A b s t r a c t

The article is a reflection on the essence of rationality and rationalism in architecture. In relation to architectural work, rationality, and especially rationalism, are vague terms that escape scientific definitions. They are often seen as interchangeable, even though their meaning is not identical. It is not possible to explicitly state what is rational and rationalistic in architecture, one can only try to approximate real definitions. These concepts have influenced the architecture of different times, trends and creators, adopting various forms. They have not developed for the creation of one style. The author seeks help to understand and define these concepts in the field of philosophy (the theory of cognition and aesthetics in particular). Analysing the criteria of rationalism, the author refers to architectural work.

Keywords: rationalism, rationality, truth, order, purposefulness

S t r e s z c z e n i e

Artykuł zawiera refleksje nad istotą racjonalności i racjonalizmu w architekturze. Racjonalność a szczególnie racjonalizm, w odniesieniu do twórczości architektonicznej to terminy niejasne, które wymykają się naukowym określением. Są często traktowane zamiennie, mimo że ich znaczenie nie jest identyczne. Nie da się jednoznacznie stwierdzić co jest w architekturze racjonalne i racjonalistyczne, można się jedynie próbować zbliżyć do realnych definicji. Pojęcia te wpływały i wpływają na architekturę różnych czasów, tendencji i twórców, przyjmując różne formy. Nie ukształtowały się na podstawie jednego stylu. Autorka szuka pomocy w zrozumieniu i określeniu tych pojęć, w dziedzinie filozofii (szczególnie teorii poznania i estetyce). Analizując kryteria racjonalizmu, odnosi je do twórczości architektonicznej.

Słowa kluczowe: racjonalizm, racjonalność, prawda, porządek, celowość

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UNDER
THE POWER OF REASON

WE WŁADZY ROZUMU

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To talk about rationalism in architecture – and therefore of reason, and the forms and techniques inherent in the concept – means to refer mainly to epistemology: in other words, in the case of architecture it means to refer back to the scientific foundation of architecture itself¹.

Giorgio Grassi, *La consstruzione logica dell’architettura* (1967)

1. **Introduction**

Rationality and rationalism in architecture are imprecise terms that elude scientific definitions. They are often seen as interchangeable even though their meaning is not the same. It appears that it is impossible to explicitly state what is rational, nonrational or irrational in architecture, one can only try to approximate certain explanations. Rationalism, or rather a rationalist approach, in architecture concerns different times, trends and styles. Therefore, it adopts various forms with different degrees of rationality. In an attempt to establish strict specific criteria of rationality, the author turns to the field of philosophy. The following text is an attempt to answer the question whether it is possible (as it is in philosophy) to define the criteria of rationality and rationalism in architecture, which, in the universal mode, would differentiate activities and works into rational/rationalistic and irrational/irrationalistic.

When one does not know how to define a concept, one can try to get closer to its essence, drawing on antonyms. The theory of cognition is dichotomous, opposite associations may indicate the direction of the discussion. One sometimes does not know what something is, but they definitely know what it is not. In the context of the abovementioned concepts, the following opposites come to mind: reason – intuition, thinking – perception, rational/intellectual – sensual, universal – specific, objective – subjective, rationalism – relativism, intellectual – symbolic.

2. **Rationalism and rationality**

Aristotle writes about three levels, powers or abilities of the soul – vegetative, sensitive and rational. The last of these – rational, intellectual one – is generally responsible for cognition, judging, intent, choice and thinking². Since the time of Descartes, the concepts of rationality and rationalism have appeared in European economic, political, philosophical, anthropological and other discourses. Both concepts also have an established position in everyday thinking. “Rationalism” and “rationality” are two terms that are often incorrectly used interchangeably. Despite the common ratio core, rationalism, as a philosophical doctrine (contrasted with empiricism), should be distinguished from rationality understood as the rational nature of human actions.


² A. Bandura, *Aisthesis. Zmysłowość i racjonalność w estetyce tradycyjnej i współczesnej*, Universitas, Kraków 2013, p. 32.
Rationalism denotes a philosophical direction or trend that emphasizes the special value of reason and wisdom. It is one of the ways of referring to reality. The rationalistic theories of cognition (such as Platonic and Cartesian ones) maintain that absolutely certain knowledge can only be found in the realm of reason. Descartes considered only the world known in a certain way to be real and genuine. For this Enlightenment philosopher, the reliable measure of knowledge was clarity and clearness, and he found clear that which was simple. Other criteria of the cognitive value of rationalism include constancy, invariance, limitation of rules, clear rules, articulation, coherence, consistency, expressiveness, transparency (structural feature related to the arrangement of parts within the whole). Its opposites are: disorderliness, inconsistency, absurdity (senselessness), contradiction. On the basis of the developed universal scientific method, Descartes worked on creating a universal science (mathesis universalis), rational, analytical, mathematical one, capturing the entirety of knowledge about the universe in one whole. The concept of rationality was not established once and for all during the Enlightenment but it was constantly evolving. The approach to rationality and the broadly understood issue of reason was shaped in a complex dialectical process.

The term “rationality”, in turn, denotes a certain property of thinking and acting. It boils down to purposefulness, economics, and meaningfulness. It primarily appears as a feature of a certain method and procedure. It is perceived as the implementation of actions effective in achieving goals. It is stuck in the relationship between objectives and means within the available knowledge. As a noun derived from an adjective, the Polish word “racjonalność” means a “trait” which belongs to an object, generally speaking, due to the fact that it has the principle of both its existence and its content. Philosophy distinguishes the rationality of being, cognition and action. Argentine philosopher Mario Bunge distinguishes seven types of rationality: (I) conceptual: minimizing fuzziness (vagueness or imprecision); (II) logical: striving for consistency (avoiding contradiction); (III) methodological: questioning (doubting and criticizing) and justifying (demanding proof or evidence, favourable or unfavourable); (IV) epistemological: caring for empirical support and avoiding conjectures incompatible with the bulk of the body of scientific and technological knowledge; (V) ontological: adopting a consistent world view compatible with the bulk of the science and technology of the day; (VI) valutional: striving for goals which, in addition to being attainable, are worth being attained; (VII) practical: adopting means likely to help attain the goals in view.

 Considering the above criteria, it can be noted that there is a close relationship between rationality as a characteristic of action and rationalism as a philosophical direction within the framework of its multiple historical forms. One can assume that rationalism, in the epistemological sense, contains the criteria of rationality and cognitive value. However, equating the meanings of these concepts may lead to confusion between rationalism and often narrowly understood rationality.

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3 E. Morawiec, Wybrane filozoficzne koncepcje rozumu ludzkiego i racjonalność, Wydawnictwo Liberi Libri 2014, p. 163.
5 E. Morawiec, op. cit., p. 156.
7 M. Buchowski, op. cit., p. 108.
The family of broadly understood rationalism encompasses not only philosophical directions, but also ways of thinking and views of the world for which rationalist philosophies constitute certain models or patterns. The “rationalist approach” can be found in different varieties in various areas of human thought and activity, including architecture.

The term “rationality” functions colloquially in the field of architecture, most often in the form of an adjective, as a definition of sensible and purposeful architecture in which the functional and economic aspects prevail. In popular perception it is synonymous with architecture in which the aesthetic aspects, creativity, originality, and innovation are less developed. It is not a feature of a particular style but is often associated with functionalism as the main features of modernism.

Rationalism in architecture evokes more specific associations, mainly with the enlightenment theories of Abbot Marc-Antoine Laugier who claimed that “the architect must be able to rationally justify all his actions” and with the activities of 20th-century Italian artists associated with Gruppo 7 (their manifesto from 1926 presented the first attempt to define the architettura razionale, in which they called for architecture based on the rules of order, rationality, clarity and logic and the contemporary “transformation” of tradition), as well as with the subsequent movement of La Tendenza (referred to as rationalist historicism) whose actions resulted from the pursuit of a new way of building, referring simultaneously to the shapes of the past.

3. Rationalism and freedom

According to Descartes, we achieve the greatest freedom by gaining knowledge through reason (this is what distinguished rationalism from empiricism) and then when we make choices in keeping with this knowledge. Freedom is not about uncritical choosing from various possibilities. We are most free when reason shows us which of the many possibilities is the most rational. Owing to the knowledge about the world, we gradually become less and less dependent on it and on external factors that affect us.

Rationalism may be accused of not enriching our knowledge, it only expresses what we already know in a different way. However, it was already Kant who replaced the concept of reason as a passive repository of ideas with the concept of reason as a shaping, active, dynamic force. Thus, turning to rationalistic thinking in architecture does not exclude creative activity.

There are some architects who paradoxically see a kind of liberation and huge potential for shaping the architectural form in the rationalist approach. Architecture cannot be cut off from sensory experiences and made independent from “all external causes”, but the multiplicity of possibilities can be limited. One can break free from temporary fashions, styles, conventions, manners, tastes or obsolete views, traditions that obscure instead of brightening the real picture of the architectural world. One of the most radical rationalist artists, Oswald Maria Ungers justified the validity of architectural solutions referring to reason, rationality and

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logic, emphasizing that: *true freedom exists only within the limits of reason*\(^\text{12}\). Independence from what is momentary, superficial, unimportant, unnecessary leads to another criterion of rationality – the universal truth.

4. Rationalism and the pursuit of the truth

Truth is the natural goal of rational cognition. *Not only does reason constitute a source of knowledge, but it also plays the role of the final instance in assessing the value of human cognition and is a factor organizing human cognition due to the fact that the subject which cognizes as a reflexive one distinguishes what is constant from what is changeable and accidental in an object*\(^\text{13}\). The truth, also the aesthetic one, achieved on the rational path, discovered in a sure and perfect way, through clear and explicit ideas, provides authentic universal cognition. According to Descartes, truths should be sought in human thought: *The truth must be discovered and not constructed*\(^\text{14}\). Clarity and expressiveness – guarantees, criteria of the truth – the purer form they have, the more clearly the discussed subject is defined\(^\text{15}\). Every departure from the goal of cognition, which is the truth, leads to irrationalism and absurdity. Features such as truth, universalism and objectivity condition each other.

The creators of architecture of rationalist trends will search for “universal architectural truths” primarily through “types”. They see sources for architectural creation as part of the repertoire of architectural forms, “types” and ways of their relationships established in the past. They seek the essence of architecture hidden in unchanging, universal, recognizable forms, based on solid and clear principles.

5. Rationalism and reality

In rationalist philosophy, reality is the source and subject of cognition. Action is considered rational when it brings about refinement of the subject to which it relates\(^\text{16}\). Rationalists must anchor their claims in some external, objective foundation (e.g. science).

In contrast to many contemporary trends within which architecture resulting from the rejection of the real world is constructed, rationalist design projects have strong ties with reality. “Cognition of reality” takes place through a “rational thought process” which is to bring out its essence, the true meaning, by rejecting all that is superficial, apparent, fleeting. The creator looks for motivation, reference, and necessity in the real world.

Trying to understand the basics of the architectural design, Antonio Monestiroli explores the connections between architecture and reality. He begins his reflections on architecture from the basics of comprehension and creation, emphasising that it *is a certain form of reality, one*


\(^{13}\) E. Morawiec, *op.cit.*, p. 170.


\(^{15}\) Ibidem, p. 49.

\(^{16}\) E. Morawiec, *op.cit.*, p. 167.
of the potential forms in which reality presents itself. He calls for the creation of architecture related to reality, in contrast to the trends that allow for the creation of the escapist architecture, architecture as building alternative worlds. He explains: I believe that discovering reality is possible by distinguishing the essence and appearances of what is permanent and lasting from what is variable and fleeting. [...] Cognition is accomplished through the transition from the superficiality of things to their essence, through the principle of abstracting, a rational process that literally extracts the essence of reality. Monestioli longs for architecture constructed with clear and simple forms that become a derivative of understanding the complexity of what they represent and constitute the consequence of finding the identity of the structure. He wants the building to be built based on forms that portray its raison d’être.

6. Rationalism and order

The consequence of the rationalist approach is submission to the criteria of law and order. This is a timeless law and order – occurring between the structural elements of a given object/idea/theory, which can be captured in strict mathematical or logical laws. As Descartes wrote (in Principles IV): Mathematical sciences are valuable because they teach “real order” as a result of their “real use”. They are not an ordinary mental game, but a model of all cognition. “Universal mathematics” extends to everything that contains “order and measure”. Rationalism is accompanied by the conviction that the basic source of valid cognition is reason with its own logic that corresponds to the logical construction of the world. Rationality excludes any randomness.

The above-mentioned criteria of the cognitive value of rationalism such as constancy, invariance, limitation of rules, clear rules, articulation, coherence, consistency, expressiveness, transparency are the features that can be reduced to the concept of order in architecture. The vision of a permanent, universal, absolute order as the opposite of chaos and excess becomes crucial for some architects in the design process. The order can be implemented through reductions, geometrizations, seriality or categorizations (types and typologies). By limiting the excess of elements to those necessary ones, reduction is a preliminary step in ordering. The concepts in which the pursuit of order is especially manifested are those in which elementary, geometric shapes (indivisible solids and complex compositions) and mathematical proportions govern the composition-structure. Seriality, repetition, modularity concerning solids, plans and façades is another principle that architecture can be subordinated to while seeking order in the purest form. The ordering of goals by turning towards architectural types may also offer conceptual support. Although limited by strict rules, this architecture adopts very different faces. For these creators, the elementary, geometric forms and numerical relations governing the structure are an expression of the manifestation of the world order.

An attempt to achieve a perfect order requires extraordinary discipline in the design process. Order, regularity is a sign of intent. A sign of rationalistic and not intuitive thinking.

18 Ibidem, p. 79.
20 E. Morawiec, op.cit., p. 170.
These works are intellectually demanding. Perceived order requires understanding from the viewer.

It should be emphasized that the order should express the purpose of the building – its structure and function. One should avoid contradictions, discrepancies. Architectural solutions based on the idea of order should not be devoid of the internal necessity which should characterize the project, penetrate its form and meaning, and release the power of expression.

7. Rationalism and purposefulness

Not every human activity is rational, even though there is a certain “logic” in it by virtue of the purpose it is aiming at. The action is rational when it is motivated by a correctly identified goal, and reason allows to make the right choice between the means leading to it. That which is rational always has its raison d’être. In the essay “Rational beauty”, P. Souriau writes: all things are perfect if they are adapted to their purpose. The degree of perfection is measured by the relative value of the goals. Georg W. F. Hegel understood rationalism in architecture as a reduction of forms resulting from purposefulness, bringing about a clear picture of architecture as such.

The assumption of rationality states that every person undertakes activities that, to their knowledge, lead to the set goals in the best way. Therefore, the goal and the ability to rationally establish it are paramount. This is not so obvious in the field of architecture. For many creators, the goal is novelty, surprise, shock, bigness, bravado.

The words of J. J. P. Oud fit into the quandaries concerning rationalist architecture and can define its essence: I learned at school that a rationalist architect is somebody who honours construction, but for me an architect is only a rationalist when he honours the purpose of a building.

Again, one can turn to the words of Antonio Monestiroli, who states that it is only after getting to know and determining what is to be constructed that one should look for the right forms of that which is to be built. Thus, he emphasizes that architecture is to adopt the form appropriate to its purpose. The word purpose can be replaced with the term – the reason for building. The choice of structure and matter not resulting from the purpose of architecture – going beyond the technological, structural, functional cause – discrepant from the principle of decorum that postulates conformity between form and content – causes the architecture to shift towards empty formalism. It should be emphasized that this is not the architecture whose overriding goal is a function, but one that is capable of going beyond the limitations of functional necessity.

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21 Morawiec, op.cit., p. 165.
8. Rationalism and classical tradition

Heinrich Wölfflin subordinated the process of representational changes in art to five conceptual pairs\(^\text{26}\) that defined the opposing characteristics of the classical and baroque trends. As the features of classicism, he enumerates linearity, plane, closed (tectonic) form, plurality of unity and clarity. Concretising, he explains that in classical architecture the line acts as an edge, the plane is limited in a certain way, each solid speaks as a fully tactile form, and every single thing is clearly perceptible in its materiality. Classical architecture seeks beauty in material, strong and permanent forms, giving the impression of durability. It is above all a tectonic style with a compact order and a clear regularity. Compositions, structures, forms, objects adopt a closed or finite form. In the works attempts are made to turn everlasting proportions into a visible form of perfection\(^\text{27}\). Wölfflin indicates that classicism represents the plural unity type, where each form is a separate entity, independent of the other, and the whole is a set of separate parts related to each other. He uses the term classic clarity for the presentation of perfectly clear and unconditionally perceptible beauty, completely visible formal phenomenon in the final permanent forms.

The assumption of the classical trend that treats architecture as cognition and representation of reality\(^\text{28}\) fits into the rationalist way of thinking, while the distinguished features are consistent with the above mentioned criteria of the cognitive value of rationalism: Clarity and clearness (lines, planes and solids of directly perceptible forms), clear rules, articulation (rhythms, proportions, orders, planarity), coherence (closed composition), expressiveness, transparency (the whole as a set of separate parts related to each other), constancy, invariance (keeping the structural purpose of architectural elements).

As the one seeking support in principles and rules, a universal theoretical basis, the rationalistic trend is inevitably heading towards classical architecture.

9. Rationalism and irrationalism

It would seem that architecture as an art burdened with function and technology should have a special penchant for turning to rationality. However, a number of contemporary examples show that architecture is heading in the opposite direction. The goal of the creators becomes astonishment, and formal or technological solutions seem to be situated beyond the category of meaningfulness. We say that something makes sense if it is rational, recognizable, explainable, justifiable. Something is senseless if it does not meet these postulates. Nonsense is then one of the possible cases of irrationality\(^\text{29}\). The limit of rationality (and sense) is contradiction, absurdity or inanity. Many works of contemporary architecture cross this border, provoking questions about the meaning of their technological and formal solutions. Others, persisting in the idea of rationalism, do not lose sight of the true purpose of architecture.

How thin is the line between rational and irrational? Does rationalism lapse into irrationality (rational irrationality) when it becomes a dogma? Undoubtedly, this is the architecture that can force both the creator and the user to sacrifice. As a stance antithetical

\(^{26}\) H. Wölfflin, Podstawowe pojęcia historii sztuki, słowo/obraz/terytoria, Gdańsk 2006.

\(^{27}\) Ibidem, p. 66.

\(^{28}\) A. Monestiroli, Tryglif i metopa. op.cit., p. 17.

\(^{29}\) W. Stróżewski, op.cit., p. 425.
to irrationalism, proclaiming that the only valuable cognition is that in accordance with the results of science, rationalism rejects all means and methods of cognition that provide non-discursive and non-verifiable knowledge (e.g. intuition, revelation). Yet, is such a radical rejection of knowledge beyond reason possible in architectural creation? After all, as M. Unger puts it: Architecture is engaged in a continual process of dialectical tension between creative willpower and intellectual calculations, conception and functional acceptance, imagination and reality.\(^{30}\) The questions remain open.

10. Conclusion

The greater the ability of invention, the more it should be controlled; the more it is controlled, the more fruitful it will be. In a truly beautiful work, nothing is left to chance, everything is justified, necessary and leads to the desired result.

The supreme beauty, the masterpiece of art, the dazzling manifestation of genius is at the same time the triumph of reason.\(^{31}\)

P. Souriau, Rational beauty

In the essay from 1987 entitled Rationalism: A Philosophical Concept in Architecture, Alan Colquhoun questions the “condition” of rationalism at the end of the twentieth century although he notes that of all arts architecture seems to be the one from which the exclusion of this concept is the least possible. At that time, rationality and rationalism were undermined within various disciplines, including architecture. Post-modernism even considered rationalism to be a useless concept. Looking at the changes occurring in the architecture of the late twentieth century and contemporary art, one can still notice a clear reluctance to the rational thought in building, producing and inventing, which was replaced with the “illusion of creativity”. The works are characterized by disorderliness, inconsistency, absurdity, contradiction, antithetical to rational and rationalistic qualities. The shape of the world today is extremely unreadable, “obscured” by the flood of information and things, and the majority of architectural creations, being the answer to this state, appear to either escape or construct a “new” (virtual) reality. The sign of times is a superficial drive towards “surficial anesthetization” – embellishing closer and further reality, surrounding objects, buildings, people.\(^{33}\) In contrast to many contemporary trends that build architecture resulting from the rejection of the real world, designs within rational architecture establish strong relationship with reality. In the world of plurality of styles, the rationalist tendency is always present and constitutes a contrast to the works conditioned by the all-encompassing speculative “irrationality” of contemporary culture. Rationality is still inherent in the way of thinking and acting of some architects. Among these there are the late Aldo Rossi, O. M. Unger and Livio Vacchini, whose work still influences many contemporary architects, as well as

\(^{30}\) O. M. Unger, Architecture’s right... op.cit., p. 305.

\(^{31}\) P. Souriau, Piękno racjonalne, [in:] Antologia współczesnej estetyki francuskiej, p. 184.


\(^{33}\) A. Bandura, op.cit., p. 20.
Antonio Monestiroli, Vittorio Gregotti, Giorgio Grassi, David Chipperfield, Max Dudler, Hans Kollhoff, Rapp+Rapp, Baumschlager & Eberle. Their concepts materialized in physical buildings are proof of the intransient value of architecture that surrenders to the power of reason.

Descartes was concerned that we would either have knowledge that is grounded in something external and eternal, or that we would be condemned to constant conceptual chaos, that we would plunge into the randomness of history and experience and there would be nothing left but relativism. The rationalist architecture seeks its foundations in genuine reality, in permanent universal truths, clear and readable ordering rules, aptly identified purpose, values lasting in time. Referring to the initial quotation, the rationalist architecture returns to the scientific and cognitive foundations of the field.

Architecture has a dualistic character – it combines aesthetic and technical aspects. The rational and rationalistic approach applies to both of them. The technical aspects seem to be subject to the criteria of rationality while the aesthetic, formal ones to rationalistic. However, one should emphasize the striving of rationalist architecture to achieve unity between function, form, structure and matter – a synthetic image of architecture, to combine material and architectural form.

References