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LEARNING
ARCHITECTURE

PROCEEDINGS

**CHAPTER 1 INNOVATION IN ART, ARCHITECTURE, SCIENCE
AND TECHNOLOGY IN THE DIGITAL AGE**

**CHAPTER 2 INNOVATION IN INFORMATION TECHNOLOGY –
– IMPROVED USE AND USER EXPERIENCE**

**CHAPTER 3 INNOVATIVE SOLUTIONS AND LEARNING
IN METHODOLOGICAL APPROACH AND DESIGN**

**CHAPTER 4 MODELING FUTURE ARCHITECTURE AND DESIGN
WITH ENVIRONMENTAL AND SOCIAL IMPLICATIONS**

**CHAPTER 5 CHALLENGES IN ARCHITECTURE AND URBAN DESIGN –
– FACING THE CLIMATE CRISIS, SUSTAINABLE PRACTICES**

CHAPTER 6 ART OR ARCHITECTURE AS INSPIRATION

POSTER SESSION

ON ARCHITECTURE
LEARNING ARCHITECTURE
PROCEEDINGS

Belgrade, Serbia
2020

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- CHAPTER 1 **Innovation in Art, Architecture, Science and Technology
in The Digital Age**
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and User Experience**
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in Methodological Approach and Design**
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PREFACE

The theme of the 8th International Conference ON ARCHITECTURE, entitled LEARNING ARCHITECTURE follows the basic concept realized and developed at previous conferences of a multidisciplinary approach to the topic of architecture. Whilst extending research and the importance of understanding architecture the Conference theme is exploring UNESCO Learning City platform. Starting from the seventeen sustainable development goals, in particular making cities and human settlements inclusive, secure, resilient and sustainable, the role of architecture is considered as the basic artifact of urban structure. In all important aspects to understand the contemporary city and the processes that determine it, to consider the position and role of architecture and urban design, as well as the contribution of art and science, through the analysis of best practice that advance the life of the city.

Some key themes that interest the organisers and Programme Committees are:

- Best practices - learning city revitalizes learning in communities, extends the use of modern learning technologies and fosters a culture of learning throughout life
- Modeling the Future - modeling future architecture and design with environmental and social implications,
- Smart Design - in architecture, urban design, street and home furniture, lighting
- Technology and Architecture - how the use of digital technologies transforms the work process (BIM)
- Scientific research and architectural practice
- Innovative solutions in methodological approach and design in the use of materials
- Art as inspiration
- Playing City - gamification in urban design and town planning,
- Innovation in art, architecture, science, and technology in the digital age
- Innovation in information technology - improved use and user experience
- Challenges in Architecture and Urban Design - Facing the Climate Crisis, Sustainable Practices

Editor

METHODOLOGY OF HYBRIDIZATION IN ARCHITECTURE: ELEMENTALITY READINGS IN AXONOMETRIC DRAWINGS

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ABSTRACT

The subject of this paper is hybrid architecture, and the topic of research is the methodology of architectural hybridization with an emphasis on its elementality. Hybridity in architecture is defined as a tendency to transform and take on new forms, in terms of shape and function, manifesting itself through formal transformation or exclusively, through the perceptual apparatus of the user. This paper seeks to investigate the process of hybrid formation in architecture through the principles of hybridization and, closely determine and define the concept of hybrids. Hybrid is seen as a re-interpretation of architectural thought and concept that is a consequence of changes in stylistic order and reactions to reconfigurations of cultural and social formations. According to this, the problem of hybridization is examined through case studies mapped through different stylistic periods. Each case study will observe the process of formation of one of the hybrid objects. For the purposes of this paper, a special methodological apparatus has been established - diagrammatic mapping of the principle of hybridization through an axonometric graphical representation. Combining the instrumental technique of diagram mapping and the representative technique of axonometric drawing, the established apparatus relies on two procedures: analytical representation of the bare structure and synthetic implementation of potential programs inhabiting it. Therefore, each case study will be subjected to diagrammatic mapping which will result in the definition of general and particular methodological formations of hybridization, as well as the basic principles of hybridization.

HYBRIDITY IN ARCHITECTURE

Architectural theory recognizes the hybrid as a principle or state that should ennoble today's consciousness through a re-examination of previous (historical) models and patterns of the design process and causes the acceptance of a polyvalent social, cultural and stylistic order. The discursive framework that is formed between architecture on the one hand, and the culture studies and philosophy on the other, enables the research of hybrids through the concept of the liminal state. Hybridity in the field of architecture and urbanism can be mapped in different periods and stylistic formations throughout history. Manifesting in different ways, hybrids occupy an important place in architectural practice and theory, and especially in the context of changes in stylistic order. However, a clear definition of the term has not been formed and architectural theorists and architects use it in free interpretation.

The term hybrid appeared in the field of architectural theory in the second half of the twentieth century, although, throughout history, various works of architecture can be called hybrid. Joseph Fenton¹, in his attempt to define hybrids, states that hybrid architecture is a new paradigm in architecture with "old meaning". (Fenton 1985) Josef Fenton believes that hybrid objects are a way of solving economic and design problems, caused by socio-political circumstances and reduced spatial resources. Kisho Kurokawa² talks about hybrid architecture through existence in symbiosis. He states that such architecture is a response to the demands and experiences of tradition and innovation of modern technologies. He believes that the rhizome, as a system based on a hybrid concept, will become the basis of the current and future development of society and culture. Rem Koolhaas, through several of his essays, argues on the topic of identity and culture in the context of architecture and urbanism. He claims that it is necessary to establish new, multiple concepts and ways of planning and designing in order to satisfy modern social needs. He also believes that the new architecture should be freed from historical associations and archetypes. He advocates heterogeneous and liminal structures, of rhizomatic character, which will not be limited by traditional experience and historical design principles. On the other hand, Fenton and Kurokawa advocate hybridization by interpreting historical models, but through fusion with modern technological and social achievements. All three authors, however, endorse an identical approach to hybrid design - through its liminal character and rhizomatic potential for growth and development. For them, hybridity in architecture is a tendency to transform and take on new forms, formally or programmatically, manifesting itself through material transformation or exclusively through the perceptual apparatus of the user. This paper seeks to investigate the hybrid formation *process* in architecture and to determine it more closely on the basis of that process. In the field of genetics, a hybrid is defined on the basis of the formation *process*. If, in addition, we take into account the discourse of the social sciences and humanities, which defines hybridity as a process of "constant crossing, transition and mixing" (Garcia Canclini, 1995, str. 422) and as a liminal state, then it is necessary to investigate in detail the hybrid formation *process* in architecture.

HYBRID FORMATION PROCESS: GENERAL AND PARTICULAR METHODOLOGY

The methodology of this paper is based on mapping and recording hybrid architecture through different historical periods. For these purposes, a linear map was formed - a time diagram - which records hybrid objects in the time period from the 17th century to the present day. It presents a list of selected works of architecture that represent the hybridity of a given period in the best way. Roughly defined stylistic periods can be seen on the map, arranged chronologically: baroque, neoclassicism, modern, postmodern, contemporary architecture. Art Nouveau is mentioned as a stylistic order in the transition from neoclassicism to modern, as well as the current architecture, belonging to contemporary architecture and marking the current state of the profession (in the period from 2005 until today). These stylistic formations were selected as the most dominant in the observed timeline and as a reference base for hybrid architecture research. The Baroque period was chosen for the beginning of the diagram because of its eclectic character and the way in which it originated in architecture, art and culture. According to historians, the Baroque was created in response to the Renaissance closed and singular forms. Breaking that constant in architectural creation, which originates from ancient Greece, Baroque artists and architects searched for innovation, new meanings and dimensions. Changes are taking place in established patterns from the past, and many elements of the Renaissance have been brought into new interrelationships. That myth of the pure is shattered and the elements and relationships become more complex. Baroque architecture is characterized

¹ Joseph Fenton is an American architect and critic. He worked with Stephen Hall on the editing of Pamphlet Architecture magazine, which was published by Princeton Architectural Press.

² Kisho Kurokawa was a famous Japanese architect and one of the founders of the metabolist movement in Japan. The text Philosophy of Symbiosis mentioned in this paper was written in 1991.

by the dramatic use of light and contrast of light and shadow, ornaments and decorative materials, and the facades are designed as a completely independent artistic motive. It happened, very often, that one architect did the interior and the other the exterior of the building. This unstable and reformative character of Baroque architecture caused hybridization on several different levels.

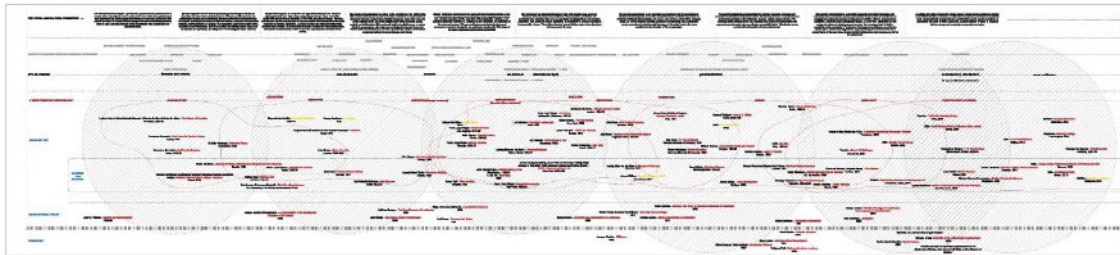


Photo 1. Linear map - Time diagram

The time diagram represents and observes architectural theory along with practice. This discursive field is extremely important because of the texts that mention hybrids in architecture, but also because of the written works that follow the changes in the methodological formations of hybrids. In these texts, the focus is on the process of creating architecture, and thus hybrid architecture. The third discursive field that is observed in parallel with the first two is the field of social sciences and humanities. Theories of hybridity in the field of culture studies, sociology, anthropology, philosophy and linguistics represent a very broad and interdisciplinary field of activity, with significant bases for the field of architecture. In all these areas, just like in architecture, awareness of the existence and importance of hybrids has formed over time. Due to the indisputable connection of architecture with the social sciences and humanities, it was necessary to include the most important written works from these areas in a linear map. In this way, a comparative interpretation of the process of hybrid formation from different discursive fields is enabled. The influence of sociologists and philosophers on architects, and their constant dialogue, is an important element in the study of architectural practice. Another extremely important part of the given diagram is the linear list of causes of changes in the methodological formations of hybrids. This line talks about the influences of different tendencies and -isms in architecture, but also in other areas. It was important to observe the causes and consequences of changes in architectural practice and theory in order to analytically define the development path.

By forming a linear map, the concepts, that define the methodological formation for certain groups of objects, are recognized. These concepts are established as a special template for designing hybrid structures for a specific period in the diagram. It can be noticed that some of the methodological formations overlap and that there is no clear boundary, but the dominant activity period can certainly be defined. Just like styles, they merge into each other under different influences. Chronologically, the following methodological formations have been defined from the 17th century to the present day: accumulation, reduction, release (through ornament), simplification (release - from ornament), networking (linking), coding and stratification. This paper recognizes these concepts as **general formation methodologies**.

Within each general formation methodology, there are *particular interpretive models* conditioned by special characteristics of the context, concepts of the designer, cultural order and various other factors. Specifically, observing the mapped examples, in the accumulation methodology we notice: accumulation by interpolation, accumulation by transcription, while in the formation of hybrids by reduction we have: reduction by illumination as well as reduction by formal transcription. In this context, these interpretive models are referred to as the **particular formation methodology**. It appears as a subgroup of general methodology and represents its special form. Within one general methodology, several different particular ones can be recognized, all due to the influence of different **principles of hybridization**. The particular methodology is based on combining the *principles of hybridization*. Principles are recognized, at the primary level, through the elements of the program or form and the relations established among those elements, at the secondary level. Based on this, we distinguish the principles of hybridization in relation to whether they cause program or formal (spatial) hybridization.

Due to the need for focus in this research, a special framework has been formed in the diagram. This framework maps exclusively objects from the galleries and museums typological groups. The idea is to focus on one relevant typological model in order to analyze the hybrid formation processes in comparable examples. Also, the typological model of galleries and museums was chosen as the best reference in architectural practice because of its liminal and ambivalent character; because they are the meeting and

symbiosis place of differences.³ An exception was made exclusively for the Baroque period due to the lack of a reference example from the observed typological group. In return, the church was chosen as the best model for studying hybridity in a given period, due to the influence of the Church as an institution and its increased need to materialize its own power. Objects - representatives were selected for five general methodological formations case studies:

Baroque :: **Accumulation** :: San Carlo alle Quattro Fontane - Francesco Borromini :: Hybrid of Conflicts;

Neoclassicism :: **Reduction** :: Altes Museum - Karl Friedrich Schinkel :: A hybrid of classical concepts;

Modern architecture :: **Simplification** ~ **liberation** [from ornament] :: Guggenheim museum - Frank Lloyd Wright :: Hybrid of functionalism;

Postmodern architecture :: **Coding** :: Neue Staatsgalerie - James Stirling :: Hybrid par excellence;

Contemporary architecture :: **Stratification** ~ **layering** :: MAXXI Museum - Zaha Hadid :: Hybrid of contradictions.

Each case study will show the process of creation of one of the hybrid objects, but above all it will give a brief overview of the general order, not only in architectural thought and design, but also in science and technology. These examples will serve to establish a universal apparatus for defining and understanding hybridity in architecture. In this context, the *principles of hybridization* will stand out as the hybrid formation process **elementality**.

San Carlo alle Quattro Fontane – Hybrid of Conflicts

Architect: Francesco Borromini

Year of construction: 1646

Location: Rome

Style: baroque

Methodological formation:

accumulation

Isolated causes of changes in methodological formation:

decoration, emphasis, drama, elliptical dynamized space, materialization of power

Baroque emerged in response to the Renaissance and its closed and singular forms. Breaking that constant in architectural creation, which originates from ancient Greece, Baroque artists and architects searched for innovation, new meanings and dimensions. In the context of the world order, great monarchies, the founders of modern states, are affirmed. Rome, as the center of art, within the politically weak and fragmented Italy, had to oppose the reformers in some way. In that spirit, the church was forced to change and then changes took place in established patterns from the past. Many elements of the Renaissance were brought into new interrelationships. Baroque also emerged with the idea of representing power through a new style of drama and decoration. The myth of the pure is being broken and the elements and relationships are getting more complicated. Baroque architecture is characterized by the dramatic use of light and contrast of light and shadow, ornaments and decorative materials, and the facades are designed as a completely independent artistic motive. In relation to the Renaissance, there is a liberation from rigid geometric shapes and an emphasis on asymmetry, by adding and **accumulating** decorative elements. The Church of **San Carlo alle quattro fontane** by the architect Francesco Borromini represents a distinctly hybrid baroque architecture. With elliptical and asymmetrical floor plan, it is dissected and layered, both in intentions and in elements. The facade gives the impression of the existence of three different buildings in one, based on the formal differentiation between the parts. There is a multiplicity of horizontal and vertical plan with a large number of projections, deep niches, protruding pillars and other complex perforations.

³ The museum is [...] an institution that collects, preserves, protects and professionally processes objects and contents with the intention of exhibiting, studying, interpreting and connecting them with the present. [...] The term gallery is used for collections of paintings [...] In the modern museum, the aim is to make the exhibits as accessible as possible to visitors. Today, the museum strives to be a meeting place for artists, scientists, pedagogues, for the exchange of information and enrichment of knowledge. From the attached, we can see how the definition and understanding of the museum changes over time and that, despite its hybrid character, it constantly acquires new functional forms as well as formal characteristics.

The interior of the building is of an asymmetrical plan with an applied ellipse in various rhythmic manifestations. Shapes permeate and touch, sometimes collide, and cause new shapes and decorations at the places of collision. The wall came to life and became an active element of plastic. The architectural elements are repeated and modified, and create a tense and dramatic atmosphere with a *chiaroscuro* (light-dark) effect produced by the sparse openings and embossed surfaces themselves.

With the accumulation methodology, this church has become a multiple and multifaceted hybrid. The process of creation of this object can be interpreted and read from conflicting codes due to opacity and oversaturation. In the process of accumulation, folding, interpolation, as well as superposition are also recognized. The elusiveness of the idea in the dramatic conflict of volume and space gives this object the liminal character of a hybrid.

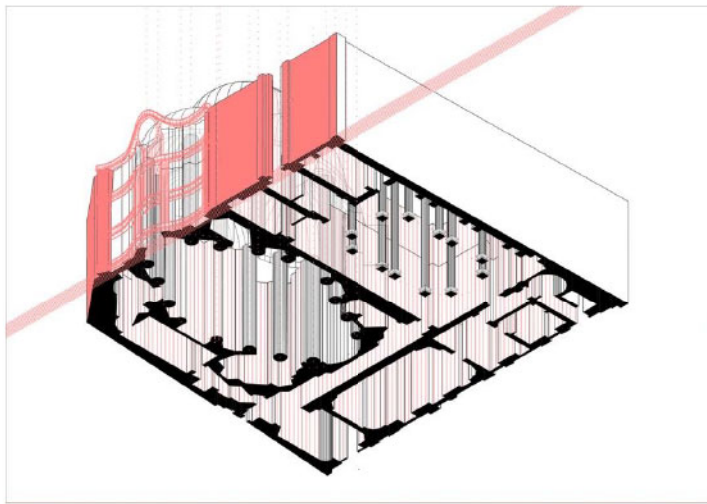
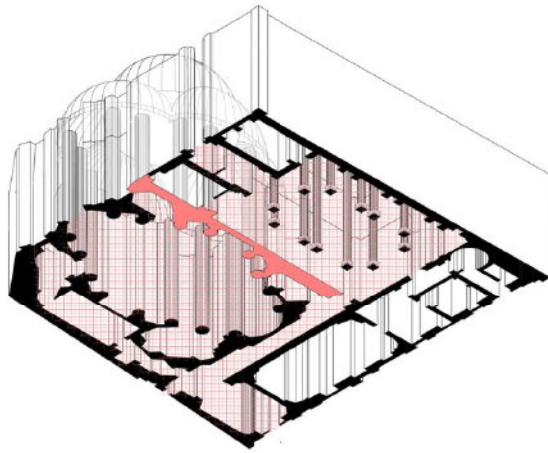
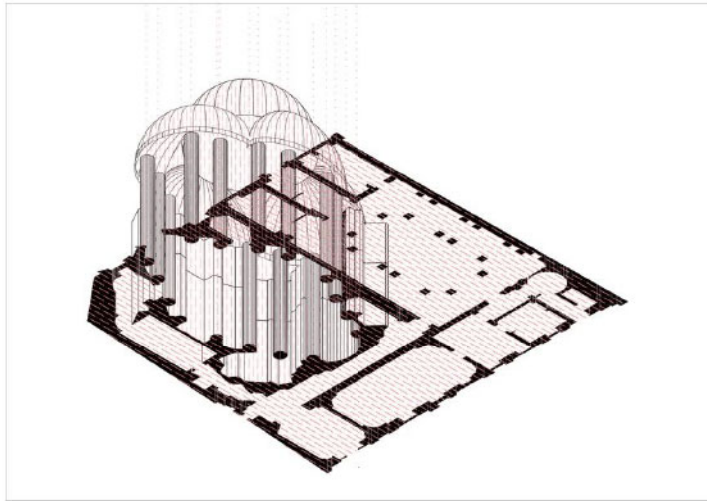


Photo 2. Principles of hybridization of San Carlo alle Quattro Fontane

Altes Museum – A hybrid of classical concepts

Architect: Karl Friedrich Schinkel

Year of construction: 1823-1830

Location: Berlin

Style: neoclassicism

Methodological formation:
reduction

Isolated causes of changes in methodological formation:

rationality, eclecticism, iconicity, Grand Tour, revolution, Enlightenment

Neoclassicism appears as a response and opposition to Baroque and Rococo in Western Europe in the 18th century. During that period, the Seven Years' War (1756-1763) and the French Revolution (1789-1799) took place in Europe. Theorists and historians say that neoclassicism is the purest stylistic form developed on the model of ancient and Roman architecture, as well as on the basis of the work of the Italian architect Andrea Palladio⁴. The creation of neoclassicism took place on the soil of Rome in the middle of the 18th century and its spread, as well as its origin is attributed to the generation of Europeans who then completed their training through the Grand Tour. The creation of neoclassicism took place on the soil of Rome in the middle of the 18th century and its spread, as well as its origin is attributed to the generation of Europeans who then completed their training through the Grand Tour. Also, this period originates in the age of the Enlightenment, which advocates reason, analysis and individualism. With a rationalist spirit and enlightenment, as well as thanks to young experts who bring new knowledge about ancient Greek and Roman culture and architecture, and with a revolutionary climate, neoclassicism completely replaces the ornate Baroque and Rococo.

This historical order can be considered as an obvious causal basis for the reduction methodology formation in the process of creating hybrids. Namely, Baroque architecture was subjected to the reduction of decorations and ornaments, the facade and interior space were again brought into connection, and all this was carried out through the filter of pure geometry of ancient Greek or Roman architecture.

The **Altes Museum**, Schinkel designs through his fascination with Roman architecture, the colonnade and the Athenian stoa. Namely, the building is a special hybrid created combining the Athenian stoa interpretation through a porch defined by a colonnade of 18 Ionic pillars and the transcribed rotunda with a dome from the Roman Pantheon. The process of reduction influenced the purification of Baroque thought by establishing symmetry and using pure geometric shapes of harmonious proportions. However, the need for decoration and manifestation of power has not been completely removed from the architectural thought, which is recognized in the placement of the object on the pedestal, and then the interior and exterior decoration, specifically by placing an eagle sculpture above each of the eighteen pillars of the porch. In addition, Schinkel's concept was for the wall opposite the colonnade to be his personal exhibition space, which he began to paint, and after his death, mural paintings were completed according to his idea.

We can say that the Altes Museum represents hybridization through formal transcription and subtle interpolation of transcribed elements. By the method of reduction, the primary elements are modified through the interpretation of the elements of exemplary styles, while the secondary elements of the decoration subtly emphasize the indisputable combination with the suppressed style. This building, through its liminal condition, represents the museum as a Greek temple or as a work of art in itself.

⁴ He is known for his treatise *I quattro libri dell'architettura* (The Four Books of Architecture) in which he presents ideas based on classical Roman models.

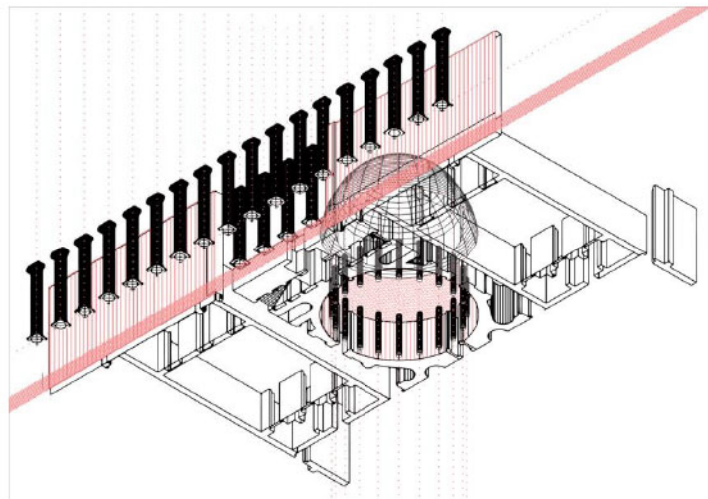
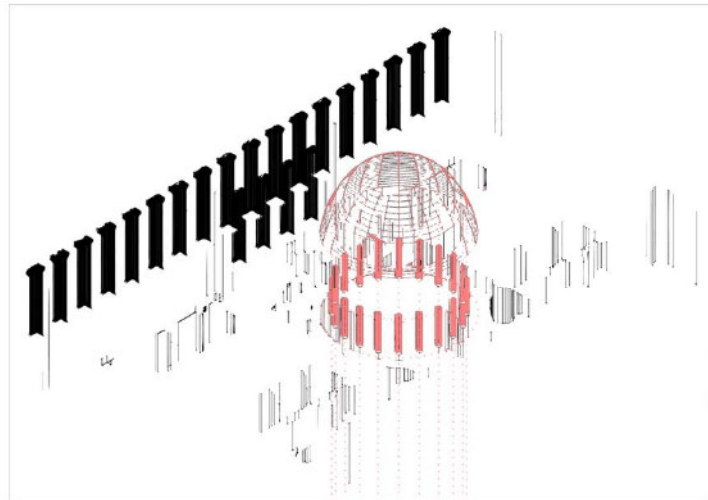
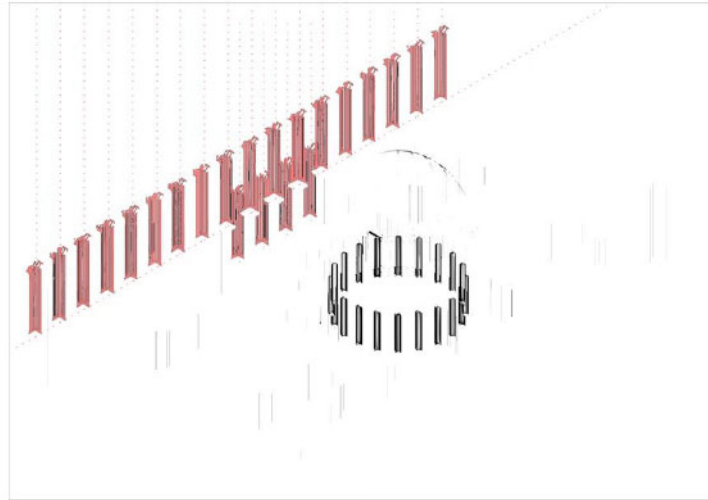


Photo 3. Principles of hybridization of Altes Museum

Guggenheim Museum – Hybrid of functionalism

Architect: Frank Lloyd Wright

Year of construction: 1943-1959

Location: New York

Style: modern architecture / modernism

Methodological formation:

simplification ~ liberation [from ornament]

Isolated causes of changes in methodological formation:

machine age, "pure form", functionalism, "form follows function", mobility, new materials and new application of materials (steel, iron, concrete, glass)

Modern architecture was formed in the period after the industrial revolution, in the era of accelerated development and exploitation of new materials such as steel, iron, concrete and glass and the expansion of their application. Likewise, some historians claim that modernism is a response to the eclecticism and historicism of the nineteenth century. This new architecture was idealized and general atmosphere created the feeling of a new spirit and a heroic period. The shape of the objects depended on the function and material. The architecture was interpreted through the prism of the machine age, and as Le Corbusier stated, the house was marked as a "living machine". And indeed, the architecture was free from unnecessary details, from illogical form, from unstable proportions, from ornament. Modern architecture has simplified the process of design to its elementality - human/user. "Form follows function" as Louis Sullivan states; it was important that house works for a user.

As noted, the possible causes for initiating modernity are different but all certainly concern progress. In the same spirit, we can talk about changes in the methodological formations of hybrids of that period. If we take into account that the previous one dealt with reduction, in the period of modernity, it progressed to simplification - the level of reduction to the architecture elementality. Thus, it did not deal with the exclusion and rejection of decorative elements or ornaments, nor did it invoke tradition, justifying itself by purification and reduction. The methodology of simplification (or liberation) implied the process of creating a hybrid architecture that modified all its elements from the root, sometimes to the limit of unrecognizable intention, to a pure symbol or sculpture.

The Guggenheim Museum in New York is a peculiar hybrid of its time. It is created by the process of simplification, characterized by "pure form", bent shapes in sophisticated reinforced concrete. Charles Jenks says that "strange primitive curves emerge in the middle of Fifth Avenue, as if taking over the theme of Cadillac's aerodynamic lines." (Jenks 1986, 158) We can agree that curves contrast with rectilinear, rough masses of context. Nevertheless, Wright deviates from the straight lines in a very precise way, freeing himself from the signs of context, creating his own semiotic system for space design. It creates a hybrid system that is both introverted and extroverted. The interior is subordinated to the line of communication - a ramp in the form of a coil leads the user through the building, and in the same way dictates the positions and shape of all walls and openings. Perhaps it can be said that this is a special kind of hybrid of functionalism, where the main element of the function, actually became the whole object, merging from one surface to another.

Through this project, Wright created a transcendental space, but with multiple meanings. He reduced the object to one element, and then merged it into other planes, creating a hybrid through translation. Through the process of liberation and the creation of his own semiotic system, Wright created a universal free-standing model, leaving the reader to interpret it through his own experiential apparatus. The liminal character of this building is recognized in contrast to the city, acting as a city assembly or even a temple.

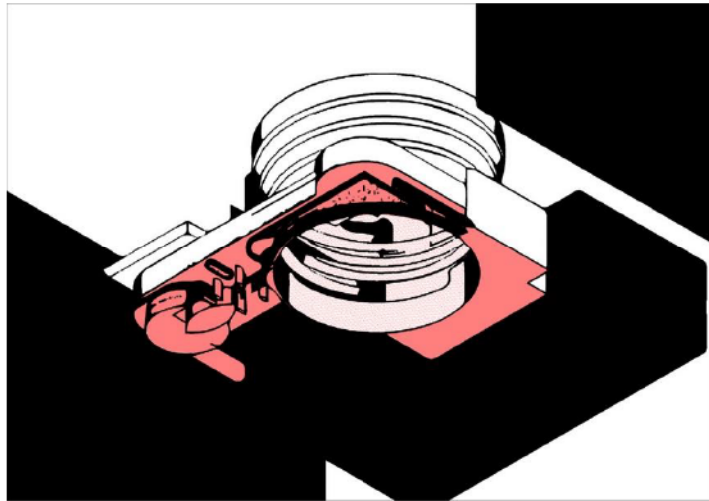
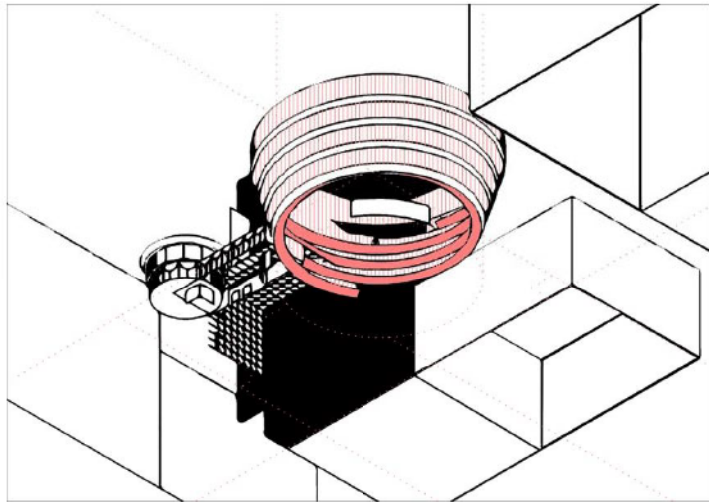
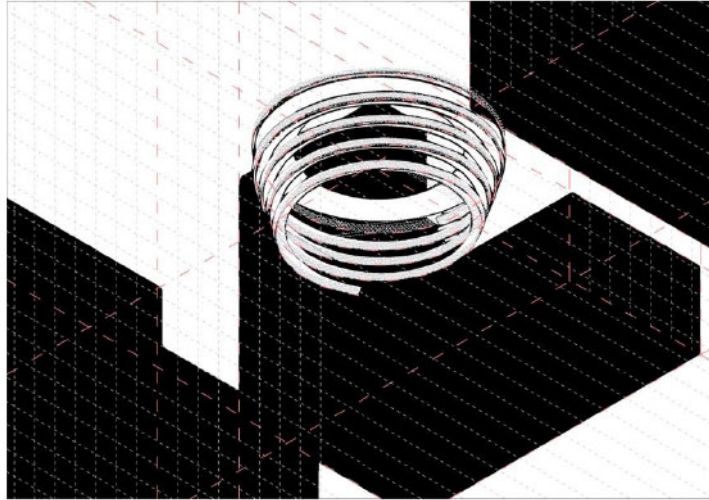


Photo 4. Principles of hybridization of Guggenheim Museum

Neue Staatsgalerie – Hibrid par excellence

Architect: James Stirling

Year of construction: 1985

Location: Stuttgart

Style: postmodern architecture / postmodernism

Methodological formation:
coding

Isolated causes of changes in methodological formation:

fluidity, digitization, deconstruction, ambivalence, computer modelling

Postmodernism was formed as a trend during the 1960s. It emerges as a counter-culture, as a response to modernism, "the age of stupid and unarticulated plates and endless repetition of clichés" (Jenks 2007, 2), which was characterized by pure forms subordinate to function. Charles Jencks⁵ says that modernist architecture has been overcoded in some cases, but we could easily say that it has been overidentified and overdefined. Jenks states that postmodernism is in fact a critique, not anti-modernism. He calls it a new paradigm and architecture that is geared towards pluralism, the heterogeneity of our cities and global culture, and that it appreciates the diversity of different cultural patterns and visual codes of users. (Jenks 2007) Computer design, as well as computer modeling, automated manufacturing, and sophisticated market research and market foresight techniques in the global world order, have contributed to the formation of this new paradigm.

The Neue Staatsgalerie is a hybrid created by coding carefully combined opposing codes. Creating a fusion of traditional, modern and local codes, this object can be considered a par excellence example of a postmodern hybrid. Namely, the fact is that postmodernism is based on the use of codes and the merging of differences. Nevertheless, the gallery in Stuttgart is a hybrid that transcends the codes of that time, as well as the semiotic system of the wider context. Stirling creates a hybrid through the opposition of linear and rotational elements, circles and squares, rectangles and diagonals. He genetically modifies modern elements by subordinating them to symbols, and uses traditional signs in a functionalist manner. The palazzo of the old gallery, which is built in the shape of the letter U, is expanded to accommodate a larger amount of new works of art, and then erected on a high plinth or "Acropolis", which is placed above the road". (Jenks 2007, 107)

The liminal state of this hybrid generates a special bricolage consisting of: a circular open yard - cosmic space, steel frames that hold the stone formwork, strips and profiles of bright colors that direct fluid movement and amorphous and curved glass surfaces, organized in a perfect order of a postmodern hybrid. The methodological formation of coding is carried out here through the interpolation of contradictions, and the complex forms are solved eclectically.

⁵ Charles Jenks is an American theorist and critic in the field of architecture and is known for his books about the history and the critique of the modern and postmodern movement in architecture.

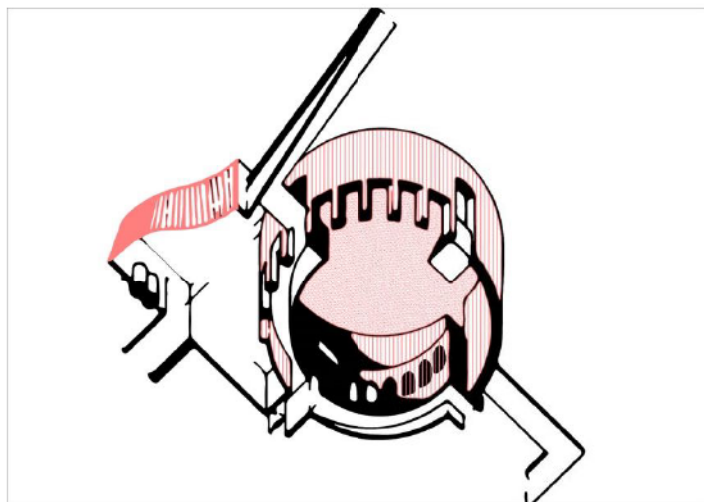
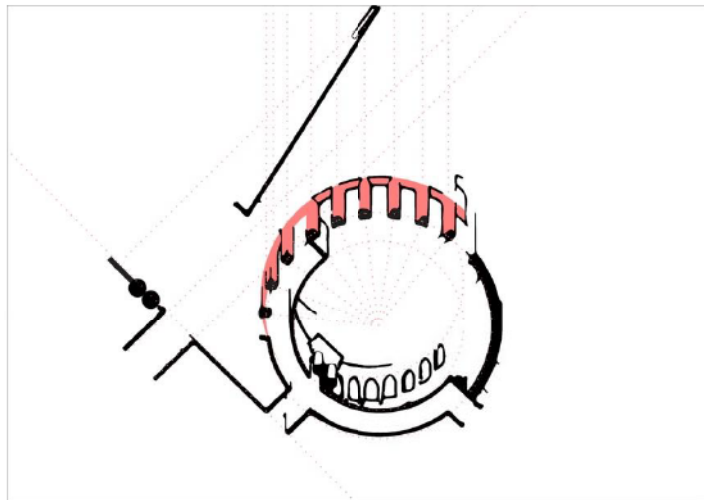
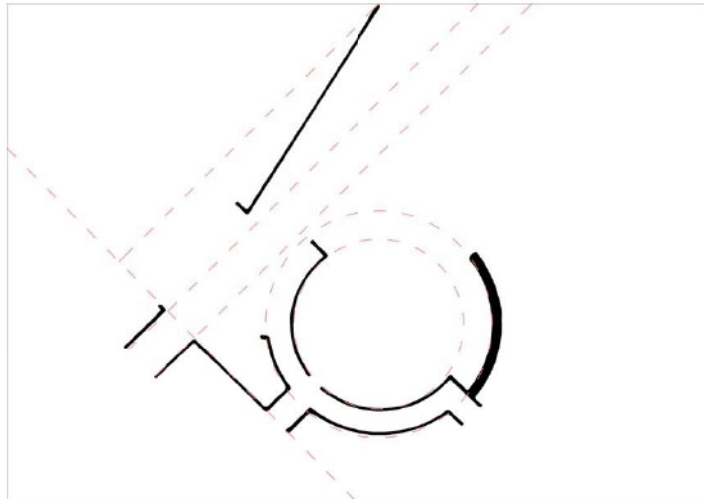


Photo 5. Principles of hybridization of Neue Staatsgalerie

MAXXI Museum – Hybrid of contradictions

Architect: Zaha Hadid

Year of construction: 2009

Location: Rome

Style: contemporary architecture

Methodological formation:

stratification (layering)

Isolated causes of changes in methodological formation:

polyvalence, parametric design, amorphousness, millennials, pluralism

The term contemporary architecture is very relative, but for the purposes of this paper it will be used to denote the period of architectural activity from the 1990s to the present day. This period is characterized by an incredible expansion in the field of technique and technology of the construction industry and materials. In that context, the architecture is changing and pushing the boundaries of its previous activities. With the opening of new possibilities, architects create unimaginable shapes in a short time. Digitization is in full swing and software is being improved every day, thus creating a basis for further examination of the boundaries of architecture. Contemporary architecture as well as the modern age is characterized by pluralism and polyvalence, the constant need to be in several places at the same time, the speed of flow of information and resources, as well as the virtual world. In addition, the notion of parametric design appears, which enables architects to transfer each of their sketches or thoughts, no matter how amorphous, polyvalent or inexplicable, to the virtual world with exact parameters, which further enables precise execution in a real context. This state of affairs requires the constant existence of layers in all planes that can change and constantly correspond to each other.

The MAXXI Museum, according to wider popular critics, is a true work of art of contemporary architecture. There are also allegations that it combines the innovative design and urban environment of Rome. However, this building is actually a kind of hybrid of contemporary architecture. Zaha projects a single strip form that flows, bends and is superimposed, interpreting the assumed movement of the user, fitting into the context insofar as it follows the shape of the plot. Reading this project, fascinations with parametric design and the need for pluralism are noticed. This form transcends the boundaries of "fitting into the urban environment." As a hybrid of a sketch, which simulates movement and fluidity, and the limited possibilities of materials, it creates a "new urban environment." Zaha called her building an "art campus" and "curved lines that unwind in space." A museum is actually a one-space that implies an infinite number of spaces. The process of hybridization is reflected in this contradiction.

We can say that the observed museum was created by the methodology of stratification through fiction and interpolation. At the same time, this museum is a unique space that is layered with its own elements, turning into an endless strip of several spatial units, never physically separated. With its materialization, it emphasizes its existence, but at the same time it denies significance through unidentified and non-existent signs. The intentions are hidden on the facade, or, in fact, only left out. However, by entering the object, a semiotic system of contradictions is revealed, which challenges and leads through space. The liminal character of this hybrid is achieved through the seduction and constant pulsation of the changing space. The user constantly expects a new fascination, experiencing the museum and the exhibition as the same.

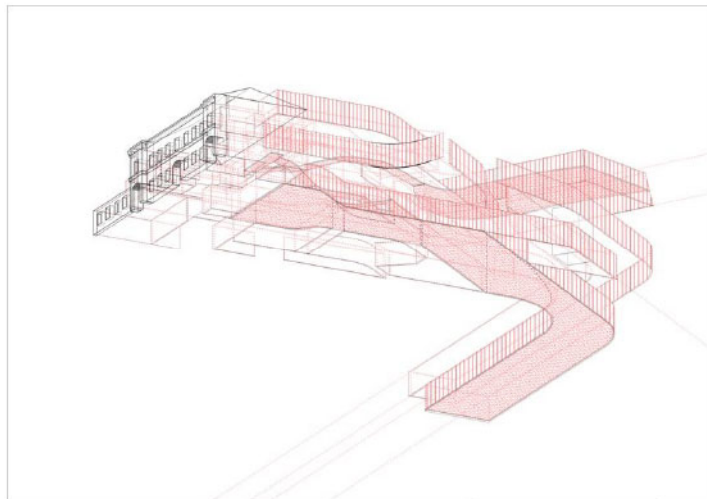
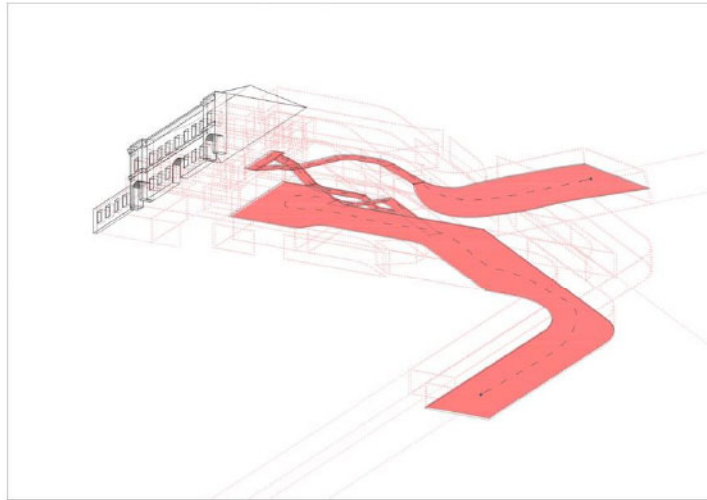
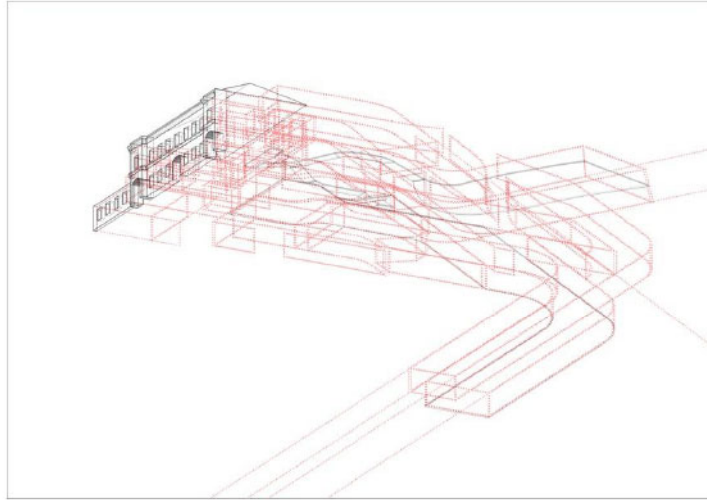


Photo 6. Principles of hybridization of MAXXI Museum

Principles of hybridization and elementality readings

Defining the general and particular methodological formations of hybridization, as well as the basic principles of hybridization came out as a result of the graphic analysis of selected projects. The use of axonometric representation as the most meritorious drawing for diagrammatic mapping, was of great importance in notating different principles of hybridization. Each established principle is notated by different means of points, lines, planes and colour. The analysis also observed the repetition of some of the principles which, based on the frequency of repetition, are named the basic principles of hybridization: **transcription**, **interpolation** and **coding**. The applied graphic analysis technique uses various forms of axonometric drawing, used in this case as litmus of established hybridization principles.

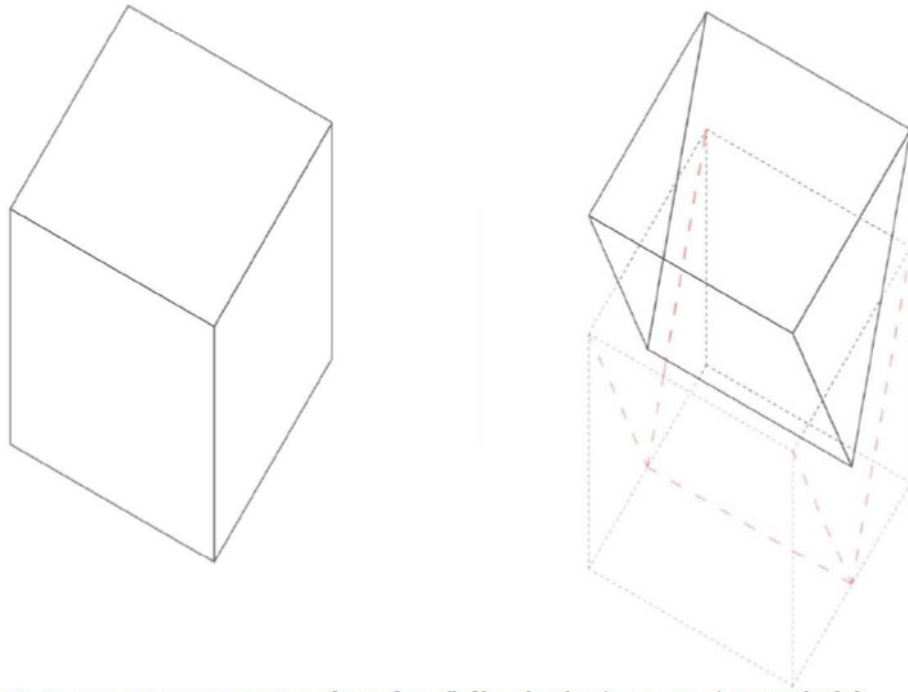


Photo 7. Axonometric representation of pure form (left) and order / geometry / system (right)

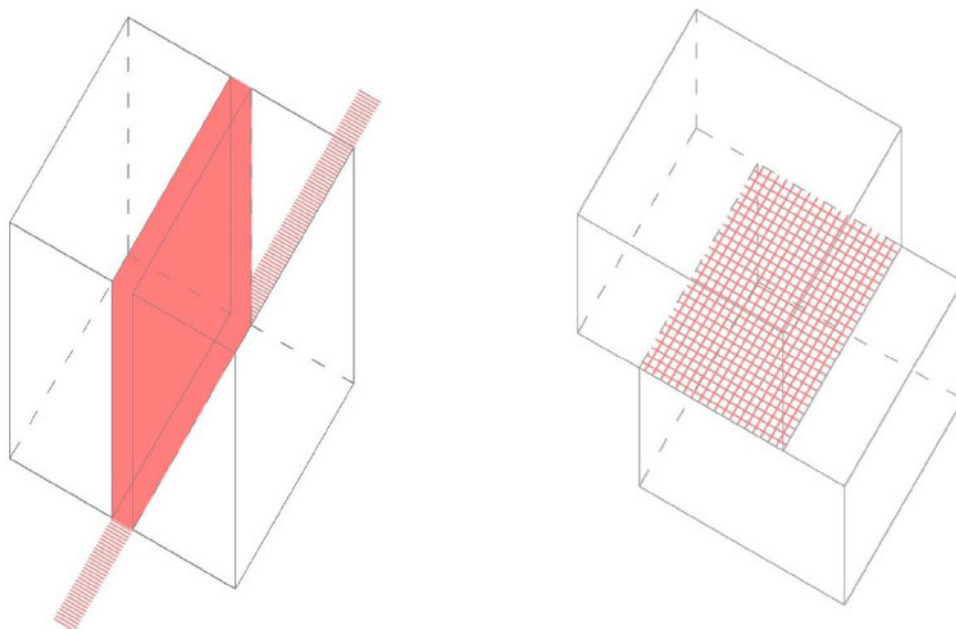


Photo 8. Axonometric representation of hybridization principles: juxtaposition (left) and superposition (right)

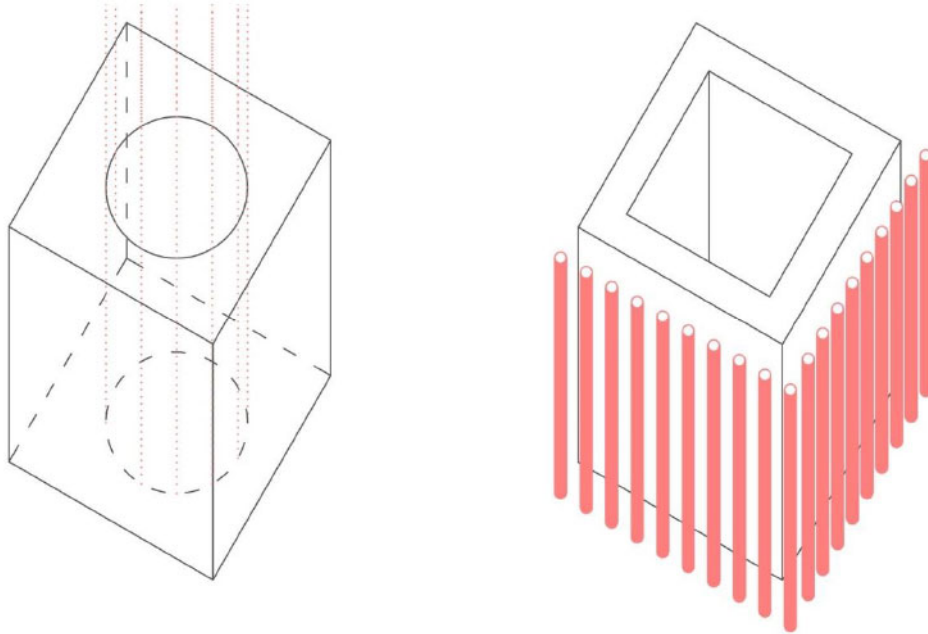


Photo 9. Axonometric representation of hybridization principles: interpolation (left) and transcription (right)

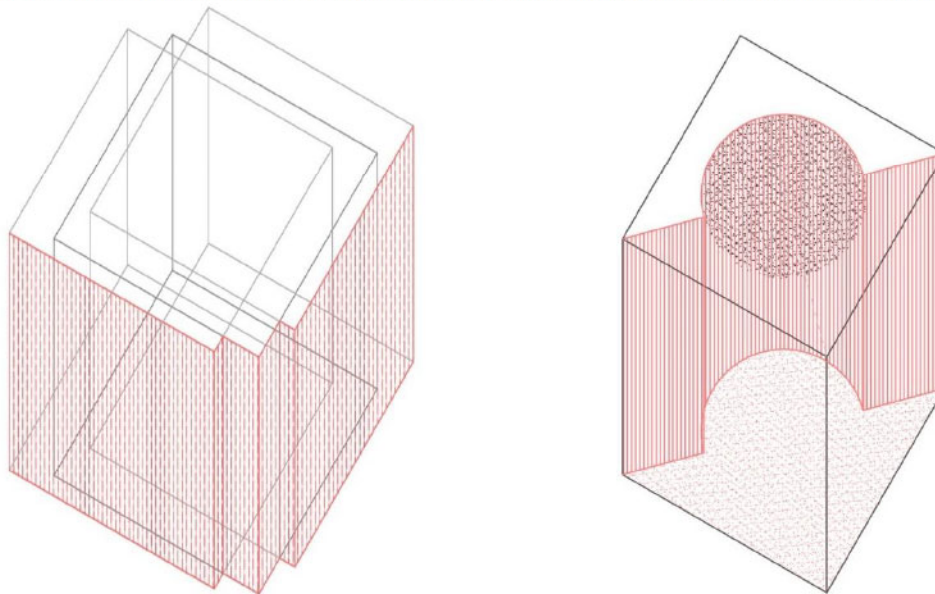


Photo 10. Axonometric representation of hybridization principles: folding (left) and coding (right)

Transcription, as a principle of hybridization, is recognized and described through the use of elements or motifs. Unlike some other principles, the principle of transcription, as a ready-made process, cannot be notated the same way. Nevertheless, the transcriptional method, as an extremely important principle, is presented through graphical analysis by mapping and treating elements or motifs that are a consequence or subject of a given principle. These elements are, therefore, testimonies of the corresponding types and forms of transcription. **Interpolation** refers to the insertion of formal or programmatic elements. In this case, this principle of hybridization introduces new elements into an established system or pattern. As such, interpolation implies to a reciprocal process of *decoding* and *recoding*, and vice versa. Finally, **coding** stands out as the most complex principle of hybridization. The coding process is usually manifested through three stages. Case studies have shown that these three steps of coding in the process of hybridization have a specific framework and occur in the same order each time this principle takes place.

Auguste Choisy was the first to introduce analytical-narrative attributes of axonometric drawings as architectural representations. He states that this form of drawing simultaneously synthesizes the plan, section and elevation of the represented space and distances the observer from the object so much that he becomes a narrator without a determined point of view. Thus, the observer can move freely through different parts of space, absorbing its' fragments and assembling them into a whole.⁶ Especially relevant for this work is that the axonometric representation is understood as a specifically analytical tool due to the absence of subjectivity, which is, in the case of perspective drawings, set as an imperative in the perception of architectural space, as well as the possibility of simultaneously representing both interior and exterior of the architectural space, with all its structural elements and characteristics. Unlike the perspective representation that is both spatially and temporally static by imposing a specific viewing angle at a particular moment in time, axonometric representation offers complete liberation from time and space.⁷ This type of representation especially engages the observer in the process of understanding structural characteristics of space and is often applied in a reduced, diagrammatic form, which serves to emphasize certain spatial elements and their position within the space. In addition to objectification as it's main attribute, axonometry offers another advantage from the technical aspect of drawing - the ease and speed of drawing while maintaining the dimensions of the architectural space. (Jasper 2016, 129)

Each example of the case study uses three axonometric drawings which correspond to the performed steps in the conducted analysis. The drawings complement each other by successively adding structural elements in order to narratively explain the recognized principles of hybridization. A special type of axonometric representation was important for this analysis, known as the "frog's eye" view or chthonic projection. It was of great importance to use this kind of representation as it positions the observer both inside and below the viewing space, thus emphasizing the relationship between the plan and the elevation of spatial elements.

The axonometric drawing for the first case study, the Church of San Carlo alle Quattro Fontane, successively reveals the process of recognizing the accumulation methodology that leads to the creation of this hybrid. This is achieved by using color and plane for emphasizing the order of accumulation steps, while the reduction of spatial elements focuses the attention on the structural elements involved in this process. The drawing reduces the spatial elements by focusing on the difference between the structural elements that are load-bearing (columns) and those elements that have lost this function in order of becoming dominantly decorative. The inner wall of the building, which is also expected to be the load-bearing wall, attached the elements of decorative plastic (*folding*), transferring their load to the multiplied columns (*transcription*). In the intersection of this inner wall and the facade wall, their properties get exchanged, from appearance to function (*superposition*).

In case of the Altes Museum, the drawing highlights the column as a basic constructive element which, as it multiplies and takes it's form (*transcription*), engages in a role of a communicator of certain stylistic order. Successively, another such procedure is revealed on the dome. Finally, the last drawing represents the wall completely bare, only symbolically as a vertical canvas that establishes a zone between inside and outside (*juxtaposition*), in order to explain the disposition of the structural elements in the patio of the building.

The use of chthonic projection for the hybridization process that took place in the Guggenheim museum is crucial and most prominent in the reading of this hybrid. The precision of the representation of it's ambivalent relationship with the inner and outer space is displayed with only one element - the grand spiral ramp. It is used to emphasize it's relationship both to the interior and exterior of the building as well as to the vertical axis, relating to the space below and above the building (*interpolation*). The use of color is also important, as it is used to announce the distinctive functionality of this spatial element - vertical communication within the building and horizontal communication in the public ground floor (*superposition*).

Speaking of Neue Staatsgalerie, the first drawing represents a two-dimensional map of the spatial elements that initiated the coding process. Understanding the code in this case is sufficient by reading a two-dimensional plan. Further, by using color and planes, the mapped elements emerge into space - they become three-dimensional columns by adding a new code that interprets the particular historical style (*transcription*). The third drawing presents the elements indicating the introduction of a new code that does

⁶ This position can be identified with the role of a cameraman, which Walter Benjamin elaborates in his text "The Work of Art in the Age of Mechanical Reproduction"

⁷ El Lissitzky a representative of the Russian avant-garde, writes that perspective limits space, making it definitive. See in: Allen, Stan. 2009. Practice: Architecture, technique + representation. 16. New York: Routledge.

not directly interpret the existing style. In contrast, it takes over some elements of different styles with the aim of emphasizing their ornamentation (*transcription*).

The axonometric representatino of the Zaha Hadid's MAXXI Museum emphasizes the main structural element of space - the infinite strip, assigning it the role of horizontal communication – staircases and halls in the second, and the spatial divider – exhibition walls in the third picture. The use of the line suggests the character of the interior concieved as a unique structure (*superposition*), while the use of color and planes stands for accentuating the movement of horizontal (*juxtaposition*) and vertical surfaces (*interpolation*), maintaining the condition of parallel flow as the main substance of the project.

REFERENCES

- Allen, Stan. 2009. *Practice: Architecture, technique + representation*. New York: Routledge.
- Baba, Homi. (2004). *Smeštanje kulture*. Beograd: Beogradski krug.
- Benjamin, Walter. 2008. "The work of art in the age of mechanical reproduction" in *Historical Perspectives in the Conservation of Works of Art on Paper*, edited by Margaret Holben Ellis .144-148. Los Angeles: The Getty Conservation Institute.
- Bhabha, Homi. K. (1994). *The Location of Culture*. London and New York: Routledge.
- Bois, Yves-Alain. 1981. "Metamorphosis of Axonometry" in *Daidalos (1)*. 41-59. Berlin: Architectural Journal Berlin.
- Deleuze, Gilles., & Guattari, Felix. (1987). Introduction: Rhizome. U G. Deleuze, & F. Guattari, *A Thousand Plateaus* (str. 3-28). Minneapolis: University of Minnesota Press.
- Derrida, Jacques. (2013, February 27). *Differance*. Preuzeto Avgust 20, 2017 sa Project Lamar: <http://www.projectlamar.com/media/Derrida-Differance.pdf>
- Dženks, Čarls. (1985). *Jezik postmoderne arhitekture*. Beograd: Vuk Karadžić.
- Dženks, Čarls. (1986). *Moderni pokreti u arhitekturi*. Beograd: Građevinska knjiga.
- Dženks, Čarls. (2007). *Nova paradigma u arhitekturi - Jezik postmodernizma*. Beograd: Orion-art.
- Fenton, Joseph. (1985). *Pamphlet Architecture 11: Hybrid Buildings*. New York: Princeton Architectural Press.
- Garcia Canclini, Nestor. (1995). *Hybrid Cultures, Oblique Powers*. U N. Garcia Canclini, R. Rosaldo, C. L. Chiappari, & S. L. López, *Hybrid Cultures: Strategies for Entering and Leaving Modernity* (str. 422-444). University of Minnesota Press.
- Garsija Kanklini, Nestor. (2008). Hibridne kulture, prikrivena moć. U J. Đorđević, *Studije kulture* (str. 568-585). Beograd: Službeni glasnik.
- Guignery, V. (2011). Introduction: Hybridity, Why it Still Matters. U V. Guignery, C. Pessa-Miquel, & F. Specq, *Hybridity: Forms and Figures in Literature and the Visual Arts* (str. 1-9). Newcastle upon Tyne: Cambridge Scholars Publishing.
- Hol, Stjuart. (2008). Kodiranje, dekodiranje. U J. Đorđević, *Studije kulture* (str. 275-285). Beograd: Službeni glasnik.
- Jasper Adam. 2016. „God's eye view” in *This Thing Called Theory*, edited by Teresa Stoppioni, Giorgio Ponzio and George Themistokleous. 126-134. London and New York: Routledge.
- Kraidy, Mawran. (2002). Hybridity in Cultural Globalization. *Communication Theory*, 12(3), 316-339. Preuzeto sa <https://doi.org/10.1111/j.1468-2885.2002.tb00272.x>
- Kurokawa, Kišo. (2012). Filozofija simbioze. U V. Đokić, & P. Bojanić, *Arhitektura kao gest* (str. 105-107). Beograd: Arhitektonski fakultet.
- Kurokawa, Kisho. *The Philosophy of Symbiosis*. London: Academy editions, 1994.
- Prabhu, Anjali. (2007). *Hybridity: Limits, Transformations, Prospects*. New York: State University of New York Press.
- Rieger, A., Michaelis, A., & Green, M. M. (1991). *Glossary of Genetics*. Stuttgart: Springer-Verlag.
- Summerson, John. (1986). *The Architecture of the Eighteenth Century*. London : Thames and Hudson.
- Tschumi, Bernard. (1994). *The Manhattan Transcripts*. New York: Academy Editions.
- Velflin, Hajnrh. (2000). *Renesansa i barok : istraživanje o suštini i nastanku baroknog stila u Italiji*. Izdavačka knjižarnica Zorana Stojanovića: Sremski Karlovci; Novi Sad.
- Velš, Wolfgang. *Naša postmoderna moderna*. Novi Sad: Izdavačka knjižarnica Zorana Stojanovića Sremski Karlovci, 2000.
- Velš, Wolfgang. „Transkulturalnost: forma današnjih kultura koja se menja.“ *Kultura* 102 (2001): 70-89.
- Velš, Wolfgang. *Naša postmoderna moderna*. Novi Sad: Izdavačka knjižarnica Zorana Stojanovića Sremski Karlovci, 2000.
- Velš, Wolfgang. „Transkulturalnost: forma današnjih kultura koja se menja.“ *Kultura* 102 (2001): 70-89.
- Venturi, Robert. (1987). *Složenosti i protivrečnosti u arhitekturi*. Beograd: Građevinska knjiga.
- Vujaklija, Milan. 1988. *Rečnik stranih reči i izraza*. Beograd: Prosveta.