

Disproof of Michiwaki's et al. 'Reality of the Division by Zero $z/0 = 0$ '

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Abstract

The law of non-contradiction (LNC) is still one of the foremost among the principles of science and equally a fundamental principle of scientific inquiry too. Without the principle of non-contradiction we could not be able to distinguish between something true and something false. There are arguably many versions of the principle of non-contradiction which can be found in literature. The method of reductio ad absurdum itself is grounded on the validity of the principle of non-contradiction. To be consistent, a claim / a theorem / a proposition / a statement et cetera accepted as correct, cannot lead to a logical contradiction. In general, a claim / a theorem / a proposition / a statement et cetera which leads to the conclusion that $+1 = +0$ is refuted.

Keywords

Quantum Theory, Relativity Theory, Unified Field Theory, Causality

1. Introduction

Facing challenges (or in other words solving of problems) which may come in a wide variety of shapes and sizes is one of the most essential skills in science as such and of course in our everyday life too. There may exist many approaches to cope with a challenge. What can constitute a successful beginning in the sense of trail and fail of facing a challenge, with what should a beginning be made? The difficulty of finding a successful beginning is determined by the subject investigated and the scientific method used to investigate the subject, both can and must be distinguished from each other. The beginning itself should obey at least the very fact that it is the foundation on which everything what follows is grounded. The beginning is the foundation on which everything other is built in more detail, in fact, from which it originates. Therefore, it lies in the very nature of the beginning itself that is still undeveloped, devoid of any concrete and detailed content, it is the simple itself, something which is the most general, something which directly involved in the simplest of everything which is to become,

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something which remains at the base of all what not truly known is to proceed and does not vanish from it. Hence, any further progress, the starting point of any possible development, is nothing but a only a determination of that which forms the beginning itself. The beginning itself is the foundation which is preserved and present throughout the entire subsequent chain of thought or development as such, remaining completely immanent in all further determinations. Consequently, previously mentioned that which constitutes a beginning, the beginning itself, is to be taken as the most simple. For only in what is the most simple no advance has yet been made from a one to another. As already stated, it does not make that much sense to go any further until the beginning itself, the foundation of everything which may follow as such, has been firmly established.

2. Material and methods

2.1. Definitions

Definition. Proof by contradiction (Reductio ad Absurdum)

The logical background of a proof by contradiction is Aristotle's law of non-contradiction. A rigorous proof by contradiction proof of a theorem follows the standard method of contradiction used in science and mathematics and should be convincing as much as possible. For the first, we assume that a claim / a theorem / a proposition / a statement et cetera which has to be proved, is true. One then proceeds to demonstrate that a conclusion drawn from such a claim / a theorem / a proposition / a statement et cetera leads to a contradiction. Hence, the supposed claim / theorem / proposition / statement et cetera is deemed to be false. Consequently, we are then led to conclude that it was wrong to assume the claim / the theorem / the proposition / the statement was true. Thus far, the claim / the theorem / the proposition / the statement is proved to be false.

Definition. Thought Experiments

Properly constructed (real or) thought experiments (as devices of scientific investigation) can be used for diverse reasons in a variety of areas. Thought experiments can help us to investigate some basic properties of nature even under conditions when it is too difficult or too expensive to run a real experiment. Furthermore, a thought experiment can provide some evidence against or in favour of a theory. However, a thought experiment is not a substitute for a real experiment.

Definition. $z/0 = 0$

Hiroshi Michiwaki, Saburou Saitoh, Masato Yamada [1] defined or determined zero as

$$\frac{z}{0} = 0 \tag{1}$$

2.2. Axioms

Axiom I. (Lex identitatis).

The foundation of all what may follow is the following axiom:

$$+1 = +1. \quad (2)$$

Scholium.

Lex identitatis or **the identity law** is expressed mathematically as $+1=+1$. Consequently, $+1$ is only itself, simple equality with itself, it is only self-related and unrelated to another, $+1$ is distinct from any relation to another, $+1$ contains nothing other but only itself, $+1$. In this way, there does not appear to be any relation to another, any relation to another is removed, any relation to another has vanished. Consequently, $+1$ is just itself and thus somehow the absence of any other determination. $+1$ is in its own self only itself and nothing else. In this sense, $+1$ is identical only with itself, $+1$ is thus just the 'pure' $+1$. Let us consider this in more detail, $+1$ is not the transition into its opposite, the negative of $+1$, denoted as -1 , is not as necessary as the $+1$ itself, $+1$ is not confronted by its other. $+1$ is without any opposition or contradiction, is not against another, is not opposed to another, $+1$ is identical only with itself and has passed over into pure equality with itself. But lastly, identity as different from difference, contains within itself the difference itself. Thus, it is the same $+1$ which equally negates itself. $+1$ in the same respect is in its self-sameness different from itself and thus self-contradictory. It is true, that $+1 = +1$, but it is equally true that $-1 = -1$. It is the same 1 which is related to a $+1$ and a -1 . It is the $+1$ which excludes at the same time the other out of itself, the -1 , out of itself. $+1$ is $+1$ and nothing else, it is not -1 , it is not $+2$, it is not ... Especially $+1$ is at the same time not -1 , $+1$ is thus far determined as non being at least as non-being of its own other. In excluding its own other out of itself, $+1$ is excluding itself in its own self. By excluding its own other, $+1$ makes itself into the other of what it excludes from itself, or $+1$ makes itself into its own opposite, $+1$ is thus simply the transition of itself into its opposite. $+1$ is therefore determined only in so far as it contains such a contradiction within itself. The non-being of its other (-1) is at the end the sublation of its other. This non-being is the non-being of itself, a non-being which has its non-being in its own self and not in another, each contains thus a reference to its other. Not $+1$ (i. e. -1) is the pure other of $+1$. But at the same time, not $+1$ only shows itself in order to vanish, the other of $+1$ is not. $+1$ and not $+1$ are distinguished and at the same time both are related to one and the same 1 , each is that what it is as distinct from its own other. Identity is thus far to some extent at the same time the vanishing of otherness. $+1$ is itself and its other, $+1$ has its determinateness not in another, but in its own self. $+1$ is thus far self-referred and the reference to its other is only a self-reference. On closer examination $+1$ therefore is, only in so far as its Not $+1$ is, $+1$ has within itself a relation to its other. In other words, $+1$ is in its own self at the same time different from something else or $+1$ is something. It is widely accepted that something is different from nothing, thus while $+1 = +1$ it is at the same time different from nothing or from non- $+1$. From this it is evident, that the other side of the identity $+1 = +1$ is the fact, that $+1$ cannot at the same time be $+1$ and -1 or not $+1$. In fact, if $+1 = +1$ then $+1$ is not at the same time not $+1$. What emerges from this consideration is, therefore, even if $+1=+1$ it is a self-contained opposition. $+1$ is only in so far as $+1$ contains this contradiction within it, $+1$ is inherently self-contradictory. $+1$ is thus only as the other of the other. In so far, $+1$ includes within its own self its own non-being, a relation to something else different from its own self. Thus, $+1$ is at the same time the unity of identity with difference. $+1$ is itself and at the same time its other too, $+1$ is thus contradiction. Difference as such it unites sides which are, only in so far as they are at the same time not the same. $+1$ is only in so far as the other of $+1$, the non $+1$ is. $+1$ is thus far that what it is only through the other, through the non $+1$, through the non-being of itself. From the identity $+1=+1$ follows that $+1 - 1 = 0$. $+1$ and -1 are negatively related to one another and both are indifferent to one another, $+1$ is separated in the same relation. $+1$ is itself and its other, it is self-referred, its reference to its other is thus a reference to itself, its non-being is thus only a moment in it. $+1$ is in its own self the opposite of itself, it has within itself the relation to its other, it is a simple and self-related negativity. Each of them are determined against the other, the other is in and for itself and not as the other of another. $+1$ is in its own self the negativity of itself. $+1$ therefore is, only in so far as its non-being is and vice versa. Non $+1$ therefore is, only in so far as its non-being is, both are through the non-being of its other, both as opposites cancel one another in their combination, it is $+1 - 1 = 0$.

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3. Results

Claim. (Theorem. Proposition. Statement.)

Let +X denote something. If we accept Michiwaki et al. [1] claim that $z/0 = 0$ we must accept too that

$$+1 = +0 \tag{3}$$

Proof by contradiction.

In general, it is

$$+1 = +1 \tag{4}$$

or equally

$$+1 \times +X = +1 \times +X \tag{5}$$

or

$$+X = +X \tag{6}$$

Dividing by +X, we obtain

$$+1 = \frac{+X}{+X} \tag{7}$$

or

$$+1 = \frac{+1}{+X} \times \frac{+X}{+1} \tag{8}$$

Due to Einstein’s special theory of relativity [2], this equation is valid even under conditions where +X=0. We obtain

$$+1 = \frac{+1}{+0} \times \frac{+0}{+1} = \frac{+1}{+0} \times 0 \tag{9}$$

Assuming that Michiwaki et al. [1] claim that $z/0 = 0$ is correct, we are not allowed to derive any contradiction. Thus fat, it follows that

$$+1 = \frac{+1}{+0} \times 0 = \frac{+1}{+0} \times \frac{z}{0} = \frac{+1 \times z}{+0 \times +0} = \frac{z}{0} \tag{10}$$

Still, we are of the opinion that Michiwaki et al. [1] claim $z/0 = 0$ is correct. Substituting, we obtain

$$+1 = +0. \tag{11}$$

Quod erat demonstrandum.

4. Discussion

We assumed that Michiwaki et al. [1] claim / theorem / proposition / statement et cetera that $z/0 = 0$ which has to be proved, is true. In the following we proceeded and demonstrated that a conclusion drawn from such a claim / a theorem / a proposition / a statement et cetera leads straightforward to a contradiction that $+1=+0$. Hence, Michiwaki et al. [1] claim / theorem / proposition / statement et cetera is deemed to be false. Consequently, we are then led to conclude that it was wrong to assume Michiwaki et al. [1] claim / theorem / proposition / statement et cetera that $z/0=0$ was true.

5. Conclusions

Michiwaki et al. [1] claim / theorem / proposition / statement et cetera that $z/0=0$ is proved to be false.

Acknowledgements

None.

Appendix

None.

References

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