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Think about Art; Imagine with Mathematics: Transdisciplinary Research

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Abstract

In this essay, I argue that art and mathematics share some properties in common, and the simple polarity that the former is imaginative and the latter, logical, is not correct. Instead, such overlapping elements suggest that they reveal a certain transdisciplinary realm, if you will, and this is owing to the fact that they are not simply isolated cultural products, but rather part of natural processes themselves. In light of this, one's attitude towards culture itself - that it to say, of individuals and society - ought to be produced and consumed with a sense of humility and awe, not to mention critique.

Keywords: *Art; Moths; Nature; Culture; Expression; Transdisciplinary*

INTRODUCTION

There is an ingrained assumption that art is a tool of the imagination, while mathematics is an instrument of logical thought. It would seem wholly justified: in art one conjures images; one creates surfaces; one designs; makes patterns and while "a story" may be depicted in sequential order, the form that it takes is an imaginative creation, removed from reality or any logical base. Mathematics, on the other hand begins with axioms and definitions and then proceeds from the simplest to the more complex, producing theorems, proofs and transformations deduced in linear fashion and indisputable and such logic can even be applied to explaining and predicting and manipulating the processes of nature. Mathematics is the language of nature, one of logic, one that would appear to be quantifiable. It is thus not imaginative fantasy at play but a rigorous process of logic, of linear thinking.

Nevertheless, in this essay I will give an account when this is not necessarily the case. I shall argue that 1) mathematics does not have to follow the law of identity, while art can. That is, mathematics is therefore also imaginative. 2) That art and mathematics operate internally and externally and vice-versa, neither actually dissociating this apparent polarity one from the other. The consequence is that 3) nature and culture are not clearly demarcated and this is what makes art and mathematics one of both discovery about the self as much as it is a discovery about the world (reality). One might then be in a position to make some tentative conclusions on a philosophical level.

A=A; A=B

The power of mathematical insight is not in itself its tautological nature, in which case it would have nothing to say, other than a cold separation of things, an isolated identity, whose interactions can never change its singular existence. While I do not maintain that natural numbers do not exist, they exist only because of first principles, and not because they are properties of things. Although the numbers 0, 1 to 9 are "givens", they can also be equated with many variations that make up these natural numbers. There are countably infinite variations. So, for a specific natural number n, there are q ways such that q = n, where q is alef null. So, the set A of n is a relation of set B of q and is aninverse function. In this sense A = B (or rather A is an inverse function of B), so one can say something new and not just that A = A.

And the reverse intuition can happen in art. Instead of the obvious fact that art is an illusion, that A is precisely not A (but B), a closer inspection counters this intuition.The exterior, the surface represents x, and even a radical nonobjective, abstract style, it is merely the facticity of its objecthood or an outpouring of the inner world in terms of the basic grammar of the visual arts itself – line, color, form, composition, scale and so on. That is the form is the content: A = A.

All mathematical signs / symbols are arbitrary and so therefore the surface of mathematics is no more logical than any imaginative construction. It is only in the context of a language that these signs / symbols assume meaning and coherence, that is, logic operates in the correct relationships between these signs (like words that make up sentences). The language of art is also well-defined like mathematics, in that, there are infinite possibilities within the various traditions of visual arts disciplines. It follows logic, a narrative is itself a construction, concealing perhaps other ideological ideas (hence art for most of its history was a puppet of either country or religion). Beauty in mathematics is not "thought revealed" but rather "imagination revealed" in that numbers do not in themselves exist. Yet miraculously these numbers work in their application to nature. Moreover, it is through this tool that what was once imaginative can be built in reality. Arts connection to reality is more tenuous: Art can be said to mimetically represent or describe; to create a new reality; to be an organ of state; to be simply autobiographical; to feed

nothing but a vacuous aesthetic impulse, a design as such; to educate; persuade and in all its multiforms would include popular culture. In this maelstrom, reality and fiction become difficult to discern, and imagination seems to overturn logic, where A= A, and instead in the equivalence A = B, neither A nor B is known.

In a sense, a picture and a symbol or operation in mathematics follow a similar design. A picture "stands for" in the same way that "x" stands for a particular variable. Only a picture requires little effort on the part of the viewer to identify whereas mathematics in a language must be learnt and mastered if a set of symbols and operations can be said to mean anything. That is why abstraction and the abstract in art was such a monumental paradigm shift: the image is not simply mimetic, literal, and descriptive. The "picture", the sensible can come to refer to the supersensible, and not simply in the sense that say a crucifixion might mean eternal life; or the suffering of the righteous for the many and other theological and ideological constructions, but rather as abstract art took shape and its genesis was a spiritual and ,metaphysical pursuit, so attentiveness to the quality of the elements of art themselves as indications of inner volition transcending a literal one-to-one correspondence with the material world or with accepted dogma and belief to an otherwise unlettered and uncultured mass. Art and mathematics then are both not disciplines open to all without some training, though one might say art comes more naturally to the child than numeracy and logic.

Are mathematics and the visual arts primarily instruments of the eye, an eye that seeks meaning, combining vision (both sensibly as in sensory and imaginative) and concept with sequential thought and logic, the domain of the ear? Yes. One can bring the following observations as "proof":

a) Both are empirical, consisting of forms (even in the case of Conceptual art) or signs.

b) Both are imaginative, consisting of arbitrary constructed forms or signs.

c) Concept – they function within a given system or as a discipline, so that concepts inform the system.

d) Logic or reason: so that within such a system, a languageemerges that makes sense, is sequential and creates a narrative, as it were. Math is written right to left and top to bottom, and even as art practice may appear to lose the logic of a system, its transformation into theory and history constructs a certain logic or narrative.

Inner-Outer; Outer-Inner

Combining these 4 points, a- d, one might reformulate the idea as follows: In art, one might work directly from nature or produce something without any reference to an objective world. There is a myriad degree within these strict ideals or polarities. Yet, in either case there is an oscillation between the one who fashions such forms and the references, imagined or otherwise, to which this expression thus assumes the form of an object, for example a painting, sculpture and so on. The inner realm of thoughts and emotions coalesce with the outer realm of images, forms, information, experience.

In mathematics, though not myself an expert exponent, similarly constitutes an innervation between the inner and outer realm. Only the "inner" dimension is pure thought or logic, the affective dimension may be the experiential joy, sense of aesthetic beauty and effort invested in calculation, while the outer dimension is the manipulation of symbols on a page, in much the same ways that Wittgenstein described a word as like a piece in a chess game, so the mathematicianplays a certain kind of game, emits a language, signs that mean something.

The problem is that art has been expunged of inner depth, while mathematics and sciences have been expunged of the uncanny magic of nature as the ability of reason to understand such processes assumes megalomanic omnipotence. In the first case, Duchamp upturned the ontological status of art – it could be anything and anything come to mean or represent anything else. Then later in the century, pop art overshadowed abstract expressionism. The result was a loss of metaphysical connection between marks on a surface and inner states, and rather the pop image denies sacredness and freedom and so the superficial, the technical and the surface dominate.

In math and the sciences, the discovery of underlying patterns has not meant the realization of the dynamics of nature as a miraculous cosmos, but rather one that can be manipulated to serve other motives – political, economic, commercial – rather than a sense of both been produced from nature and yet able – in some kind of transcendent way – to understand it and thence has a sense of the numinous therein.

The loss of an appreciation that art and math reflect the relationship between human and cosmic dimensions – under paradigm of the secular – has meant that both disciplines have lost their way or goal, and a rather careers to be followed or serve other more ominous interests. The search for truth is no longer considered relevant as the clutches of post modernism have dug its claws – proclaiming there is no such absolute or universal truthand yet in maintaining as such it asserts such a truth and so is necessarily self-defeating. The "woke" culture has not succeeded in even recognizing this simple and emphatic argument against much current academia that has spawned in its wake a valueless and empty society even in the name of education and social justice.

How then to (re)claim an inner dimension and a surface that thus reveal as such? By balancing the Classic and Romantic. That is to say, to on the one hand maintain form / surface / technical bravado / tradition and at the same time to add the values of individuality / depth / expression / originality and synthesized, art and math are redeemed. Art forms reflect the inner dimension, not simply social structures; identities; technical virtuosity, while mathematics is appreciated as the science of the miraculous cosmic dance, where pattern (in nature) and formulae correspond.

NATURE AND CULTURE

The most obvious reading is that both art and mathematics are cultural activities that use nature as part of their methods and operations but is itself a cultural phenomenon. Mathematics in this reading vaguely uses nature in the sense that numbers are properties of things, can be assigned to things, as well as quantities of magnitude describing the relationship between things – the use of mathematics for scientific endeavor – and a number itself implies "existence", a thing. In art, it is clearer. The mimetic and representational is more or less always a part of art, derived as it is from nature and the craft itself is a working through and with nature, that is, materials. Only it too is a cultural institution whose "game" or existence is contingent on social, intellectual, commercial, and ideological interests and is thus culture more precisely and not nature.

However, one may offer an alternative reading: The subject of art and mathematics, that is say, the one embroiled in such activities, namely some people, are themselves nature in action, the expression of thousands of years of evolution. Such expression need not satisfy the egotistical urge to call his drawings or his calculations, his culture, and so on, but are simply epiphenomenon of far larger processes, namely the processes of nature, which in turn the "mature" self understands in research such as in cosmology, biology, thehumanities and so on. Yet the emphasis is not on these latter studies as a transcendence, a point beyond nature, but simply a description of what is happening to man as a constituent part, an integral element within the dance of nature.

I cannot say for certain what Pollock meant when he was purported to have said that "I am nature". My understanding is that he was saying that his art was a direct expression of the very tangibility and instinctual expression that defines his art, and perhaps defines art itself. It implies that culture is an "illusion". This conclusion can be applied to mathematics. Recall Newtonto have likened himself to a child on the shores of nature. Though his laws of motion and gravitation appear to describe and explain in great abundance, he felt dwarfed by natures' immensity and thus immersed within it. His sophisticated thoughts are the rumblings of a mortal, and his civilization or "culture" is innocent (ignorant) and immature in the face of the immensity of nature.

Both Newton (and Einstein had expressed a similar sentiment) and Pollock express the idea that our "culture" is a mere playing just as nature itself does, so that the process that brings forth nature and the process that can understand and connect to nature is the same process. It is consciousness and awareness itself. Each person though is a world and if such a sense of sacredness is truly felt then imagining with mathematical logic or thinking with art is just one way that consciousness comes to terms with existence itself. Surely a healthy act of a creature regardless of whether it be called an act of nature or that of culture.

CONCLUSION

The arguments above suggest that it is a mistake to think that art and mathematics are pure, isolated realms, but rather a transdisciplinary overlap exists. This suggests a broad synthesis between the humanities and the sciences, rather than a strict polarity, a conception of things that are divided rather than integrated. Such a synthesisfurther suggest that nature is the underlying mechanism and culture the mere fruits of a much larger set of processes that cannot be divided up and understood under a particular discipline however much it further divides into sub-disciplines, for nature is ultimately mysterious, and thus the fruits of nature, namely culture, ought to be plucked with great awe and humility and healthy critique, and a blessing said before its consumption, and one of thanks following pleasurable satiation. If such an attitude were inculcated not as a religious duty as such, but as a spiritual reality and recognition that simply to function is miraculous, I wager on a better society tomorrow.

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