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ESSAY

**Franklin Wolff's Mathematical Resolution of
Existential Issues**

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Abstract—Just like anyone else, scientists can be troubled by existential questions such as "What is the purpose of life?" and "Why is there something instead of nothing?" One strategy for approaching such questions has been to suggest that a latent cognitive faculty needs to be activated in order to answer them. In effect, this means that a questioner needs to undergo a process of self-transformation leading to a transcendent state of consciousness in which such an ability is awakened. Franklin Wolff has proposed that there is a way of doing so, namely "mathematical yoga," that is particularly suited for scientists. Such a spiritual practice consists of doing mathematics, while understanding what one is doing and maintaining a self-giving attitude. Although Wolff has attributed his own enlightenment to this mathematical path, it needs further empirical verification. Wolff's notions also suggest that, even without the occurrence of transcendent states of consciousness, abstract thinking could lead to states of consciousness characterized by greater than ordinary meaningfulness.

Keywords: existential issues—self-transformation—transcendent state of consciousness—Franklin Wolff—Franklin Merrell-Wolff—mathematical yoga—mathematical foundations—science as a spiritual practice

Existential questions are questions such as "Why am I here?"; "What is the purpose of my life?"; "What is the meaning of existence?"; "What is the point of all this?"; and "Why is there something instead of just nothing?" What do you do if you are scientifically inclined and these questions bother you, as they have bothered me for most of my life?

At the outset, it is important to distinguish between relative answers and absolute answers to existential questions. For example, a person can find meaning in life through the work that she does or in her relationships with others. And, indeed, these are two of the ways in which people actually find meaning in their lives (Barušs, 1996). These would be relative answers that are specific for each individual. But sometimes relative answers are not enough and

we want an absolute answer, what Victor Frankl called the "super-meaning" (Frankl, 1946/1984). And that quickly becomes an intractable problem.

The conventional scientific answer to questions about the meaning of life is basically that there isn't any. Get used to it. A problem with that answer is that it has no soteriological value; that is to say, it has no practical usefulness for someone confronted with an existential crisis. Now that just might be our tough luck, of course, but we do not actually know that.

Of course there is no shortage of answers outside the conventional scientific context, most notably those offered up by various religious sects and cults. The solutions offered by such groups are, by and large, unpalatable to scientists for various reasons, including the necessity of having to try to make oneself believe things that are patently false.

What do we do, then? One approach is the following. The existential questions are rationally coherent, but there is no satisfactory rational answer to them. There could well be an answer, but the questioner may need to activate latent cognitive faculties in order to know the answer. I will call the state of consciousness in which such knowledge occurs a "transcendent state of consciousness." The problem shifts, then, from being one of having to answer existential questions to one of determining what one can do as a possibly effective means of self-transformation.

Let me restate this. Our knowledge is optimally based on empirical observations and rational thinking. It is within the scope of such cognitive activity to become aware of existential questions but it is not within its scope to answer them. Some other mental faculty may be necessary. What can one do to awaken such potential ability?

Again, there is no shortage of advice from various traditions about what it is that one should do, such as meditation, devotion, chanting, participation in rituals, moral behaviour, service, and so on. One can spend several lifetimes just sorting through the options. This advice is typically offered on the basis of some authority, often questionable, without any empirical support for its validity.

However, something works at least some of the time. For example, Douglas Baker has attributed his enlightened state to his spiritual activities, which included the practice of concentrative meditation (Barušs, 1996). But sometimes transcendent states of consciousness occur apparently spontaneously, as in the case of John Wren-Lewis, who, upon awakening from a drug-induced coma, experienced an altered state in which he has claimed that existential issues were resolved (Barušs, 2007).

We are scientists. We have expended considerable effort developing the capacity for nuanced rational thinking and a keen appreciation for the value of empirical evidence. Is there some way in which those skills can be harnessed for a soteriological enterprise? Can we redirect scientific activity in such a way as to effect a psychological transformation? And if so, would it work?

Yes, according to Franklin Wolff. Wolff was born in 1887. In 1911, he graduated with a bachelor's degree in mathematics from Stanford University,

then spent a year studying philosophy as a graduate student at Harvard, then a year teaching mathematics at Stanford, and then he retired in order to devote himself full time to the effort of experiencing transcendent states of consciousness. After 24 years he succeeded, and he spent the second half of his life, until his death in 1985, explaining as clearly as possible exactly what he had done and what had happened (Barušs, 1996, 2003, 2007; Merrell-Wolff, 1966, 1994, 1995a,b).

In particular, Wolff has claimed that a third cognitive faculty, in addition to the two of perception and rational thinking, which I have already mentioned, became activated as a transcendent state of consciousness occurred for him. He used the term "introception" to refer to this cognitive faculty and said that it is characterized by knowledge through identification with that which is known. This follows from Wolff's contention that transcendent states of consciousness are states in which the subject-object distinction evident in ordinary states of consciousness has disappeared.

In trying to convey the noetic validity of introception, Wolff has said that "the effect [of introception] upon the personal mind is that of unequivocal demonstration not unlike nor less convincing than rigorous mathematical demonstration" (Merrell-Wolff, 1995b: 277). According to him, there is a sense of logical inevitability inherent in such thinking.

Wolff has said that there is an inverse relationship between reality, as it is realized in transcendent consciousness, and appearance, which we experience in the course of our dualistic consciousness. When our thoughts are concerned with sensory perceptions or concrete objects, then the value of appearance is high, but their reality is low. Conversely, as our thoughts become concerned with more abstract ideas, we get away from appearance and reality increases.

At this point the reader can probably see where this is going. By engaging in abstract thinking, such as that which is required for doing mathematics, we are getting psychologically closer to a transcendent state of consciousness. But what else is required to bridge the gap? After all, mathematicians are not enlightened just by virtue of doing mathematics.

It is important to note that there appears to be nothing that can be done to legitimately command the occurrence of transcendent states of consciousness. Wolff has said this (Merrell-Wolff, 1995a), as have various other pundits. As far as I am concerned, that remains an empirical question. Nonetheless, it may be that all that one can do is to be adequately prepared for such an occurrence.

So the question is, "What can one do to prepare for the occurrence of transcendent states of consciousness?" For Wolff, there are three things. The first is mathematics, i.e., doing mathematics. The second is to do mathematics in such a way as to understand what you are doing, which Wolff called "philosophy." And the third is to develop an attitude of complete self-giving or sacrifice, which Wolff designated as "yoga." Together these three constitute "mathematical yoga."

The first two of these are obvious. But let me just say a word about the third. To begin with, scientists know all about sacrifice—the hours spent memorizing

synthesis pathways in organic chemistry, or finding solutions to the Schrodinger equation, or days spent under a telescope, and so on. There are often also substantial sacrifices of money, relationships, and health, for the sake of advancing scientific knowledge. But, upon reflection, I think that there is something else to which Wolff is trying to draw our attention.

In order to understand what that is, I want to direct the reader to a passage in which Wolff describes the transition between the ordinary and transcendent states: "I have passed up and down, as it were, between the relative state and this deeper state, and one thing becomes evident. At some point there's a shift which you instinctively call an inversion of consciousness. . . . At the point of inversion there seems to be something that is akin to what we would call a discontinuity in mathematics where one consciousness blacks out, and immediately another consciousness takes over. Now, there are times when I have deliberately passed up and down, trying to maintain continuity of consciousness here, and it couldn't be done. There was that discontinuity, very quick" (Franklin Wolff, 1966).

For Wolff, consciousness needs to black out for the transition to transcendence to occur. So, when Wolff talks about the complete sacrifice of everything, it seems to me that he is talking about the relinquishment of one's grip on that which is most immediate, that is to say, one's own consciousness. In the end, one's ideas, identity, awareness, and so on--everything must be given up, and control relinquished to an unknown process of transformation.

A question that is commonly asked of mathematical yoga is whether there is something special about mathematics or whether any scientific thinking or even just abstract thinking will do. I think the answer is "yes" for both alternatives. I think that the point here is the development of abstract thinking. And yet, for Wolff, there really was something special about mathematics, as revealed by the following statement that he made: "Mathematic is that portion of ultimate truth which descended from the upper hemisphere . . . into the Ādhāra with minimum distortion and thus become the Ariadne thread by which we may ascend again, most directly, most freely" (Merrell-Wolff, 1966). "Ādhāra" is a Sanskrit word for "container" and signifies the manner in which a transcendent aspect of oneself is embodied in its sheaths according to Hinduism (Bowker, 1997). The idea here is that we have wandered into an existential labyrinth and that mathematics is the purest expression of transcendent reality that we can find. All we have to do is to follow mathematics back out of this maze.

Yes, but how, exactly? Wolff has drawn attention to some transcendental numbers such as π and e as invariants that can help us amidst our confusion. For example, the ratio of the length of the circumference of a half-circle to its radius is a constant in the Euclidean plane. There is something inherently "objective" about it. And, indeed, such objectivity of mathematical constructions has long been a puzzle in the philosophy of mathematics, lending support to Platonist interpretations of mathematical foundations. Are transcendental numbers reminders of transcendence that can somehow liberate us? It is not clear how

that can happen. While attributing his enlightenment to the mathematical path, Wolff did also engage in other spiritual practices, such as turning his outward streaming consciousness through π radians in order to find the invariant subject of consciousness, not as an object but as a subject.

Thus, it remains to be seen whether this sort of mathematical yoga works. And I cannot emphasize that enough. Self-delusion is rampant when it comes to self-development and, indeed, is perhaps that which aspirants are most strongly advised to guard against by those who are serious about such matters (cf. Baker, 1975). Hence, a spirit of exploration is necessary in order to try out these techniques to determine their efficacy.

But there is something more immediate than ultimate transcendence to which I want to draw the reader's attention. Recall the inverse relationship between appearance and reality. As we get away from appearance and closer to reality, are there qualities of transcendence that can become apparent? I am thinking, in particular, about introception. And indeed, for Wolff, abstract thinking, when sufficiently refined, can contain elements of introception—a mixture he called "transcriptive thinking" (Leonard, 1999). Our thoughts can become vehicles for the transmission of something else. Thus, if this theory is correct, I would predict that engagement in abstract thinking would give rise to insights or anomalous content that would not ordinarily be expected. And, in keeping with the existential theme with which I started this paper, I think that abstract thinking is permeated with meaningfulness beyond its information-carrying capacity.

There is one more turn with all of this that I would like to take, although I do not know whether it takes us closer to or farther from the Minotaur. Over the years, as I have examined various accounts of expanded states of consciousness, I have become less convinced of the soteriological necessity of such states and more appreciative of the value inherent in understanding itself. For me, understanding is a primitive aspect of our psyches that receives input from ordinary and anomalous sensory processes, logical reasoning, and implicit cognition, including introceptual knowledge. And understanding deepens as we seek to see underneath the surface of life. For Wolff, transcendent states of consciousness eventuate, not by adding anything to our ordinary consciousness, but by removing the delusions under which we labour, so that we can see things the way they are. As scientists, as we try to figure out what is really going on, we are already engaged in a liberating process of self-transformation. I find that meaningful, even though I do not know the super-meaning.

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