UNIVERSITY OF PÉCS FACULTY OF ART DOCTORAL SCHOOL

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GEOMETRIC PLAYFULNESS

COMBINATORICS IN CONTEMPORARY HUNGARIAN FINE ARTS

DLA DISSERTATION THESES

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"Sea cloud star ploughing
Staea cloar plougud sehing
Arse uda plouclou stahing"
(Sándor Weöres)

Combinatorics as a mathematical concept can seem serious and intimidating. However, it can also be playful, funny, and sometimes even emotional or sensual. In the quoted poem by Sándor Weöres, the syllables of four powerful nouns are constantly rearranged, creating completely meaningless word variations. This creates a grotesque and humorous expression of the fact that we often speak, write, and exchange details of meaningful words and thoughts through proliferating lines, but it is not certain that content is created. Wittgenstein says, "A word has no meaning, only the use of words." (*Esterházy,* 2003. p. 12.). In the poem above, the artist used mathematics, including combinatorics, to formulate his poetic idea, that the essence can easily be lost.

Combinatorics plays an extremely important role in Hungary. Mathematics professor Gyula Katona puts it this way: "There are areas of mathematics where Hungarian research is at the forefront of the world." (*Katona,* 2006). I complete the train of thought with my observation that, combinatorics is also found in various areas of Hungarian fine art, thinking in relational systems and contexts creates a specific network of ideas. From the 60s and 70s onward, the combinatorial structure, which is also related to structuralism and serialism but is distinct from them, is based not only on repetitions but on variations of repetitions. It often appears in literature, music, cinematography, and visual arts. In the works of Sándor Weöres, Béla Bartók, and Gábor Bódy, we frequently encounter this way of thinking, and according to my research, it also represents a significant trend in contemporary Hungarian fine art. One of the most interesting articles related to the topic is by the Catalan mathematician Lalli Barriere, who gave a presentation titled *"Combinatorics in the Art of the Twentieth Century"* at the 2017 Bridges Conference. The researcher analysed the artworks of Sol LeWitt, Vera Molnar, and Manfred Mohr from a mathematical perspective, but even from an artistic viewpoint, the summary raised exciting possibilities for me. Inspired by Barriere's article, in my thesis, I explore the Hungarian connections to this theme, which until now has been an unexplored area.

For example, consider the ABC store, the CBA store chain, or the ACB Gallery. By changing the letters in these names, the order of the elements, does the content change? -the

question may arise. Related to this, does interchangeability have any meaning in the visual arts? To answer this question, I examined several literary examples and found interesting parallels in the field of music. I conducted an interview with András Mengyán, who has explored this topic in a wide spectrum of his work, including flat paintings, objects, and installations. I focused on the works of Dóra Maurer, in which mathematics, including combinatorics, plays an important role. The works of Vera Molnar, particularly those related to permutations, are a significant part of my thesis. I also emphasized the contributions of Roland Kazi, Tamás Jovánovics, Barna Benedek, András Wolsky, Zoltán Szegedy-Maszák, Attila Csörgő from the younger and middle generations, and Kamilla Szíj and Gizella Rákóczy among the female artists. I found it important to highlight the role of my mentor, Ferenc Lantos, in relation to this topic, and I included some personal memories related to him in the thesis. It is significant that artists sometimes gravitate toward combinatorial thinking, even those from whom we might not expect it based on their previous work, such as Ilona Keserü, whose work related to this topic I discuss in the thesis. Looking further back, I consider the prehistoric fertility stone, the Kökénydombi altar particularly noteworthy, where the decoration, created thousands of years ago, was created by changing the horizontal position of the elements.

When discussing combinatorics, we are referring to an organizing principle and structure that can be found very early in the history of art and appears with different meanings in different eras and among different artists. Wittgenstein writes: "A statement contains the form of its meaning, but not its content. The statement sign consists of the fact that its elements, the words, relate to each other in a specific way." (*Wittgenstein,* 1956. p. 18.) My thesis explores these relational systems, not in the realm of words, but in the realm of images.

The first question—whether there are artists who work or think combinatorially—can be answered with a resounding yes. Hungarian artists also play a particularly important role in combinatorics. Dóra Maurer, András Mengyán, Vera Molnar, and Ferenc Lantos, among younger artists like Tamás Jovánovics, Barna Benedek, and Roland Kazi, and from the middle generation, Attila Csörgő, Tamás Waliczky, Zoltán Szegedy-Maszák, Kamilla Szíj, and Gizella Rákóczy, are all contemporary artists who incorporate combinatorial thinking in their work. The answer to the second question—what works were created in this way—is quite extensive. I first noticed this type of construction in Dóra Maurer's moving graphic entitled "We're Looking for Dózsa," but it later appears in her photographs and on transparent surfaces. András Mengyán uses it in planes, spaces, and installations, often in connection with light and sound. Ferenc Lantos plays with ink and screen printing through rotations and filling variations. The

third question—what are the similarities and differences between works produced with the help of combinatorics (*Barriere,* 2017. p.1.)—can be reflected upon in a complex way. The similarity lies in the fact that generally, none of the examined artists use all possible combinatorial elements. They create playful, fun works that rely on strong effects through comparisons. Dóra Maurer, András Mengyán, Barna Benedek, and Tamás Jovánovics mostly use permutations, while Ferenc Lantos, Vera Molnár, Gizella Rákóczy, and Kamilla Szíj more often use variations. András Mengyán, Dóra Maurer, Attila Csörgő, Zoltán Szegedy-Maszák, and Roland Kazi also experiment with the theme in space. Mengyán and Szegedy-Maszák use sound, light, and time to help realize their ideas.

After reviewing the above questions and considering both foreign and Hungarian literature, I formulated the following theses:

— The use of combinatorics in contemporary Hungarian art is rooted in tradition but also represents an innovative segment.

— It can be a display of playfulness, sometimes serving as criticism or a call to attention.

— It is characterized by the fact that the viewer creates new meanings from the variations of a finite number of elements.

— A common feature of works created with the help of combinatorics is the emphasis on context and the focus on the role of different interpretive possibilities.

— In contemporary Hungarian fine art, combinatorics is primarily a way of thinking that can appear with several techniques, the essence of which is that the same thing can transform into something else in a different environment.

— It has interdisciplinary possibilities.

Briefly reviewing some of the activities of Hungarian visual artists related to permutations, combinations, and variations, it can be said that combinatorics represents an extremely high-quality and exciting direction in Hungary, not only in the field of mathematics but also in visual arts. In the field of visual arts, combinatorics is primarily a way of thinking that is humorous, sometimes grotesque, and also formulates social criticism. Through its use, contemporary art can manifest the flexibility and fluidity of thought, emphasizing the importance of different points of view. Since it is also the basis of computer science, it opens up additional artistic possibilities.

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