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Space Conceptions in Visual Arts

Geometry Encounter
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The following presentation focuses on the pedagogical contents (syllabi) of the study courses that I teach at the theory department of the Academy of Fine Arts and Design (ALUO), University of Ljubljana. My main teaching subjects are Theory of Space in Visual Arts and Space Conceptions (I., II., III.), which are carried out at both bachelor's degree and master's levels.

The acquisition of knowledge in the frame of these courses accommodates to the rather traditional and linear structure of the pedagogical program at our Academy, which means that students begin with drawing and sculpture after a model, adopting the mimetic approach to the subject in the first year of study, and then they gradually progress towards more conceptual or expressive and individual creative ways. In the beginning, students acquire basic knowledge on visual and formal pictorial elements, such as shapes, lines, colors and textures, and gain insights into the rules of composition, space illusions and volume. In this way, students can gain observation skills and acquaint themselves with representation techniques, and then the study becomes progressively more defined by their own motivation, interests and abilities at the higher levels.

A/ Following this linear educational model, the teaching of **Spatial Conceptions I (BA),** which takes place in the first year of undergraduate study, begins with the presentation of elementary visual, formal and conceptual aspects of space illusion techniques. The teaching includes building knowledge on the specificities of diverse systems of space representation encountered in the history of visual arts, such as perspective pictorial illusions, multi-dimensional space perception, abstract pictorial modes or conceptual and virtual space simulations. The outline of general spatial categories and the differences between the real, the mental and sensorial space, is paralleled with explanations of the basic theories of phenomenological, philosophical, scientific and sociological approaches to space comprehension.

The main focus at this level of study is gaining an insight into the formal use of depth keys (keys of illusion) such as the location of objects in the visual field, deformation of forms and textures, the relation of form and background which creates a depth effect, or how shape overlapping and size graduation contribute to forming an illusion of space. Students get familiar with modes of using light to create spatial effects such as chiaroscuro, modulation, cast shadows, transparency, arial perspective, sfumato and light projections. They focus on the relationship between space and color by learning how to use color contrasts to create spatial effects or color perspective, and finally students also learn about projections and geometrical perspective principles: they learn the rules of linear perspective drawing and axonometry, and how to draw different kinds of objects (oval, rectangular) in perspective, and they acquire the skills and knowledge related to depicting shadows, reflections and measuring distance in perspective.

In the frame of the first year of study, students also prepare a seminar work: a theoretical analysis of the space structure of a given artwork - which can be realized in any kind of media - realist, abstract or conceptual painting, sculpture or installation art. First year students also need to produce a set of practical assignments (drawings), where they need to apply different kinds of space illusion techniques or depth keys, such as color, light and form to create spatial effects.
A particular focus is given to learning the rules of geometrical space representations, therefore students need to: a/ draw the (equal and non-equal) spaces /distances in perspective, construct a staircase or a structure of chessboard ground in perspective; b/ represent basic geometric shapes in perspective: circles, ovals (ellipses), squares and cubes in perspective; c/ draw cast shadows, projections and mirroring in perspective; d/ they need to produce drawings of space in one, two and three-point perspective: starting from the ground plane or by structuring a perspective drawing based on positioning the vanishing point, the horizon and the diagonals in the visual field.

B/ Spatial Conceptions II., III. (BA) and **Theory of Space In Visual Arts (MA)**
In the second and third years of undergraduate studies and at the master's level, classes get strictly theoretical; students need to present their seminar research work and pass the oral exam at the end of the year. There is no practical assignment to be done at these levels of study but the idea behind the teaching is to inspire students' practical work with some concepts and reflections on space, by shedding light on how these are explicit and expressed in a variety of forms in modern and contemporary visual art.

The teaching content of the courses Spatial Conceptions II., III and Theory of Space in Visual Arts is evolving around analyzing representations of space in the art of the 20th and 21st centuries. We overview key movements and artists that changed the understanding of the relationship between the work of art (picture, sculpture) and the exhibition context, as well as focus on the relationship between science and art by illuminating how scientific ideas and models of space and reality inspired certain avant-garde artists of the 20th century. The questions that guide my teaching are: how did the modes of space representation change according to contemporary scientific paradigms; what is the role of perception in space apprehension and representation; and what is the influence of technological tools (geometry, optical devices, digital tools etc.) on approaches to space representation.

The study courses are organized around five main topics in space theory:
1. Analyzing works of art that were inspired by theory of relativity and visualizations of Space-Time at the beginning of the twentieth century in constructivism, suprematism, cubism, and Bauhaus, and the avant-garde artists' attempts to depict multi-perspective visions of relative space.
2. How the idea of negative space (idea of emptiness, materialization of the Void) inspired works by Y. Klein, M. Rothko and B. Nauman)
3. Art, nature, perception (landscape painting and the sublime, impressionism, Land Art, Earth Art, Nature and abstraction in painting)
4. Installation Art (perception and dematerialization)
5. Virtual space (immersion, participation, interaction) and the influence of the contemporary scientific space paradigm (complexity, non-linear dynamics, fractals) on art.

I. The cycle of lectures dealing with the first topic focuses on the explanation of Einstein's theory of relativity (space-time category) and its influence on cubism or the artistic interest in representations of movement in the case of futurism. We analyze

spatial projections and ideas of the 4th dimension (using, for example, Duchamp's Large glass) as well as constructivist obsession with movement (Tatlin, Rodchenko). We discuss suprematist ideas of non-objective, infinite space (the case of El Lissitzky's Prouns, K. Malevich), experiments with space, light and movement in Bauhaus and constructivism, with a particular focus on Moholy-Nagy's kinetic work Light and Space Modulator, which combines material elements with those that are immaterial (such as shades and projections) as equally important parts of the artwork.

We thus highlight how artistic attention to materials and techniques used in the creation of a given artwork gradually increased in certain avant-garde movements (collage and assemblage techniques in dadaism or cubism), and stress specific tendencies that transformed the entire exhibition space into an artwork (proto-installations). These tendencies were expressed among artists who were searching to incorporate the particularities of gallery space into their work, as in the cases of K. Schwitters's Merzbau, Tatlin and Rodchenko's Café Pittoresque or El Lissitzky's Room of Prouns, where his previously floating pictorial spaces take form in 3dimensional space.

II. The second topic discussed in the frame of Space Theory is the focus on the technical paradigm of imprint (index) and the materialization of 'negative space'. We thus tackle the idea of emptiness and tactile space as manifested by M. Rothko's dematerialized color-field painting on the verge of disappearance; spatial illusion and mental depth in Y. Klein's monochrome painting or his conceptual exhibition of emptiness at Gallery Iris Clert; we illuminate, among other things, how Bruce Nauman paid attention to negative forms in his castings of negative spaces that surround objects.

III. The conceptualization of landscape: art in nature (Land Art, Earth Art in nineteen-sixties and -seventies), which was historically connected to the artistic representation of the sublime. The conceptions of the sublime and infinite space are expressed in Turner's landscapes which function as dematerialized screens of light and color. Due to their dissolving of forms and lack of representational content, these paintings are regarded as the first historical abstract paintings. A portion of lectures is devoted to illuminate impressionists' preference for depicting atmospheres in motion while working with the viewer's perception through the particular use of pictorial material. Special focus is given to Monet's water landscapes that act like immersive decentered spaces which entirely absorb the viewer's perception. Special attention is paid to the explanations how land art and earth art artists transformed the natural environment into art-*situations, where the separation of art and nature is completely denied.*

IV. Installation art in the 20th and 21st centuries has derived from space conceptions where space and the ensemble of elements within it are regarded as a singular entity. Installation art creates a situation of embodied perception; it is an art form into which the viewer physically enters and which addresses the viewer directly as a literal presence in space. Installation art thus engages an embodied viewer whose senses of touch, smell, and hearing are addressed equally as his vision. The rise of installation art coincided with the proliferation of critical writings on perspective space representation at the end of the nineteen-sixties. The Renaissance perspective placed the viewer at the center of a hypothetical 'world' depicted in the painting; the line of perspective, with its vanishing point on the horizon in the picture, structured a hierarchical relationship between the self-centered viewer and the 'world' of the painting spread before him; virtually included and projected into the perspective

space representation, the spectator maintained the dominant position towards reality. Poststructuralist theories, which appeared in the nineteen-seventies, seek to provide an alternative idea of the viewer to the one implicit in the Renaissance perspective: instead of postulating a rational, self-centered, coherent humanist subject, poststructuralist theory argues that each person is psychologically divided and dislocated; human subjects are fragmented, multiple and decentered by unconscious desires and anxieties.
The conception of space in Minimal art is based on the phenomenological idea of subject-object unity, with the central part played by the spectator himself. The notions of immersion, participation and embodied experience are further exemplified by the contemporary forms of installation art that deals with site-specific spatial conditions and the phenomenology of seeing and feeling, thus heightening the role of the viewer's perception.

V. Analysis of virtual space (simulation, immersion, participation, interactivity, hyper-reality) and the influence of contemporary scientific space paradigm on art (New Media Art, Video, Installation art).
- The influence of contemporary scientific explanations of space on visualizing space in art. Chaos theory, complexity and non-linear dynamic systems, fractal geometry (vs. euclidean geometry) or string theory explain fundamental forces and forms of matter in terms of vibrational states, supersymmetry, self-similarity etc., in turn uncovering the hidden order of seemingly chaotic structures and phenomena. The formative and growth processes behind all natural phenomena reveal laws and structures that repeat themselves at every level of existence. Contemporary artworks based on natural phenomena and the formative processes behind them (magnetism, gravity, levitation, crystallization, fractals and similar) present explorations and simulation of the natural. Explorations of microscopic-level and nano-scale dimensions embody certain macrocosmic questions related to our perception of time/space, perception of matter, life and being.
- Contemporary spatial concepts, postmodern space and virtuality
Contemporary reality in the process of gradual (progressive) digitalization has set up new forms of virtuality, introducing new intuitions of space concepts in the field of aesthetics, art and science. Over the last few decades, the interdisciplinary intersection of various media genres (film, photography, art, architecture and science) has constructed new forms of space inventions. Such media fusion occurs under a strong influence of digital technology, since thoughts, words and visual representations tend to be largely construed and manipulated in a virtual space - the contemporary form of the technologically expanded reality.

Contemporary techniques of space presentation are structured in line with the logic of the digitally generated environment, which is no longer described by the terminology of types, signs, structures and splits, but rather by concepts of networks, folds, layers and translucence, pointing to the forms of contemporary fluid, warped and multi-layered space.