

MATHEMATICS IS BEAUTIFUL: SYMMETRY IN ART, THE WORK OF ATTILA KOVACS

ATTILA KOVACS AND INGMAR LÄHNEMANN

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Solo Exhibitions (Selection): Galerie Hansjörg Mayer Stuttgart 1969; Kölnischer Kunstverein 1973; albers-kovacs, Wallraf-Richartz-Museum Köln 1976; Kunstmuseum Hannover mit Sammlung Sprengel 1983; Wilhelm-Hack-Museum Ludwigshafen am Rhein 1987; Kassák Múzeum Budapest 1991.

Group Exhibitions (Selection): operationen, Museum Fridericianum Kassel 1969; documenta 6, Kassel 1977; Deutsche Zeichnungen der Gegenwart, Museum Ludwig Köln 1982; Imaginer, construire, Musée d'art moderne de la ville de Paris 1985; Symmetry and asymmetry, National Gallery of Hungary Budapest 1989.

Publications: Manifest der transmutativen Plastizität, in: Attila Kovacs – Synthetische Programme, Städtische Kunstsammlungen, Ludwigshafen 1974;

Der ästhetische Raum, in: Galerie Hansjörg Mayer, Stuttgart 1969;

Die visuelle Relativierbarkeit eines Kreises, in: Attila Kovacs – Synthetische Programme, Kölnischer Kunstverein 1973;

Visuell, transformationell, in: documenta 6, Kassel 1977.

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Fields of interest: 20th Century Art; American Conceptual, Minimal and Installation Art; Computer Art.

Publications: The Interaction of Theory and Practice: A Dialogue between Brian O'Doherty's Inside the

White Cube and Patrick Ireland's Rope Drawings, in: Beyond the White Cube. A Retrospective of Brian O'Doherty/Patrick Ireland, Dublin City Gallery The Hugh Lane 2006, pp. 106–113;

Manfred Mohr. broken symmetry. Winner of the d.velop digital art award [ddaa], Kunsthalle Bremen 2007

Abstract: *The talk deals with the work of Attila Kovacs, a German artist working in the field of abstract art since the 1960s. During the conference he will show examples of his drawings. Within his artworks, (drawings, paintings and objects), Kovacs develops an entirely abstract, mathematical approach towards art production. The forms within his works are calculated, then drawn by hand on graph paper and later transformed in large scale paintings or even objects. The basic parameter for the development of forms in his works are symmetries. Symmetry in general has a long, important tradition in art - at least since early Renaissance times. As a background for the examination of Attila Kovacs' artworks and his specific approach the traditional use of symmetry in art will be analyzed, especially looking at modifications of this tradition in the 20th century. To work out the characteristics of Kovacs' unique procedure it will be compared with other artworks of the 1960s and 1970s.*

1 SYMMETRY IN ART AND ART THEORY

Beginning with the writings of Leon Battista Alberti and the development of the central perspective in Florence in the 15th century geometry in general and symmetry in particular are of central importance to art theory and art. The article will give a short general introduction about the innovations that occurred in Early Renaissance. They form the basis for all later references to mathematics, geometry and symmetry.

1.1 Leonardo and Dürer and the Symmetry of Man/Artist

Two Renaissance artists serve as examples for the early use of symmetry as a refined artistic concept. Leonardo's well known sketch of the ideal human figure in a circle and a square shows us how symmetry was imagined as the basic concept of man. Central to his own idea of the importance, the role and the mission of the artist is Albrecht Dürer's understanding of symmetry. While using geometry in many works and depicting its various ways of use by artists and scientists in engravings the conceptual aspect of symmetry is most clearly expressed in his famous self-portrait of 1500. This indicates that symmetry also means beauty in his approach.

2 MODERN AND POSTMODERN SYMMETRY

In the 20th century symmetry becomes a new source for art in many ways. As modern painters and sculptors rely on geometrical abstraction symmetry is no longer only an implicit element and a theoretical basis for art, but becomes an obvious parameter of the form of the artwork. We mainly find these views in constructivist positions of the 1910s and 1920s. Constantin Brancusi shows an important aspect of this approach in his *Endless Column* in which a single symmetrical form is used in a modular way to reproduce this form as a potentially endless spatial figure. However, we have to remember that the same constructivist developments are made of asymmetries in many cases. Relational artworks like Piet Mondrian's paintings depend on asymmetrical compositions although every element is symmetrical in itself. His attempt of a balance between universal and subjective forces directly leads to the relational conception of the paintings. This is an important distinction to Attila Kovacs' and many other artist's approaches.

Many artists of the early 1960s opposed Mondrian's constructivism on the one hand and Jackson Pollock's free individual gestures and expressionism on the other hand. They denied individualism in artworks whether it was as an element of the art theoretical position (like in Mondrian's work) or as a direct expression (like in many American paintings of the 1940s and 1950s). Already in Pollock's generation artists like Barnett Newman used a central symmetrical composition of his pictures to deny the relation of different parts within it. But he still based his paintings on a centre which was the so-called "zips" of his pictures and which was mirrored in the figure of the spectator.

2.1 Minimal, Conceptual and Computer Art

Minimal artists used symmetry as a basic theoretical concept again to oppose Abstract Expressionism and a constructivist relationalism. Sculptors like Donald Judd, Carl Andre, or Sol LeWitt imagined an axis of reflection in all their sculptures. They would never place one object in the centre of their artworks. Symmetry therefore becomes an exterior concept that defines not only the look of the object but also its relation towards the space and the spectator. As a theoretical concept symmetry itself generates the artwork.

Within the context of 1960s American Minimal art this additional function of symmetry is never more explicit than in the work of Frank Stella, who is a painter. He develops his pictures in a strict symmetrical way. The basic difference to the earlier use of symmetry in painting is that Stella denies the rectangular scheme of the canvas. In contrast to traditional picture planes and picture spaces the single linear element of his paintings generates their exterior form. Shaped canvases are one result of symmetry as a contemporary artistic concept.

American Minimal art is only one example for the new importance of symmetry in art in the 1960s and 1970s. Similar approaches and positions are found around the world. There are Conceptual artists that define their artworks by symmetrical parameters like Daniel Buren in France or Brian O'Doherty/Patrick Ireland in New York. One unique branch of art that emerged in the 1960s is Computer art, using symmetry as an object of interest in various ways. Especially in computer graphics mathematicians, technicians and artists transferred the mathematical process of calculations and of endless variations that happen within the machine mainly into visual geometrical forms. An artist like Manfred Mohr, one of the pioneers of Computer art, transformed this link to symmetry within his oeuvre to such a great extent that his examination of an ideal mathematical cube in various dimension is based on "broken symmetry". Despite the various forms of symmetry as an important element of art practice and art theory, no one relies on symmetry in the extensive and somehow existential way as Attila Kovacs. Therefore the comparison with other artists serves to put his work into a historical context, but also helps to distinguish his position from others.

3 ATTILA KOVACS' WORK

Attila Kovacs' use of symmetry and his specific forms are mainly based on mathematical calculations. Only Computer art is based on a similar use of mathematics, but Kovacs does the calculations and the drawings himself. Therefore one basic visual aspect of his artworks is the discrepancy between the exact calculated form and the hand-drawn line. Nevertheless there is no actual sign of individual expressionism or a characteristic line in Kovacs' drawings. He has a very rational approach. The drawings are generative in two ways. First, the forms within them are generated via a mathematical formula or concept. Out of a single line or form he develops many variations. Many of these are generated in a symmetrical way, along vertical, horizontal or diagonal symmetry lines; see Figure 1 and 2. This principle of addition is quite unique in art, although concepts like Brancusi's come to mind.

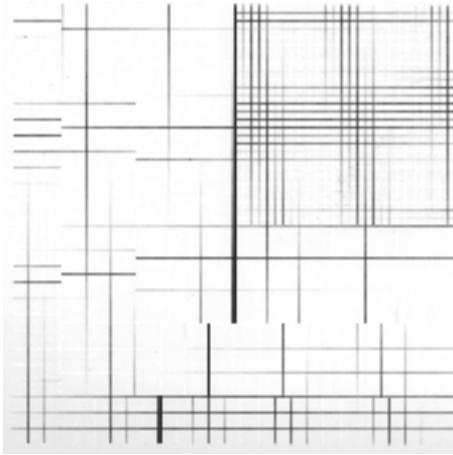


Figure 1: Endless vertical line in movement from left to right P9-1992, ink on paper

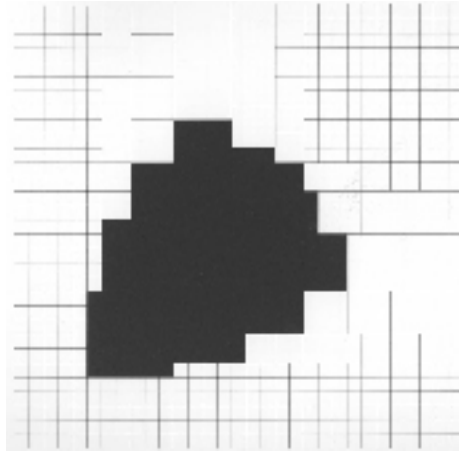


Figure 2: Frame of reference 1-1974 + Metasquare 6 x 6, 6F (1993), ink on paper

Furthermore, Kovacs' drawings can be called generative because he uses them to develop prints, paintings, and even objects. This has to be considered an important analysis of the media of art which is a mere replaceable variable in his oeuvre. His approach contradicts the traditional concept that each art medium has specific values itself. Despite the use of the hand drawn line Kovacs denies the traditional role of the artist as a creator who expresses individual emotions in his work.

Attila Kovacs follows his concept of symmetry-based, mathematically calculated abstraction as an art form in a very consistent way. Although his approach has to be analyzed in the historic context of the 1960's and 1970's art concepts, he maintains an exceptional position within abstract art. He found an ultimate form of generating his pictures. And he resumed his idea as "Mathematics is beautiful".