Review of Certain Philosophical Questions from Newton's Trinity Notebook

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June 2007
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Sir Issac Newton wrote in hundreds of notebooks asking questions in English, and Latin. Some notes are hidden in such tiny script; one may need a magnifying glass to read them. Newton was secretive because he feared theft of his ideas by envious competitors, and also many of his experiments with the "Black Arts," and especially alchemy were capital offenses in 17th century England, punishable by public execution.

The book by J. E. McGuire and Martin Tamny explores Newton's Trinity notebook. As a young man, Newton discovered, in my judgment, the enormous power of what I call, "brainswitching," which is moving information from the left to the right brain. This is accomplished by writing down questions in a notebook with the expectation of being surprised that "answers" will suddenly flash later unexpectedly at odd times and places. For example, often Newton would be on his way to supper at Cambridge University, when an "answer" to one of his questions would appear in his "conscious" mind and he would turn abruptly and scurried back to his apartment to follow up an exciting new idea.

The connection between the right and left brain

The right and left hemispheres of the brain are connected by a thick bundle of fibers called the corpus callosum. One of my students made this interesting observation; "If the hemispheres are connected, why isn't information flowing back and forth? Why don't both hemispheres share information instantly? Why would one hemisphere know something the other did not know?"

Here is my interpretation

The left hemisphere is the gatekeeper. It decides what information will enter into memory and what will be rejected. It is on automatic evaluation of all input while one is awake. In sleep, the left brain is "off" and the right brain is "on." Since the right brain is non-evaluative, anything is possible. That's why night dreams have the illusion of reality while we are asleep, but disappear almost immediately when we awake. The left brain clicks "on," looks at the dream and concludes, "Wow! What a crazy dream. I wonder what it means."

I conclude that that the corpus callosum is not a freeway for the high-speed flow of information from one hemisphere to the other. Rather, it is like traveling on city streets with many stop signs, traffic lights, traffic detours and congestion. It will take longer to travel from A to B since unexpected delays may make the journey a circuitous route.

A personal note about the book

As a personal note, I would have enjoyed the book more if the writers did not attempt to interpret Newton's words for me because I arrive at a different set of conclusions, some of which I will share with you.

What are "points," according to Newton?

A "point" has no inside, no midst, nor center but is itself all of these. All it can do is keep points on either side from touching. You cannot put a point within a point because it has no inside. Points therefore cannot make a place for division. A point has smallness and partlessness.

Does yesterday touch today? No, they are joined but not touching. So, a point lacks size, lacks shape, lacks bulk, lacks boundaries, lacks dimension, lacks magnitude, and lacks volume. Yet, a point is something; it is not nothing.

My interpretation of a "point."

How can a point be "something" and yet lack all of the qualities that we associate with a "thing", a small thing to be sure, but still a "thing"? How can it have an outside and no inside? This does not make any sense.

My interpretation is that a "point" is not a thing, but it is not nothing either. It is a "near-thing." It comes as close to being nothing as possible and yet still exists. It is close to zero without being zero. It is like walking towards the horizon, but never reaching it. Remember the ancient mariners would not sail too far out to sea for fear of falling off the end of the earth.

A "point" is a "near-thing." It works like this:

First, nothing cannot be divided. Zero cannot be divided into parts.

Second, something, that is, anything, if it is a thing, no matter how tiny, can be divided into parts. Here is the "proof":

A part can be divided into parts, but a non-part cannot.

A part is a fraction of some whole. Prove that if we divide a fraction by some positive integer such as 2, the result is another fraction, another part.

1/N is some fraction, with N being a positive integer.

1/N divided by 2/1 = a fraction.

1/N times 1/2 = 1/2N which is a fraction.

We proved it for a fraction 1/N, how about 1/N + 1?

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1/N + 1 divided by 2/1 = 1/N + 1 times 1/2 = 1/2(N + 1)

We proved it for N + 1.

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Conclusion: Any part, no matter how small, is a fraction of some whole. When that fraction, no matter how small, is divided by a positive integer such as 2, the result is another fraction or part. Any part that exists can be divided into parts.

Still a mystery is how can a "point" be something, a part, and yet not be a part if, according to Newton, it has no size, no shape, no bulk, no volume, no inside, but yet an outside that can be placed next to another point without touching? The answer, I think, is that a "point" is not a thing but a "near-thing." A point is almost something. It is a microscopic value that does not exist, but continues to diminish forever without reaching zero. It continues to travel closer and closer to zero into eternity. Notice that this is the elusive principle that makes Newton's calculus work. Bishop Berkeley called Newton's tiny entities, "ghost numbers."

Newton's idea that some numbers are aliquot and some are not

Here is an example:

2 is aliquot with 10, but 3 is not.

10/2 = 5 with no remainder, making it aliquot but

10/3 = 3 with a remainder of .33 is non-aliquot.

Here is my interpretation of aliquot:

> 10/3 is aliquot if we view it this way - instead of taking 10 units and dividing by 3, take one unit and divide by 3. The result is three parts to the unit. Now multiply by 10 and you get thirty, which makes 10/3 aliquot.

Newton played with the Zeno Paradoxes

If you want to get from 1 to 2 on the number line, you can take a 1/2 step. But, before you can take the 1/2, you must move 1/2 of the half step. Before you can take that step, you must take 1/2 again and so forth into eternity. The result is that a finite regression between 1 and 2 can be divided into an infinity of parts. How can this be? How can we divide a finite distance into an infinite number of parts?

My interpretation: This Zeno Paradox may be an illusion

This seeming regression into infinity with each half step backwards is an illusion. The reason is this: The first half step divides the distance into two parts. The next half step of the half step divides the distance into four parts and the next divides the distance into eight parts. What is happening is a change in scaling.

The first is a scale in which the distance is divided into two, meaning you can get from 1 to 2 in two steps. The second scaling divides the distance into four, that is, four steps will get you from 1 to 2. And the third scaling divides the distance into eight steps to get from 1 to 2.

Now, of course, you can continue to cut the distance into smaller and smaller units into eternity, but each scale is independent of the other scales. I conclude that a finite distance such as 1 to 2 on the number line can only be divided into finite parts represented by whatever scale one chooses. There is no infinite number of parts in a finite distance.

What gave this Zeno Paradox its mystical appearance of a finite having infinite parts is a violation of an ordinary principle we learned in elementary school, "When doing arithmetic, never mix apples and oranges." By viewing each scale as one scale only, it has the illusion of dividing the distance between 1 and 2 into an infinite number of parts.

Ciphers, according to Newton

Ciphers such as 1, 2, 3, etc. are points that have no size or shape. They are interchangeable. They only become 1, 2, 3, etc. in the aggregate. For example, 1 and 2 are interchangeable unless they are arranged in a line with 1 before 2.

I recommend any article or book about Sir Isaac Newton because he is one of the most mysterious characters in the history of science and mathematics. In elementary school, he was at the bottom of the class and endured unmerciful bullying from the "smart kid" at the top. One day, Newton had enough and actually made a decision to jump up to the top of class which he did in a short time. If I had to select one aptitude that distinguished Newton, it is inquisitiveness. For example, as a young man, he was fascinated with the composition of light. The contemporary belief was that white light is pure and the colors are impure. He bought an inexpensive prism at a carnival in the squalid little village of Cambridge and began to experiment, observing sunlight coming through the toy prism. After hundreds of experiments with himself as the only subject (in which he almost went blind), he came to the stunning conclusion that the reverse is true: Colors are pure and white light is a composite of true colors.

R E F E R E N C E S

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Asher, James J. Learning Another Language Through Actions (6th edition).
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