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SPLIT PLYWOOD AS A PLATFORM FOR CREATIVE RESEARCH ON SYMMETRY. BETWEEN BEAUTY AND SYMMETRY, BETWEEN ART AND DESIGN.

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Abstract: *This article aims to demonstrate how creative practice resulting in a design-art exhibition can function as a platform to deliver knowledge and simultaneously collect data on the correlation between symmetry and beauty. The paper includes a short glimpse of my research of a series of split plywood pieces made by Israeli industrial designer Yaacov Kaufman (b. Poland, 1945) as part of his independent creative research practice. In my research, still in progress, I combine mixed-methods tools in my methodology, including curatorial practice involving exhibition visitors as external research participants. The artefacts analysis, supported by the preliminary results from the questionnaires, expresses how harmony and balance, terms frequently related to symmetry, are achieved thanks to intuitive decisions made as part of Kaufman's reflective discussion following repetitive actions. I argue that the never-ending struggle between art and design that especially characterizes Kaufman's professional identity, as embodied in the artefacts and in his reflection on his own process, plays a significant role in transforming the series into visual research examining symmetry as an inherent component of aesthetic perception. Kaufman's creative process moves between perfection and beauty to ugliness and imperfection, between the idea that everything is possible and the assumption that there may be only one answer: symmetry.*

Keywords: Industrial Design; Creative Practice; Symmetry and Beauty; Participatory Curatorship

INTRODUCTION

How can simple sheets of plywood crafted by a designer represent the tension between symmetry and beauty and contribute to the never-ending ancient debate on the principles of the beautiful? This paper introduces the creative material research on plywood by veteran Israeli designer Yaacov Kaufman, which became an inquiry dealing with the aesthetic value of mirror symmetry. Kaufman's artefacts produced visual accessible knowledge non-verbally. Presenting the conflict between art and design embedded in his professional identity contributes to the discussion of the relationship

between symmetry and beauty, and the way this correlation affects the aesthetic perception and judgment. This paper discusses concisely the mix-method analysis of a series of 22 plywood pieces that the highly skilled Kaufman split and opened with an axe, quickly and deftly, as an independent creative research practice. Later, the artefacts were exhibited in a solo exhibition curated by me, which I also used as a platform to collect data from the visitors as external research participants.

Kaufman's systematic rough act exposed the layers of the plywood, which became a rich surface to be observed in awe and explored by an experienced artist-designer. In his working process, he was forced to choose whether to be fascinated by the pleasing resulting material mirror symmetry, familiar all around – from nature to everyday products, or to take the opportunity to go against the natural tendency - resist and disrupt it, in the sake of expected creativity. This conflict is reflected in the artefacts that function as various possibilities to solve the tension, delivered through form and matter to visitors, in a conscious and unconscious manner.

AN OLD ARGUMENT AND NEW FORMS OF COMMUNICATING KNOWLEDGE

A long and continuous, multidisciplinary discourse exists between two central shifts regarding symmetry as a universal concept. Most theorists cling to the scientific view that since ancient times, symmetry has been a universal superprinciple of balance and harmony and, therefore, of beauty (Weyl, 1952; Voloshinov, 1996, p. 109). Alternatively, contemporary research raises doubts about the universality of symmetry as a law of beauty, as well as other principles, based on the different viewpoints and backgrounds of different interpreters, such as the perspective of the arts and humanities on symmetry as compared to the viewpoint of the exact sciences, for instance. (Leder *et al*., 2019, p. 106).

In most of the cross-disciplinary research, the analysis includes visual graphic tests made in two-dimensional form. This experimental research includes detailed artefacts, with a complex system of dominant characteristics that may affect the aesthetic judgment alongside the symmetry. In their simple twofold form, which has already been described as a simple pleasant aesthetic of symmetry (e.g., Shubnikov & Koptsik, 1974, pp. 7-8), Kaufman's artifacts resemble the familiar Rorschach inkblot test, except for the fundamental fact that the plywood layers produce much more detailed results than inkblots on two-dimensional paper and have the visuality of relief or engraving. I claim that the different objects in Kaufman's series may be perceived as symmetrical, and, therefore as beautiful, because the material feel, colours, orientation, and additional visual characteristics like the weighting of elements, create balance and harmony that viewers subconsciously recognize from the apparent symmetry in nature. Some of the traits contributing to the sense of harmony were uncontrollable, like the colourfulness of the different glues between the layers of the plywood. Others

are a result of Kaufman's decisions that followed the action of splitting, such as are displayed in a vertical orientation in a majority of the artefacts, whereas our eyes and mind are more used to recognize and link vertical orientation to mirror symmetry, than horizontal orientation (Friedenberg *et al*., 2021, pp 106, 115). Note that Kaufman is an industrial designer: compared to fine art, where symmetry can be approximate or dynamic, deliberate symmetry is essential in design and architecture as the disciplines responsible for producing everyday objects. Since the Industrial Revolution, precise symmetry became necessary for manufacturing purposes. Moreover, with the floatation of products, repetitions, alignment, or grouping of similar elements, became essential to create order and structural meaning in the environment, and to reduce informational overload (Salingaros, 2020, pp. 235-236).

Yaacov Kaufman (b.1945, Poland) is a leading, well-known Israeli industrial designer whose rich and diverse body of work is central to the local field on professional as well as pedagogical levels. Alongside the mass-produced objects he designs and his 40 years of experience in educating new designers, Kaufman uses manual tools and practices to explore different concepts and objects based on his own interests, as thinking by making. Over the years, Kaufman systematically explored mainly three-dimensional objects like stools, bows, alarm rattles, and figurines through formal and material experimentation. The outcomes of these creative practices are massive series of one-off objects, defined as design-art, functioning as an index of data. This experimental visual knowledge makes the viewers of his many exhibitions think and gain some understanding of a specific subject (Hamer Yacobi, 2020). In his most recent series, which I will present here, Kaufman addressed the most abstract, keystone element: mirror symmetry, as part of an effort to go back to his roots as an artist for a while and less as a design practitioner, and yet his current research began as material research in plywood. All of the artefacts are made of leftover plywood, a familiar artificial material he used to work with for years, in variable sizes, qualities and thicknesses. Kaufman stuck an axe between different plywood layers until he separated them and opened the material like a book.

The choice to work specifically with plywood, which developed vis-a-vis modern design and later became a symbol of high-class design and industrialization, expresses the dual professional identity of Kaufman, who began his career as an artist and later became an industrial designer. The plywood was Kaufman's main research material, but he quickly found himself fascinated by the geometrical structure that appeared as he opened the split plywood, as well as surprising unplanned results, like fractional splits or a hole in the material. He reproduced this significant moment over and over again, igniting the ongoing struggle in his mind, the duality in his professional identity (Kaufman, 2021):

> *I ask myself ... should I go with beauty or with ugliness? With the wrong or with the perfect? And what is all this wrong and perfect? I do look for it... the natural tendency of the designer is to do the perfect, but I'm looking for the wrong and it's very hard for me, like that hole [points at the artefact], because it goes against the tendency. It's a struggle between two lobes. Or assume above [pointing to part of an object] that we do not see the symmetry. And some other places have no symmetry. And I ask myself, okay, so why... the symmetry is the stamp of quality [laughs] - as to whether it is displayed or not displayed?!*

I argue that this speculative struggle arising from Kaufman's self-reflection after every split, driven by the abstract concept of symmetry as an aesthetic factor, also represents the conflict between art and design, as previously explained. Continuing that moment in the process, some of the plywood objects were left with the initial symmetry that appeared naturally from the split, while in other pieces, Kaufman challenged and disrupted the symmetry through various technical manipulations like rotating, moving, painting, or switching.

In my doctoral dissertation, I examine the potential of a mix-method research methodology to combine three angles of view: my theoretical analysis of the objects; information obtained from qualitative open interviews I held with Kaufman; and quantitative data I collected from visitor questionnaires in an exhibition which I curated.[1] The exhibition presented here was a unique opportunity for me as a scholar and curator to check my assumptions with the visitors as external participants. I believe this kind of integrated methodology, involving various practices, is necessary for the interdisciplinary field of design that requires different research protocols. In addition to the increasingly involved external participants in developing exhibitions among museum professionals (e.g., Mygind *et al*., 2015, pp. 117-118), there are some examples from the design field of involving visitor-participants in data collection as part of academic research methodology (Nimkulart, 2012, pp. 6-7).

Twenty-two visitors were asked to judge the aesthetic of 22 works in the exhibition intuitively and anonymously by ranking the values of *beauty* and *symmetry* from 1 to 5, in a digital questionnaire during their visit. The visitors also received an open-ended section where they could share any idea, thought, or comment regarding the object they just ranked, (which I will not be able to discuss here). Those simple, direct characterization rankings allowed me to analyze the connection between symmetry and beauty, integrating visitors' opinions[2]. A brief reading of the preliminary results apparently indicated a clear link between beauty and symmetry, while in most of the objects, a high rating of beauty (4-5) matched a high rate of symmetry. But a deeper data analysis, considering the average grade of every artefact in each one of the values, shows that in most cases, there is not necessarily a correlation between symmetry (S) and beauty (B) (See Table 1). Artefacts with a high rate

of S, in most cases, received an average or even low rate in B, and vice versa. Interestingly, both the highest-rated artefacts in B (No. 4, Figure 1) and S (No. 11, Figure 2), received a low score on the other value, and the biggest difference between both values, as we can see in Table 1 (bolded). The only artefact with a perfect match between S and B is No. 3 (Figure 3), while both received very high scores (3 out of 22). Interestingly, however, in the low values at the bottom of Table 1, we can see a different tendency due to a few cases with much closer rankings between S and B. We should take into consideration that, in general, the values of B are much higher than those in S. This may be explained by the probability that visitors did not feel comfortable saying that some object is not beautiful, despite having been told the survey is anonymous, and that the artist supports the experiment. Involving personal aesthetic taste apparently seemed to go against every exhibition experience for visitors.

Figure 1 Yaacov Kaufman, Split, Artefact No. 4, 2021 (Photo: Shay Ben-Efraim, courtesy of Benyamini Contemporary Ceramics Centre)

Figure 2 Yaacov Kaufman, Split, Artefact No. 11, 2021 (Photo: Adi Hamer Yacobi)

The results raise doubts about symmetry as a law of beauty, at least when it comes to artefacts with a dominant feel of materiality, like the split plywood. We can assume, that except for the familiar mirror symmetry, there are other factors derived from the material characteristics that impact our judgment and taste and may contribute to the sense of harmony and balance. Observing the most beautiful object, according to the questionnaires (Figure 1), may raise the possibility that the action of breaking the symmetry and balance should be done in an ordinary way as well, and that the intention should be clear. The minimalist and high contrast appearance object represents an interesting example of dominant aesthetic factors outweigh the symmetry, which has not been precepted intuitively.

Table 1. The ranking in every parameter (B=Beauty, S=symmetry, followed the artefact number) from the highest to lowest. (Case studies discussed in the paper are bolded)

	Beauty			**Symmetry**	
1	**4B**	**4.77**		**11S**	**4.5**
2	19B	4.45		8S	4.41
3	**3B**	**4.41**		**3S**	**4.36**
4	20B	4.41		10S	4.32
5	17B	4.36		7S	4.09
6	6B	4.32		9S	4.09
7	14B	4.27		5S	3.95
8	1B	4.23		22S	3.91
9	8B	4.18		14S	3.82
10	16B	4.18		18S	3.82
11	7B	4.14		20S	3.59
12	9B	4.14		23S	3.23
13	10B	4.09		13S	3.14
14	23B	4.09		19S	3.05
15	**11B**	**4.05**		17S	2.91
16	13B	3.91		**4S**	**2.82**
17	21B	3.91		16S	2.82
18	5B	3.86		6S	2.59
19	2B	3.82		21S	2.55
20	22B	3.82		1S	2.5
21	18B	3.68		12S	2.23
22	12B	3.36		2S	1.91

CONCLUSION

An analysis of design-art objects combined with mixed-methods demonstrates how visual objects made intuitively by designers for their own inquiry may offer an interdisciplinary perspective and communicate tangled subjects. Kaufman's practice and artefacts represent conflicts driving his creative process between aesthetics and function, and between art and design. This conflict embodies the perpetual debate about the correlation between beauty and symmetry, their dependency relationship, and how it may affect our aesthetic perception.

This paper shows how the artefacts embody the discourse on symmetry, forming part of an exploration of a new type of research methodology originating from the design field, using its multidisciplinary nature and flexibility. I demonstrated how the abstract artefacts, made with the same technique applied to the same material, and displayed in an exhibition, function as a communicative platform to contribute to the philosophical debate of symmetry. Visitors at the exhibition also became research participants – they learned about the subject through visual stimuli in an accessible approach, and simultaneously shared their thoughts about it.

Figure 3 Yaacov Kaufman, Split. Artefact No. 3, 2021 (Photo: Adi Hamer Yacobi)

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[1] Read more about the exhibition in this link.
[2] As a disclaimer I will state, that although this experiment evolved and was insufficiently prepared, with a low number of participants, it does illuminate the potential of using such a tool in the framework of an art or design exhibition.

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