striving to go to God with the connection between God and universal consciousness.
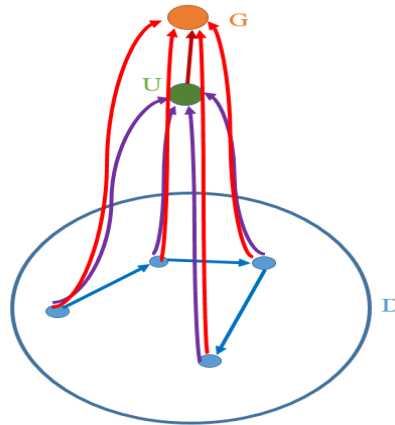
However, one may argue that there could just be an infinite amount of gods in this retrospect, because one can form another universal cone on top of the commutative diagram constructed by the relationship between being, consciousness and God. At best, one could put Fichte's theory of consciousness to be polytheist. However, being monotheist is highly unlikely because in order for Fichte's mathematical philosophy to happen this universal cone would be the highest universal cone, but even this leaves us with uncertainty. It's just god's all the way up! We shall now go onto Fichte's mathematical philosophy in respect to Topology.

4 Topology for Fichte's Philosophy

There must be some consequences for Fichte's philosophy if we are to regard it in other mathematical retrospects. I have created some consequences in which can be seen through using Topology in accordance to Fichte's philosophy.

. We can show how that the Fichtean sense of self corresponds to the Cartesian plane.

Assume space is non-empty. Let P be a point such that P is dimensionless and P has roundness. Let $P\epsilon$ space such that archtype exists. Then $\exists \vec{V_n}$ such that P is terminal. Assume uniformity $\forall \vec{V_n}$ Then:

$$\lim_{n \to \infty} \vec{V_n} = S_2$$

Space is therefore a sphere egoistically. Taking conic sections S_2 infinitely implies $S_1 \subset S_2$. Therefore, there exists the circle ideally in Egoism. Taking S_2 with stereographic projection taking $\{0, 0, \infty\}$ as God, we achieve the Cartesian Plane. We leave out the point$\{0, 0, \infty\}$ because no matter how hard humans strive to God they cannot reach the infinite. Therefore, the Cartesian plane exists in Fichtean Egoism. $\qquad \square$

This is a powerful proof because then we can say ideally that we live in a Cartesian space. However, I find the reverse direction harder to prove because of how the theory of division is set up in Fichte's Philosophy. I assume it will need infinitesimal calculus to contract down to P. One could go to the reductive theory of arithmetic as Fichte does in *The Vocation of Man* on page 21. This is hard to see happening because for an object being divided infinitely it still

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reserves its properties, such as length, height and width.

However, what is the space that we get if collective consciousness of beings is connected together as we did in the previous section of Diagram D? We can easily use the Classification of Surfaces to show what collective consciousness sees being as.

Proof. Case 1:

Assume that the collective consciousness of beings is an even number. because the self can be projected outwardly as S_2 then,

$$S_2 \# S_2 \# S_2 \# ... \# S_2 = S_2.$$

Our shape and form then is to the collective consciousness a sphere. This is because S_2 is an identity element for the operation of connected sums.

Case 2:

Assume that the collective consciousness of beings is an odd number. Then because the self can be projected outside of the self.

$$S_2 \# S_2 \# S_2 \# ... \# S_2 = S_2$$

Case 3:

Assume under the assumption of an infinite amount of beings.

$$S_2 \# S_2 \# S_2 \# ... \# S_2 = S_2$$

Therefore, an infinite number of individuals will still look like a sphere according to collective consciousness. □

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So, we see that the collective Consciousness, if taking a topological perspective, sees humanity as a spherical entity.[8] We must note that this is an ideal case for all human beings because they are finite and limited. Notice before if we take the conic section of S_2 that we get the circle as a product of the sphere. For Fichte, circles are in the realm of becoming because Fichte's view about lines. It was debated from Plato against Euclidean Geometry of what the definition of what a line is. Fichte takes Plato's interpretation of a line which is two points in space connected together by a line. (Shapiro 54) To make a curve happen we connect a finite amount of lines together in the real world. In the ideal world, one would connect an infinite amount of lines to produce a curve. However, one can take the definition of a knot in Topology and one can create a artificial circle that is actually a polygon that looks like a circle.

Definition 1. *A **knot K** is a simple closed curve in $\mathbb{R}^3$ that can be broken into a finite number of straight line segments $e_1, e_2, ..., e_n$ such that the intersection of any segment of e_k with the other segments is exactly one endpoint of e_k intersecting an endpoint of e_{k-1} (or e_n if $k = 1$) and the other endpoint of e_k intersect an endpoint of e_{k+1} (or e_1 if $k = n$). (Messer & Straffin 45)*

As we have noted before, Fichte is not fond of circles in the universe. With knots this can be seen as a fine thing to do in Fichte's philosophy because K is composed of a finite amount of straight line segments. Again, this is because a line is supposed to preserve its direction in which it is pointing. However, one can see the conflicting viewpoint of trying to shape knots of a triangle shape into

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[8]"But the act by which she consigns a free independent being to death, ... , and beyond the whole sphere of existence which is thereby closed. Death is the ladder by which my spiritual eye ascends to a new Life, and a new Nature." (Fichte 72)

a disc because in order to produce a curve we need to take an infinite amount of points and connect them together. Notice the conic section of a disc is a circle. Topology can say that this can be done while Fichte says it cannot be done. (Messer &Straffin 46) Secondly, take for example the trefoil knot in $\mathbb{R}^3$. We see this knot is not S_1, however this knot cannot contract back to its origin unless the knot is broken just like S_1. The definition of a knot will not hold then in Fichte's philosophy.

Therefore, we can conclude that Topology is at odds with Fichte's philosophy. On one hand it does a great job at describing how universal consciousness thinks and sees humanity. However, Topology does not help in the case of the individual in the case of shrinking down the knot to itself. I believe Fichte would argue that using knots to describe self extension is erroneous because the trivial knot is S_1 and a knot is connected and closed by definition. Therefore, anything more complex than S_1 surely would not function in his theory. The topologist could argue back at Fichte because we can compose a triangle into a disc in $\mathbb{R}^3$.

5   Conclusion

In conclusion, what has been reviewed here is that *The Vocation of Man* may not only be looked at as a document that is concerned with trying to find the proof of the self and others existence and how individuals consciousness can interact with nature, but we open up a whole other field of research onto Fichte's philosophy. We have seen old ideas of Fichte's philosophy arise, but I bring new ideas to the picture of Fichte's Philosophy by using Topology and Category Theory. However, we see that Fichte's philosophy does not hold when we go into

Category Theory and Topology. We are lead down a road where infinite Gods that could possibly exist and knot theory being decimated by Fichte's Philosophy despite its applications in the outside world. We also see that we can deduce at least what consciousness perceives of us externally as well by using the Classification of Surfaces. There are many other topics that one could find Fichte's mathematical philosophy crumbling apart.

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