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Mathematics and mysticism

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ABSTRACT

Is there a world of mathematics above and beyond ordinary reality, as Plato proposed? Or is mathematics a cultural construct? In this short article we speculate on the place of mathematical reality from the perspective of the mystical cosmologies of the ancient traditions of meditation, psychedelics, and divination.

1. Introduction

There is a long tradition of speculation regarding the origins of mathematics. This question is similar to those of the acquisition of language, art, religion, and so forth. For Plato and his followers there was a parallel universe in which mathematics resides, now and forever. But for the philosophical phenomenologists of the 19th and 20th centuries, mathematics is a cultural artifact, in coevolution with the human mind and culture. The dialectic of these two opposing views is essentially unresolvable, and devolves into a question of faith: where does mathematics come from?

The neurophenomenological position proposed most notably by George Lakoff and Raphael Nuñez (2000) is based on a detailed study of a few topics from classical mathematics. But since the computer graphic revolution of the 1960s, new branches of contemporary mathematics – such as chaos theory and fractal geometry – have come to light. Fractal structures — having a long and unquestioned existence before being introduced into the visual realm and hermeneutics of human apprehension and discussion — have complicated the arguments.

In this 21st century, a similar conundrum has emerged following the psychedelic revolution: what is the location and origin of the psychedelic state of consciousness? And taking these two questions in hand, what is the relationship of these two parallel universes? We are going to examine these questions now from the perspective of Neoplatonic cosmology, and from the viewpoint of personal experience with this cosmological model. Specifically, we will discuss mathematical research practice in three related practices: meditation, psychedelics, and divination.

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2. Mysticism

Mathematics is a field that depends words, signs, and symbols with precise definitions. Yet mysticism is a field that is rife with words of vague definition. Let us begin with glossary arranged not alphabetically, but rather in hierarchies.

2.1. Definitions

The very word, mysticism, is mysterious; that is, it has a vey loose definition. For example:

- *Mystery*: A religious truth that one can know only by revelation and cannot fully understand. Also, a secret religious rite believed (as in Eleusinian and Mithraic cults) to impart enduring bliss to the initiate, or, a cult devoted to such rites
- *Mysterious*: Of, relating to, or constituting mystery.[1]
- *Mysticism*: The experience of mystical union or direct communion with ultimate reality reported by mystics.[2] A religious practice based on the belief that knowledge of spiritual truth can be gained by praying or thinking deeply.[3]

[1] from: http://www.merriam-webster.com/dictionary.
[2] from: http://www.merriam-webster.com/dictionary.
[3] From http://www.merriam-webster.com/dictionary/mysticism.

If you chase down the definition of mystic, you may be caught in an infinite loop.

Here I am going to simplify this ambiguity, by claiming my own limited definition of mysticism. I shall consider only three types of mystical experience, those with which I have my own considerable experience: meditation, psychedelics, and divination.

But first, let us have a look at the usage of the term by scientists.

2.2. Science and mysticism

An excellent study of this connection was published in 2001 by Ken Wilber. It is an edited compilation of the most relevant writings of eight eminent physicists of the quantum revolution of the early 20th century, together with well-informed critical comments and evaluations. Included are:

- Max Planck, 1858–1947,
- James Jeans, 1877–1946,
- Albert Einstein, 1879–1955,
- Arthur Eddington, 1882–1944,
- Erwin Schroedinger, 1887–1961,
- Louis de Broglie, 1892–1987,
- Wolfgang Pauli, 1900–1958, and
- Werner Heisenberg, 1901–1976.

Omitted from the volume, but perhaps of interest, was.

- Paul Dirac, 1902–1984).

Within his commentaries, Wilbur gives these credits:

- Eddington, most eloquent, accomplished philosopher, penetrating mystic,
- Schroedinger, keenest mystical insight,
- Pauli, smartest, and
- Heisenberg, most philosophic,

In my own pantheon, Einstein leads the pack in all categories. According to Einstein:

> The most beautiful emotion we can experience is the mystical. It is the power of all true art and science. He to whom this emotion is a stranger, who can no longer wonder and stand rapt in awe, is as good as dead. To know that what is impenetrable to us really exists, manifesting itself as the highest wisdom and the most radiant beauty, which our dull faculties can comprehend only in their most primitive forms- this knowledge, this feeling, is at the center of true religiousness. In this sense, and in this sense only, I belong to the rank of devoutly religious men.[4]

From Eddington, Wilber includes three pieces. Within the first (1929) we find,

> … those who in the search for truth start from consciousness as a seat of self-knowledge with interests and responsibilities not confined to the material plane are just as much facing the hard facts of experience as those who start from consciousness as a device for reading the indications of spectroscopes and micrometers.[5]

and

> Surely then that mental and spiritual nature of ourselves, known in our minds by an intimate contact transcending the methods of physics, supplies just that interpretation of the symbols which science is admittedly unable to give.[6]

And from the third (also 1929) we find,

> A defense of the mystic might run something like this. We have acknowledged that the entities of physics can from their very nature form only a partial aspect of the reality. How are we to deal with the other part? It cannot be said that that other part concerns us less than the physical entities. Feelings, purpose, values, make up our consciousness as much as sense impressions. We follow up the sense impressions and find that they lead into an external world discussed by science; we follow up the other elements of our being and find that they lead not into a world of space and time, but surely somewhere.[7]

Finally, from Schroedinger, Wilber includes four pieces. Within the second (1958) we find,

> But, of course, here we knock against the arithmetical paradox; there appears to be a great multitude of conscious egos, the world, however, is only one. …
>
> There two ways out of our number paradox, both appearing rather lunatic from the point of view of present scientific thought (based on ancient Greek thought and thus thoroughly "Western"). One way out is the multiplication of the world in Leibniz's fearful doctrine of monads: every monad to be a world by itself, no communication between them; …
>
> There is obviously only one alternative, namely the unification of minds or consciousnesses. Their multiplicity is only apparent, in truth, there is only one mind. This the doctrine of the Upanishads.[8]

In these writings, we find the acknowledgment of two-level map of consciousness: the matter and energy universe of physics, and all the rest.

In this article, following this line, I will consider mathematics as a mystical practice, and compare it to three other categories of mystical practice. In the order in which I have experienced them in my own life, these are: meditation, psychedelics, and divination. These correlate with three consecutive epochs of my history: early work (pure math, 1960–1967), transition (applied math, 1967–1974), and mature work (computational math, computer graphics, modeling and simulation, 1974-present). The associated mystical experiences may be interpreted in the cosmologies, or maps of consciousness, of various philosophical traditions, such as Yogic, Platonic, Neoplatonic, and so on.

3. Cosmologies

The cosmologies of interest to us here are more expansive than the mind/body context of the cognitive sciences of our time. Especially, the concepts of soul and spirit are crucial, and we begin with a brief chronology of their long history.[9] Dates are approximate.

[4] First published in 1931. Quoted in (Frank, 1947; ch. 12, sct. 5).
[5] (Wilber, 2001, p. 192).
[6] (Wilber, 2001, p. 197).
[7] (Wilber, 2001, p. 209).
[8] (Wilber, 2001, pp. 86–87).
[9] This is extracted from (Abraham and Roy, 2010; Chs. 1 and 2). See also (Abraham, 2005).