

## On Visual Mathematics in Art

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In the progress of this paper I have interspersed some reflections that we can collect into a general point of view on my art works. While the geometric style in the broadest sense can be classified in the art world as 'geometric abstraction', what actually takes place on the picture plane between form, space and color goes far beyond the limitations of such arbitrary labels. A complex underlying structure composed of straight lines, arcs, circles, elliptical sections, parabolas, hyperbolas, epicycloids, and spirals informs the viewer with a sense of controlled order and disciplined rational thinking reaching for a formalized mathematical perfection. In the final analysis, this geometrical structuring serves as no more than a foil for sensations for a more intangible and metaphysical (absolute) scope of vision. It is not the intention to present the viewer with a tasteful static equilibrium but to spark the imagination with suggestions of the powerful forces and processes operative on a universal scale. The work evokes ceaseless mobility, speed, time, space, growth, compression, tension, attraction, and the infinite nature of pure structural elements. The geometry provides the fundamental methodology for this dynamic expressive language. It is the personal vision that transforms this familiar vocabulary in mathematics into a unique transcendental syntax. If the circles were imagined on a larger scale they could represent the great circle that would bisect the celestial sphere or earth.

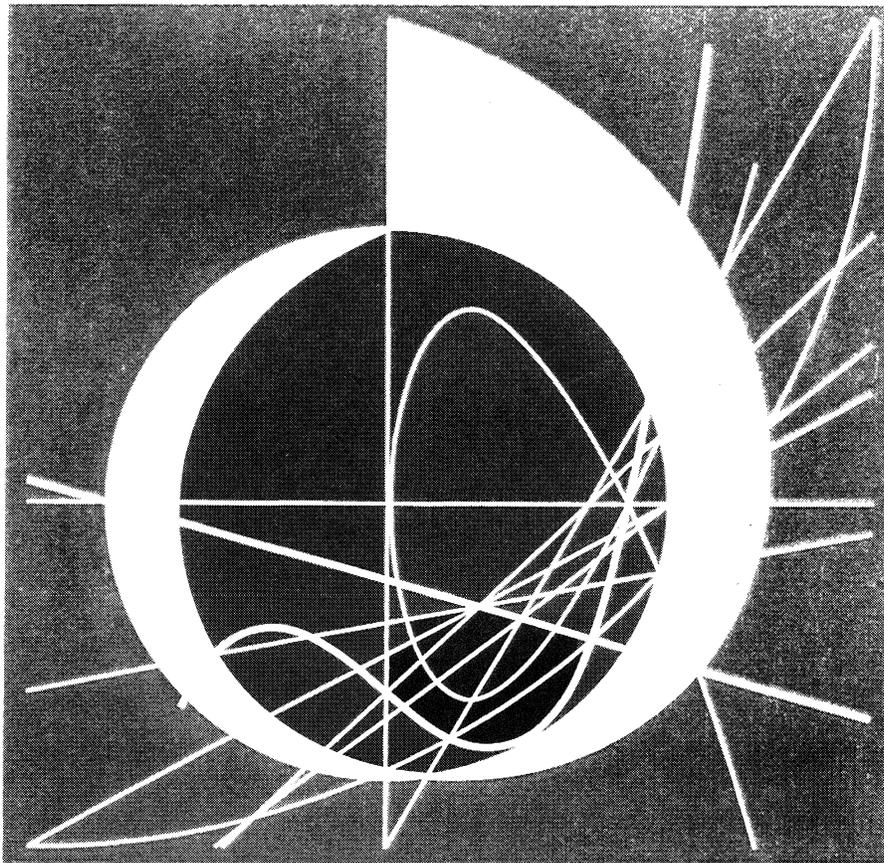
In understanding geometrical form there is classification of elements, functions, nonlinear approaches, and discussion of the accuracy of measurements, and of symmetry. There exists an internal configuration, and it is therefore possible to gain visual information from the order of the picture, its aesthetic qualities as well as the actual graphing and the pictures' corporeity. The latitude of geometrical method has many different examples of variations in the intensity of the forms and qualities: for example the dynamics of motion, gravity, flotation, and corpuscular unity. An intuitive design sense in conjunction with a practical mensuration is a major point. In this notion we see the continuance of a primordial condition that has carried from a first principle or element. Expressing a constant as the horizontal axis (longitude) in the graphing of the picture, and the variable (the varying intensity of quality throughout the picture) is the height on the vertical axis (latitude). The perimeter closes all of the formed figuration that represented the configuration or distribution of the varying qualities.

That a complex formalism is the foundation behind my paintings is a premise essential to the work in its constructible methods. Within the doctrines of the philosophy of mathematics, metamathematics includes questions of both semantics and syntax such as whether axiomatic systems are independent, consistent or complete. A transcendental extension field exists with applications to my art works. There is a duality of spatiotemporal reality between the physical and geometrical configuration that interpenetrate in superposition. Physical laws are simply applied to the geometrical configurations. The hyperbola can increase to infinity and therefore converge towards zero. The branch of the hyperbola bends more and more towards the x axis as the angle of the asymptotes become more and more obtuse. To look at far horizons we can imagine the far reaching parallel to our concept of nature and the physical world. In the totality of natural phenomena by enhanced approximations in the paintings we approach a system of reference  $x, y, z, t$  space and time by which these visual phenomena present themselves in agreement with geometrical rules and laws. H. Minkowski had introduced this fundamental axiom: *'The substance at any world point may always, with the appropriate determination of space and time, be looked upon as at rest.'* In painting it is my goal to capture a fragment of space and time although there is a duality where it is also rooted in singularity. In non-Euclidean space the geometry I have conceived consisting of the picture plane demonstrates an

independent singular universe. Geometrical space and structure is adequately explained in that we consider points, curves and geometrical surfaces as minute particles, fine paths or thread, and thinly veiled surfaces.

Collinearity, (of a set of points lying in the same straight line) a recurrent theme is never coincidental but is an inevitable outcome, forced in the same way that it occurs in the classical Theorems of projective geometry, such as those of Pascal, Brianchon, Desargues, and others. These mathematicians recognized that spatial situations that produce collinearity were invariably the result of deep underlying geometric truths. The incidence of a point on a line is invariant under the projective rules. If three or more points are collinear along a line, then incident with a straight line, the images will thus be collinear. Therefore, the characteristics of incidence, collinearity, and concurrence are principle requisites of my work. So, the geometry focuses as to the overall collinear connective intersections and edificial detail of the inner organization.

Everything around us has a history or combination of historical influences is noted or emphasized. As an artist there are issues such as historic perspectives, ranges of influences, and importantly the sources of reference that are available to choose from which includes aesthetic and/or rational decisions. For my work in art, I have gone from art to mathematics or shall we say an integration of the two disciplines in tandem. I had never imagined that geometry would be a commodity or tangible product with economy. I have always considered geometrical paintings as windows or devices for contemplation and thought.



Clifford Singer, *Continuity*, 1999, Acrylic on Plexiglas, 36 x 36 inches