Clive Staples Lewis (1898-1963) was one of the intellectual giants of the 20th century and arguably the most influential Christian author of that period. Lewis was born in Belfast, educated at Oxford, and taught medieval and Renaissance literature at both Oxford and Cambridge. As a scholar, he made significant contributions to the areas of literary criticism, children’s literature, and fantasy literature. His conversion to Christianity is well documented in his autobiography *Surprised by Joy*, as is his personal struggle with learning mathematics. He admits that he “could never have gone very far in any science because on the path of every science the lion mathematics lies in wait for you.” In spite of his lack of success in mathematics, Lewis, through his writings, exhibited a deep appreciation of the discipline. More specifically, Lewis’ thinking, as expressed in his writings, reflects two essential tools of a mathematician’s mind: ratiocination and imagination.

*Ratiocination* is the process of logical reasoning. Lewis enjoyed all mathematics that involved mere reasoning but was less fond of mathematical calculation. In his early training at Oldie’s School, Lewis claims only some geometry and grammar as accomplishments. In reflecting upon this time, he comments, “that though he [Oldie] taught geometry cruelly, he taught it well. He forced us to reason, and I have been the better for those geometry lessons all
of my life.” His tutelage later under Kirk (Mr. Kirkpatrick), though not imbued with mathematics, proved indispensable for his ration-cination skills. Later in life, these skills were made evident in his Christian apologetic works. In one particular situation – moral decision-making – Lewis applied his logical reasoning abilities to argue against total pacifism.

Given that there exists an absolute right and wrong, how can one proceed to make correct moral decisions? Lewis addresses this rudimentary question of morality in the essay “Why I Am Not a Pacifist.” The prototype for his argument is a geometric proof. While admitting that moral decision-making does not admit the mathematical certainty of a geometric proof, Lewis employs this approach to construct his argument. His method of reasoning involves three elements: 1) the reception of facts, 2) the recognition of self-evident truths (which Lewis calls intuition), and 3) the logical arrangement of “facts so as to yield a series of such intuitions which linked together produce a proof of the truth or falsehood of the proposition we are considering.” For the mathematician, these essentials are known, respectively, as: 1) definitions and theorems, 2) axioms, and 3) mathematical proof.

As for the facts, Lewis claims that disagreements often arise from differences in the perceived facts of the matter rather than from differences in logical conclusions. A fact for Lewis is that war is very disagreeable. However, the sentiment that wars do more harm than good is not a fact for him, but instead is a debatable issue and therefore needs justification. Consequently, sorting out the proper facts of the matter is a crucial first step. The second step is finding the intuitions.

In his book *The Abolition of Man*, Lewis labels the entire collection of self-evident truths as “the Tao” and claims that, “Unless you accept these without question as being to the world of action what axioms are to the world of theory, you can have no practical principles whatever. You cannot reach them as conclusions: they are premises.” The self-evident truths for Lewis relevant to this particular situation are simply that loving and helping are good, while hating and harming are not. But even these intuitions must
be qualified to some extent since helping one party might imply harming another.

The logical result, according to Lewis, based upon these facts and intuitions, is that complete pacifism is not practical. Furthermore, he claims that pacifism based upon human authority is very questionable and pacifism based upon divine authority rests upon a small portion of scripture (which he maintains can be interpreted in context to yield an entirely different meaning). He concludes the essay with these words:

This, then, is why I am not a Pacifist. If I tried to become one, I should find a very doubtful factual basis, an obscure train of reasoning, a weight of authority both human and Divine against me, and strong grounds for suspecting that my wishes had directed my decision. As I have said, moral decisions do not admit mathematical certainty. It may be, after all, that Pacifism is right. But it seems to me very long odds, longer odds than I would care to take with the voice of almost all of humanity against me.

Thus, Lewis chooses ratiocination as the method for tackling the question of pacifism. This tactic also can be seen in many of his apologetic works. Two noteworthy examples are his argument against atheism found in *Mere Christianity* and his argument against naturalism found in *Miracles*. In other places, Lewis opts for a second essential tool of mathematical thinking – imagination. Imagination is the ability of the mind to be creative or resourceful. Lewis’ gift of imagination is obvious in works such as the *Chronicles of Narnia* and his science fiction trilogy – *Out of the Silent Planet*, *Perelandra*, and *That Hideous Strength*. In one instance – the communication barrier that exists between the spiritual man and the natural man – imagination, of a mathematical sort, is used to bridge the gap.

Lewis discovered a significant truth of the Christian life – it is difficult to convey one’s beliefs regarding the spiritual realm to those who believe only in the natural world. Lewis addresses this
topic in his essay *Transposition*, where he challenges the reader to use imagination to overcome this predicament. To further to elucidate his ideas, Lewis draws heavily upon a work of mathematical fiction, *Flatland*, written by Edwin A. Abbott – a book which has as one of its goals the enlargement of the imagination. The situation Lewis describes in *Transposition* is analogous to the dilemma of effective communication that exists in Abbott’s novella between inhabitants of a higher dimensional world and inhabitants of a lower dimensional world.

In the essay, Lewis first juxtaposes a richer system and a poorer system to explain the relationship between the spiritual life (i.e. a higher dimensional world) and the natural life (i.e. a lower dimensional world). Lewis gives an example of the richer and poorer that is readily experienced, namely emotions and sensations. The emotional life is “richer” than the life of sensations because human nerves produce the same sensation to express more than one emotion. According to Lewis, it is impossible to find a one-to-one correspondence between such systems:

> Where we tend to go wrong is in assuming that if there is to be a correspondence between two systems it must be a one-for-one correspondence–that A in the one system must be represented as a in the other, and so on. But the correspondence between emotion and sensation turns out not to be of that sort. And there never could be correspondence of that sort where the one system was really richer than the other. If the richer system is to be represented in the poorer at all, this can only be by giving each element in the poorer system more than one meaning. The transposition of the richer into the poorer must, so to speak, be algebraical, not arithmetical.

Here we see that the richer system cannot relate to the poorer system in a one-to-one way. Thus, in the poorer system, multiple elements of the richer system must be represented by the same output or terminology. For instance, both joy and sorrow often yield tears.
To extend this analogy from the common natural experiences of our emotions and sensations to a discussion of the existence of the supernatural, Lewis gives this vivid illustration, inspired, no doubt, by the work of Abbott:

Even more, we understand pictures only because we know and inhabit the three-dimensional world. If we can imagine a creature who perceived only two dimensions and yet could somehow be aware of the lines as he crawled over them on the paper, we shall easily see how impossible it would be for him to understand. ... And soon, I think, he would say, “You keep on telling me of this other world and its unimaginable shapes which you call solid. But isn’t it suspicious that all the shapes which you offer me as images or reflections of the solid ones turn out on inspection to be simply the old two-dimensional shapes of my own world as I have always known it? Is it not obvious that your vaunted other world, so far from being the archetype, is a dream which borrows all its elements from this one?

Lewis continues the analogy with these thoughts about the natural man:

And the skeptic’s conclusion that the so-called spiritual is really derived from the natural, that it is a mirage or projection or imaginary extension of the natural, is also exactly what we should expect, for, as we have seen, this is the mistake that an observer who knew only the lower medium would be bound to make in every case of Transposition. The brutal man never can by analysis find anything but lust in love; the Flatlander never can find anything but flat shapes in a picture; ... On the evidence available to him his conclusion is the only one possible.

On the contrary, for the spiritual man, Lewis states, “At the worst, we know enough of the spiritual to know that we have fallen short
of it, as if the picture knew enough of the three-dimensional world to be aware that is was flat.”

So, through the use of imagination, Lewis completes his analogy. The natural man is akin to a Flatlander who cannot fathom the realities of a world of three dimensions. On the other hand, the spiritual man is similar to a Spacelander, whose attempts to communicate the existence of the third dimension to a Flatlander are constantly thwarted by the obvious restriction of using terminology and examples drawn from a world of only two dimensions.

In concluding the essay, Lewis claims that this same principle of transposition might enlighten others areas of Christian thought. First of all, transposition provides insight into the virtue of hope, especially hope that pertains to aspects of the afterlife. Listen to these words of Lewis in which the distinction between a higher dimensional form and its rendering in a lower dimension can still be heard: “But I surmise that it will differ from the sensory life we know here, not as emptiness differs from water or water from wine but as a flower differs from a bulb or a cathedral from an architect’s drawing. And it is here that Transposition helps me.”

Secondly, this principle of transposition sheds new light on the doctrines of the Incarnation and the resurrection of the body. In his work Miracles, Lewis perceives the Incarnation as God descending into humanity just as the Supernatural descends into the Natural. Lewis states: “We catch sight of a new key principle—the power of the Higher, just in so far as it is truly Higher, to come down, the power of the greater to include the less.” Furthermore, Lewis contends that the new nature of a resurrected body might be able to perceive dimensions beyond what is now observed: “It is useful to remember that even now senses responsive to different vibrations would admit us to quite new worlds of experience: that a multi-dimensional space would be different, almost beyond recognition, from the space we are now aware of, yet not discontinuous from it.”

Evidently, imagination was a means preferred by Lewis not only for communicating definite spiritual truths but also for grasping certain mysteries of the Christian faith.
Without question, Lewis, through his writings, demonstrated a high regard for the discipline of mathematics. More significantly, he effectively utilized two essential tools of mathematical thinking: ratiocination and imagination. In his autobiography, Lewis essentially agrees with this claim when he writes, “Yet, though I could never have been a scientist, I had scientific as well as imaginative impulses, and I loved ratiocination.” In his renowned apologetic work *Mere Christianity*, he asserts that “a mathematician’s mind has a certain habit and outlook which is there even when he is not doing mathematics.” Even though Lewis could not tame the lion mathematics, his writings give evidence to the fact that his mind had that same kind of certain habit and outlook.

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