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Graphic depictions of form and space in architecture: a visual perception outlook

Introduction

Similarly to images, graphics and figures in visual arts as well as graphic representations in architecture are subject to the multidimensional interpretation of image. The interpretation of graphic representations is connected with the perceptive aspect of the recipient, which is explained by theories of classical psychology. One of such theories is Gestalt psychology¹. In accordance with the assumptions of Gestalt psychology, impressions, defined as the simplest psychological process, being the reflection of one feature of an object, regardless of the other features of the object constitute the results of the analysis of observations. The recipient responds to stimuli by means of senses and is “equipped” with the ability of ordering stimuli into structures or Gestalten². According to the principle formulated by the school of *Gestaltpsychologie*, the sense of vision tends to organise visible shapes into two opposite groups, i.e., figures³ and

grounds⁴ for figures. The visual perception is organised so that a part of the perceptive field comes into sight as a prominent (“standing out”) system, while the rest is treated as the ground. To detect the entirety (a specific shape) separated from the visual field, the entirety is attributed with the role of a figure. In other words, in *Gestaltpsychologie*, the term of figure refers to what is separated from the rest [2, pp. 7–14].

The above-named division is recognised as one of the primary features of perception, independent of previous experience and concerning all people. The figure-ground relationship is not always static. The figure is a part of the field attracting attention. The transfer of attention to another part of the field may introduce changes and reverse the figure-ground organisation [2, pp. 15, 16].

In the tradition of graphic studies, an object being the subject of representation as well as, seemingly, the dominant element of the composition which is located closer to the observer is referred to as a figure. In literature, the subject of representation is also referred to as a positive element in the composition in contrast to the ground, frequently referred to as “negative space” [3, p. 22]. The application of the above-named notions is related to perceptive dynamics, which is reserved in the first place for the figure, whilst the ground is seen as a passive recipient of the energy generated inside the figure and affecting its surroundings. Graphic elements surrounding the subject give

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¹ *Gestaltpsychologie* is the school of psychology created in the 1910s in Germany. Its primary representatives were Max Wertheimer, Kurt Koffka, Wolfgang Kohler and, through philosophical relationships, Kurt Lewin. In architecture, proponents of Gestalt psychology included such researchers as Juliusz Żórawski, Sven Hesselgren, Rudolf Arnheim and Christian Norberg-Schulz [1, pp. 370, 371].

² *Gestalt* is a word for figures, shapes or forms in German. The word refers to a whole, system, or configuration. The key term of Gestalt gave rise to the name of *Gestaltpsychologie* [1, pp. 370, 371].

³ The figure stands for a shape defined by its contour or/and plane and maintaining its visual autonomy. The figures are characterised by being finite, closed and foreground against the clearly separated ground. Groups of elements, between which topological relationships have been created, can also be read as figures. The structure of the system of elements adopts a specific shape and is subject to common principles. Those

are the principle of grouping, good continuation, proximity, similarity and contour closure [2, p. 14].

⁴ The remaining elements, not belonging to the observed object, are assigned the role of neutral ground. The ground is perceived as shapeless, uniform, having the unlimited field and, apparently, spread out behind the figure. The figure does not tear the ground apart as the figure appears to be in the foreground in relation to the ground [2, p. 15].

the impression of being passive and increasingly distant as they constitute the ground for figures [4, p. 92].

The article discusses the issue of application of tools based on the postulates of Gestaltpsychologie. The interpretation of two-dimensional graphic representations in architecture which spatially order and divide the visual field into figure and ground (background) is presented by means of perceptive criteria. The Gestalt theory was used to explain the relationship between graphic representations in architecture and the shaping of the built environment corresponding to the recipient's perceptive possibilities. The study of this topic was carried out by qualitative analytical method and bibliographic research method. The aim of the research was to identify graphic aspects of architectural drawing, which can be interpreted as a representation of the antinomy of figure and ground. In order to prove the topicality of this subject for form creation in contemporary architectural design, the issues discussed were illustrated with examples of the 21st century architectural objects.

The state of research

Architectural drawings are also graphic representations subject to the above-presented principles. Since the early 1950s, graphic representations in architecture have been interpreted in accordance with Gestalt principles. The early 1950s were the time when such sciences as psychology and sociology became sources of knowledge used to improve the understanding of how the built environment affects a human being. In his publication entitled *Art and Visual Perception: A Psychology of the Creative Eye* [5], Rudolf Arnheim, a German theoretician of art and a psychologist of perception described the organisation of perception based on the figure and ground in relation to works of art and architecture. The observations were based on studies performed in 1935 by Rubin and Koffka concerning Gestalt [6]. Similar studies were also performed in Poland, among others by Juliusz Żórawski, within his research publication entitled *O budowie formy architektonicznej* [Theory of Build of Architectural Form]⁵ [7]. The perception of architecture and the morphology of architectural space were also studied by Andrzej Niezabitowski in his book *O budowie przestrzennej architektury: podstawy metodologiczne opisu, analizy i dzieła systematyki przestrzennych* [On the spatial structure of architecture: methodological bases of description, analysis and spatial systematics] [9] in 1979, and in his most recent publication *O strukturze przestrzennej obiektów architektonicznych* [On the spatial structure of architectural objects] [10].

⁵ The publication, constituting the basis for the obtainment of the PhD degree by J. Żórawski in 1943, was published in 1962. Because of the pioneer idea of the introduction of the psychological aspect to architecture, the publication is regarded as an accomplishment on a global scale. The Author presents the primary notions of Gestalt psychology such as entirety, strong forms, weak forms, coherence, freedom of forms, etc. By referring the knowledge contained in *La Psychologie de la forme* (first published in 1937) [8] to architectural deliberations, the publication by J. Żórawski discusses relationships between architecture and the theories of Gestalt psychology.

Since the 2nd half of the 20th century the terms of figure and ground as well as those of a positive and a negative have been common in the context of architecture. Their definitions are included, among other things, in the dictionary of architectural terms by Tom Porter [11, pp. 47, 48] and in the dictionary of modern architecture edited by Willy Müller [12, p. 114]. *A Pattern Language*, a publication by Christopher Alexander from 1977, undoubtedly contributed to the popularisation of the above-named terms (particularly as regards positive and negative space)⁶ [13, pp. 518, 519].

“Positive interior space” was searched for as early as in the 1950s by Italian architect and theoretician Bruno Zevi. His theoretical deliberations were based on a graphic method emphasizing architectural space by referring to the figure-ground relationship. Zevi stated that the representation of architectural space in the form previously presented by designers did not reflect its properties and the actual experiencing. In comparison with technical advancement which made the capturing of sound or image possible at that time, Zevi found the architectural graphic language alienated and archaic. The primary reason for the aforesaid situation was designers' focus on the architectural projection, being the starting point for generating space in accordance with the modernist method of design. In Zevi's opinion, the above-named method was excessively abstract and did not represent observer's perception. A step towards the capturing of the essence of architectural space was the search for its graphic record. In his publication from 1974, Zevi presented the projection of St. Peter's Basilica in Rome in several variants, showing alternately the structure of material elements and space as the figure against the ground (Fig. 1) [14, pp. 52, 53].

The graphic transformation of projection used by Zevi served the purpose of the search for a figural synthesis of the temple and its material structure. Zevi presented the traditional record of the projection of the building and its negative created by tonal inversion. The search for a method enabling the graphic representation of both parts was an attempt at overcoming the limitations of a two-dimensional drawing. In the traditional record, the walls of the temple come out to the foreground (Fig. 1a). In the projection transformed by tonal inversion, observer's attention focuses alternately on the figure of interior space which has been separated from the exterior and the part of external space which complements it (Fig. 1b). The first representation of the projection distinguishes walls, the second one the interior and surroundings as correlated space. In 1966, in the course of reflecting on architectural drawings, Robert Venturi described the interior and the space as “the greatest manifestation of opposites in architecture” [15, p. 42]. He did so in his book entitled

⁶ In Pattern 106, entitled “positive exterior space”, Alexander attempted to describe urban space as the positive element of the composition of urban systems – in other words, the figure against the ground of the system of buildings. The above-named pattern contains synthetic description and diagrams illustrating examples of positive and negative space, whose graphic solution shows the tendency to group visible shapes into figures against the ground [13, pp. 518, 519].

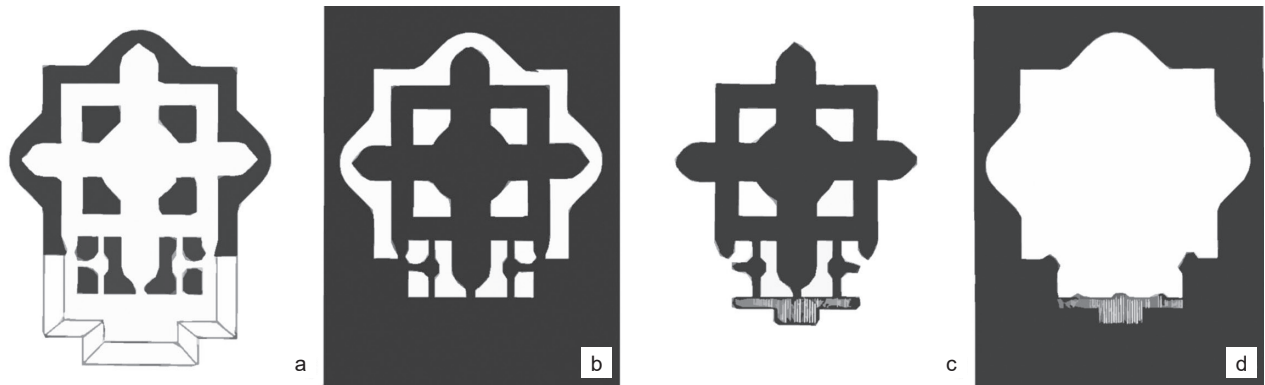


Fig. 1. Diagram by B. Zevi presenting St. Peter's Basilica in Rome:
a) simplified version of the plan, b) negative of the simplified version of the plan, c) internal space, d) external space
(elaborated by M. Wąsowicz based on [14, pp. 52, 53])

Il. 1. Diagram B. Zewiego obrazujący Bazylikę Świętego Piotra w Rzymie:
a) uproszczona wersja rzutu, b) negatyw uproszczonej wersji rzutu, c) przestrzeń wewnętrzną, d) przestrzeń zewnętrzną
(oprac. M. Wąsowicz na podstawie [14, s. 52, 53])

“Complexity and Contradiction in Architecture” regarded as the manifesto of postmodernism. Zevi's drawings are a confirmation of Venturi's thesis, where one can observe how significantly the forms of the interior (Fig. 1c) and the surroundings of the building (Fig. 1d) differ.

Since the 2nd half of the 20th century, the interest in the manner of the representation of space and the extension of possibilities of the transfer of architectural representations have resulted from a new view of the relationships between the human and architecture seen from the angle of psychology. The correlation between architectural structures and the spaces separating them was recognised as a basic principle for human orientation in the built environment. The arrangement of objects in space is subject to complex processes of perception. This is referred both to the conscious shaping of the built environment by the designer and the process of their interpretation by the recipient of architecture. On the basis of Gestalt psychology, it was also recognised that the perception and understanding of composition depend on the interpretation of interaction between its elements. Perception defined as the organisation and interpretation of sensual impressions aimed to understand surroundings is playing today a particular role in the shaping of architecture⁷.

Figure-ground as representation of antinomy in architecture

Architectural drawings, which highlight the figure-ground relationship, represent designer's intentions and may be an attempt to abstractly present the reception of a building by the observer. It is feasible because graphic technique enables the recording of the relationship between interiors, material objects and the surrounding space. Graphic technique also makes it possible to identi-

fy space characteristics, including how it is perceived. The arrangement of gestalt in the visual field can refer to urban and architectural plans, cross-sections, projections and elevations. The following can be visualized: the interior and building mass; walls and their openings; buildings in the context of its surroundings as well as the relation of interiors and exterior spaces (Table 1).

Graphics based on the system of figure-ground field can be used to represent various aspects of architectural design. Each two-dimensional representation of an architectural idea can be subjected to analysis and interpretation in respect of the system of figure-ground fields. Formal analysis can be performed by the confrontation of two graphics being opposites (in relation to each other), e.g., an image in positive and negative. In the article, the author proposes the following classification of representations into four categories:

- 1) depicting interior space of the building and its material structure: walls and space,
- 2) depicting walls and their openings,
- 3) depicting the building mass in the context of surrounding spaces,
- 4) depicting the programme component groups.


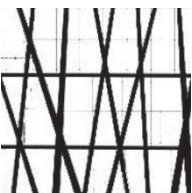
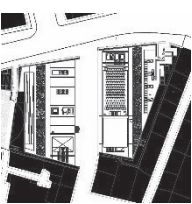

The wall-space relationship

The basis for the creation and recording of the formal and functional organisation of a building is architectural projection. Projection is referred to as a horizontal section as it constitutes the result of the intersection of elements of a building on a given storey. In traditional technical drawing, the components of form, function and structure of a building are marked using lines of appropriate thicknesses and filled fields. Projection marks walls separating spatial units and the interior from the surroundings. Such a drawing enables the reading of the contour of walls and the contour of interiors [11, p. 164].

The facilitation of the interpretation of architectural documentation involves the emphasizing of the structural elements of a building, thus improving the clarity of

⁷ The problem of depicting architectural space in psychological terms was described in detail by Porter in his book *The Architect's Eye: Visualization and Depiction of Space in Architecture* [16].

Table 1. Figure and ground imaging in architectural monochrome graphics (elaborated by M. Wąsowicz)
 Tabela 1. Obrazowanie figury i tła na architektonicznych grafikach monochromatycznych (oprac. M. Wąsowicz)

Graphic representation	
	Representation of correlation between the building structure components and space
	Representation of façade composition, e.g. correlations between the openings and the wall
	Representation of the complementary relationship of individual functional systems, e.g., room layout with division into serving and serviced rooms
	Representation of correlations between groups of buildings and spaces between these buildings

drawings. Usually, material objects visible in a section, e.g., walls or other structural elements, are represented by a black thick contour. Frequently, the contour is “reinforced” by filling. The field defining the location and borders of sectional elements is referred to as *poché*⁸.

Poché constitutes the representation of the structural aspect of a building. The focusing of attention on structural elements precludes noticing the functional aspect of a building. To observe space where users move and function, it is necessary to notice the area (usually constituting a white ground) surrounding elements of the structure. The representation of the elements of the building structure in a projection obtained through the *poché*-based presentation of elements intersecting the cutting plane constitutes the system of fields, the arrangement of which (to a various degree) aims at the closure of interior space [11, p. 164]. To notice the shape of interior space it is necessary to transfer attention to the white field within the walls. Then, the observer has the impression that construction elements constitute the infinite black field,

⁸ The notion of *poché* (pocket in French) refers to the filling between the intersection lines of solid elements such as walls or the site (in cases of buildings embedded in the ground). The filling usually has the form of a uniform black field. As a result, structural elements in architectural drawings are clearly marked and easily noticeable [11, p. 164].

spreading beyond the area corresponding to interior space [3, p. 22]. It is therefore possible to alternately notice the aspect of structure and usability, corresponding to each other as a positive and a negative, marked with black and white colours respectively (Fig. 2).

A person looking at two-dimensional representations of architectural designs interprets the composition of figures against the ground. However, the figures may be unstable during the process of observation. Images can be interpreted ambiguously by the perceptive apparatus as the patterns of Gestalt structures are interpretable in more than one manner. The aforesaid phenomenon is referred to as multistability⁹. In one approach, *poché* can constitute the system of black figures against the white ground, whereas in another approach the white interior space can be seen as a figure designated by the contour determined by black walls¹⁰.

⁹ The multistability of Gestalt structures is connected with the possibility of “switching” between various, usually two modes of interpreting the identity of an object and is primarily concerned with the entireties using the figure-ground relationship. In other words, what in one instant is seen as the figure can become the ground and the previously perceived ground can be seen as the figure. In such cases, the features of the figure and those of the ground can be attributed to various parts of the image [18, p. 366].

¹⁰ A design method based on the said duality is proposed, among others, by Herman Hertzberger. In his opinion one should avoid design

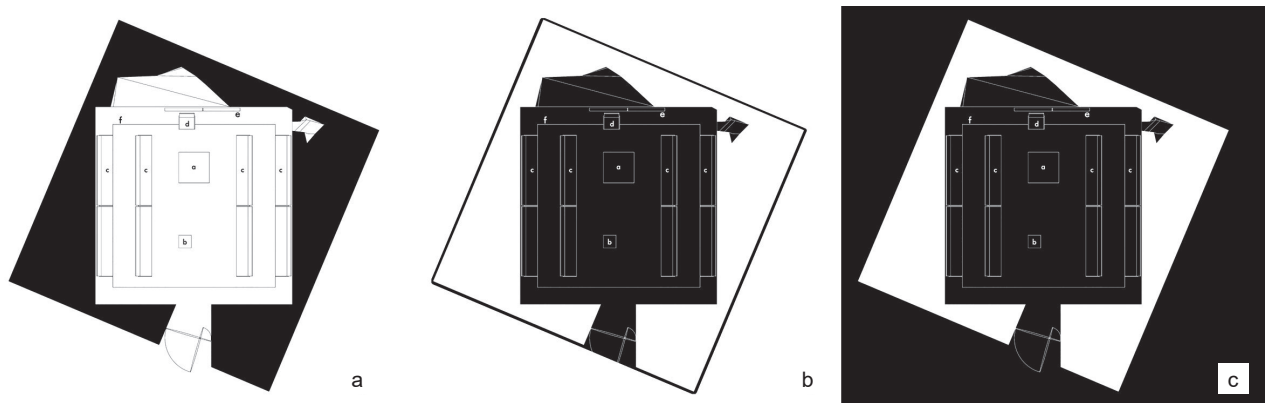


Fig. 2. Relationship between the wall and interior space based on the example of Holy Rosary Church by Trahan Architects:
 a) highlighting structural elements of the building, b) highlighting interior space,
 c) highlighting interior space and space surrounding the building
 (elaborated by M. Wąsowicz based on [17, p. 180])

II. 2. Relacja przegrody i wnętrza na przykładzie kościoła Matki Bożej Różańcowej projektu Trahan Architects:
 a) akcentująca elementy struktury budynku, b) akcentująca wnętrze, c) akcentująca wnętrze i otoczenie budynku
 (oprac. M. Wąsowicz na podstawie [17, s. 180])

Noticing the shape of architectural space in flat drawings is therefore an unstable phenomenon dependent on observer's interpretation. In terms of the drawing record of architectural space within flat composition such as a projection or section, the area of the field representing space is located between the fields representing the location of walls and columns. However, not always the contour of architectural space is easy to observe. In certain cases, the borders of the positive element standing for architectural space are determined by the illusory contour¹¹. Therefore, the perception of the elements of a system as a certain entirety makes it possible to imagine its non-existent parts [2, p. 17].

Space can emerge on the basis of the organisational structure of a projection. Space can be observed through the identification of elements constituting its contour, i.e., both the lines constituting the contour of fields representing walls and the array of point elements (e.g., columns) constituting an imagined line. The field representing interior space can be partly defined by the contour shared with other elements of the system and partly on the basis of the illusory contour created by perception. Both contour types can simultaneously belong to different elements of the composition of the projection [20, pp. 73, 74].

In a situation where it is not possible to observe a contour, space can be interpreted as borderless, i.e., flowing between the interior of a building and its surroundings. By means of a graphic architectural design, defined as an arrangement of figures against the ground, it is possible to notice the features of space or its nature.

procedures in which the architectural and urban space becomes a residual value (the so-called space between). Instead, he advocates methods in which the designer focuses on the shape of the interior space and the space surrounding the building. Because this method is the opposite of the commonly used solutions, he calls it the negative method [19, pp. 214–216].

¹¹ A phenomenon responsible for complementing the observer's perception with missing parts of the form in order to close its contour [20, p. 77].

There is a relationship between the type of the components of the building structure and their form and the shape of architectural space. The above-named correlation, consisting in the possibility of noticing the forms of walls alternately with the interior space of a building remains in connection with the type of structure of walls (massive or lightweight), their shape and layout. All of the above-named correlations are accentuated in monochromatic drawings with *poché* walls.

On some plans and sections it is possible to highlight elements of the building structure and clearly indicate the interior field. This is most often the case when space is bounded by solid walls. Figure 3a presents a schematic shape and arrangement of walls of a house in Cadoços designed by Aires Mateus. The layout of the partitions triggers the perception of space contained inside a building, because clear boundaries are created for it.

There are interrelationships between the interior and exterior where the emphasis may rest on the interior, the space around the building, or the two may be linked by a spatial continuum. Emphasis can be given to the permeation of interior and exterior space only within the main component of the programme. If interior space is not limited by the clearly visible contour of the walls, emphasis can be given to space flowing between the interior of the building and its surroundings. In such a case, the contour of interior space is not clearly defined. Figure 3b presents a schematic shape and arrangement of lightweight walls of Brillhart House by Brillhart Architecture. The wall arrangement triggers the perception of space freely flowing through the building, as there has been a reduction of elements characteristic of the interior contour.

The wall and its openings

The relationship between wall and space determined by the wall is similar to the composition relationship between openings and the façade wall. Walls are perceived as posi-

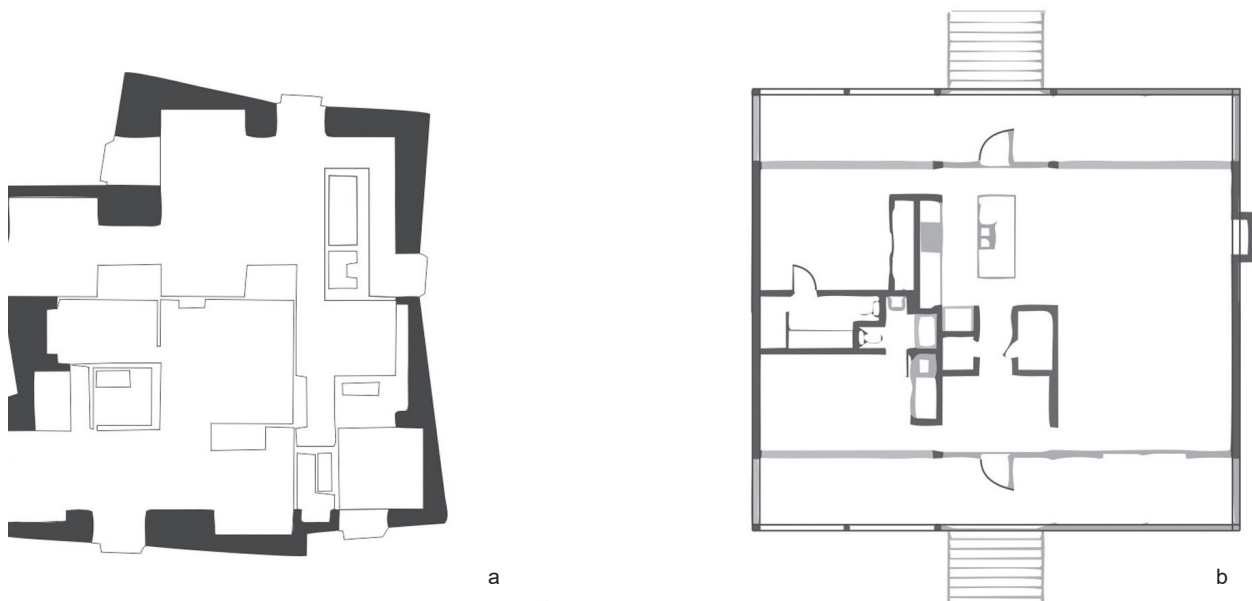


Fig. 3. Nature of space is connected with the type of wall defining the space:

- a) space appears contained inside a building, house in Cadoços by Aires Mateus (elaborated by M. Wąsowicz based on [21, p. 250]),
- b) space appears to flow freely through the building, Brillhart House by Brillhart Architecture (elaborated by M. Wąsowicz based on [22])

II. 3. Charakter przestrzeni związany jest z rodzajem przegrody, jaka ją wyznacza:

- a) przestrzeń zdaje się zawarta we wnętrzu budynku, przykład domu w Cadoços projektu Aires Mateus (oprac. M. Wąsowicz na podstawie [21, s. 250]),
- b) przestrzeń zdaje się swobodnie przepływać przez budynek, przykład domu Brillhart projektu Brillhart Architecture (oprac. M. Wąsowicz na podstawie [22])

tive material elements, yet observer's attention can also be drawn to openings against the ground of the wall as well as transparent parts of the façade and may become a figure in the visual field. Façades truly constitute the most common (in architecture) system of figures against the ground.

In terms of perception, a window – an opening in the wall, small in relation to the wall area, adopts the features of a figure, although it actually only constitutes a break in the area of the wall. At the same time, there is the multi-level relationship between the positive and the negative. The window constitutes an element/figure in the plane of the façade, yet the wall itself is also limited by contour and possesses features of a figure within the context of the entire body of the building. It is assumed that systems based on massive walls accentuate the positive-negative relationship in the plane of the façade. An opening in the solid wall of a building is perceived as cut-out having

features of a figure. A greater number of openings constitutes the arrangement of elements of figures in the plane of the façade. In such a case, the wall, as a solid element, becomes the negative field, i.e., ground, for the positive element of the façade composition, i.e. an opening.

Figure 4 presents the designs of the façades that trigger perception of the openings as the composition of figures against the ground of the wall. In some cases, as in the Pavillon Noir object, by Rudy Ricciotti (Fig. 4a), the wall can be a figural element in the composition of the façade. Framework-type walls trigger primarily the perception of material structure. This is different from the façade of the Simmons Hall dormitory designed by Steven Holl (Fig. 4b), where our gaze is first directed to the openings in its plane.

In some cases, also massive walls may trigger ambiguous interpretation, e.g., a hotel in Dublin designed by Aires Mateus design studio (Fig. 5). In terms of the win-

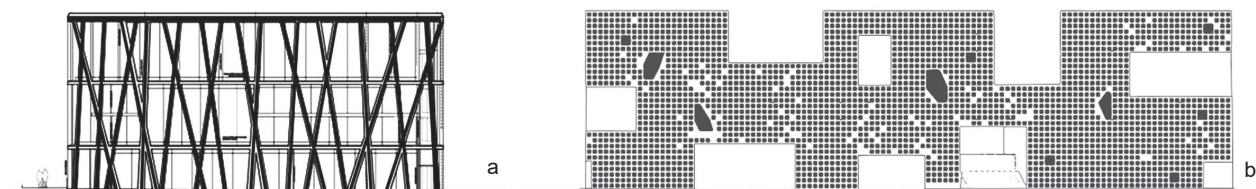


Fig. 4. Elevations:

- a) accentuating the plane of the external partition, on the example of Pavillon Noir, designed by R. Ricciotti (elaborated by M. Wąsowicz based on [23]),
- b) accentuating the opening in the plane of the elevation, on the example of Simmons Hall dormitory designed by S. Holl (elaborated by M. Wąsowicz based on [24, p. 76])

II. 4. Elewacje:

- a) akcentująca płaszczyznę przegrody zewnętrznej, na przykładzie projektu Pavillon Noir projektu R. Ricciottiego (oprac. M. Wąsowicz na podstawie [23]),
- b) akcentująca otwór w płaszczyźnie elewacji, na przykładzie akademika Simmons Hall projektu S. Holla (oprac. M. Wąsowicz na podstawie [24, s. 76])

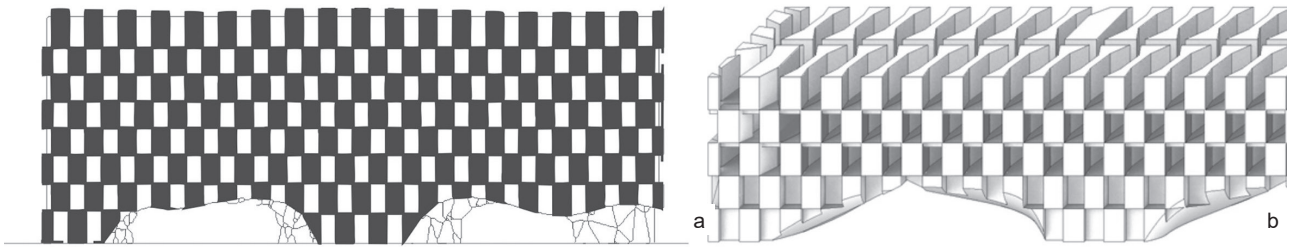


Fig. 5. Example of an elevation accentuating alternately the plane of an external partition and an opening in this plane, on the example of a hotel in Dublin designed by Aires Mateus:
a) view of an elevation, b) view of a solid (elaborated by M. Wąsowicz based on [21, pp. 106–108])

Il. 5. Przykład elewacji akcentującej naprzemiennie płaszczyznę przegrody zewnętrznej i otwór w tej płaszczyźnie, na przykładzie hotelu w Dublinie projektu Aires Mateus:
a) widok elewacji, b) widok bryły (oprac. M. Wąsowicz na podstawie [21, s. 106–108])

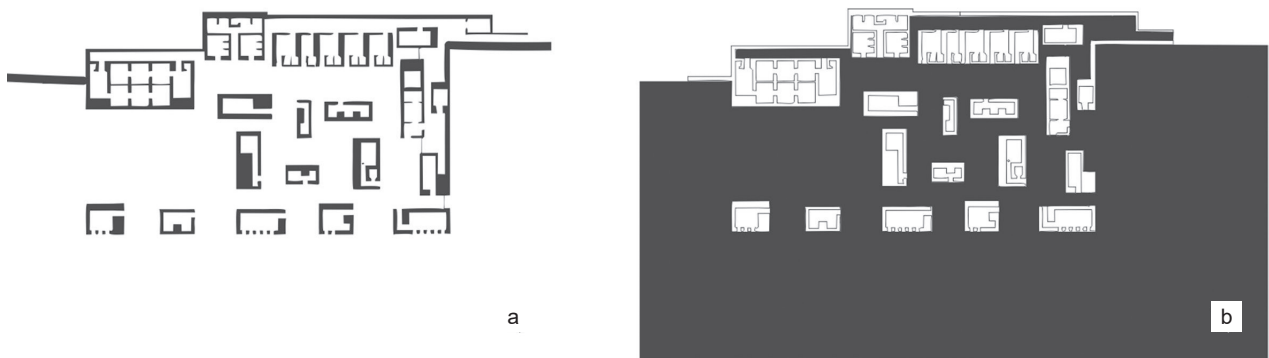


Fig. 6. The relation between a building and external space on the example of thermal baths in the Vals valley designed by P. Zumthor:
a) accenting the building among its surroundings,
b) accenting the external space (elaborated by M. Wąsowicz based on [25, p. 266])

Il. 6. Relacja budynku i przestrzeni zewnętrznej na przykładzie term w dolinie Vals projektu P. Zumthora:
a) akcentująca budynek wśród otoczenia,
b) akcentująca przestrzeń zewnętrzną (oprac. M. Wąsowicz na podstawie [25, s. 266])

dow and the wall, the positive and negative roles can be alternately attributed to either of the aforesaid elements in accordance with the principle of multistability.

The relationship between buildings and exterior space

In terms of relationship, a building and its adjacent space can be considered as antinomies. Emphasis can be given to a building or a group of buildings on the scale of land development plan or urban plan or to exterior architectural and urban space surrounding a building. In urban planning, monochromatic graphics are used for the differentiation of fields corresponding to the location of buildings and parts of the system free from building development. In scientific reference publications, this graphic tool is referred to as the figure-ground plan¹².

On an architectural scale, the relationship between space and the building is defined by the development layout, the shape of courtyards or the location of a given building in relation to neighbouring buildings. Also the forms of inner piazzas in relation to the bodies of buildings can be interpreted as figures against the ground. The design of the thermal baths in the Vals valley by Peter Zumthor can serve as an example. A relationship is established between the interior and the surroundings, which can be illustrated by a scheme based on white and black fields (Fig. 6). The meeting points of both types of space are the openings of the front façade.

The representation of two groups of components

In some cases, juxtaposition based on the complementary shaping of groups of formal or functional components is used as a part of an architectural solution. In such a case, graphic emphasis is put on the parts of graphic

¹² Figure-ground plan is a simplified housing scheme presenting relationships between buildings and spaces within a previously defined development area. As a result, it is possible to define the potentials of modification, unification and continuation of the existing urban tissue by adding or taking away spatial elements. The graphic technique known as the figure-ground plan is based on the assumption that urban systems can

be interpreted as the composition of figures against the ground, where buildings and groups of buildings adopt the role of figures, whereas spaces between the buildings adopt the role of the ground [11].

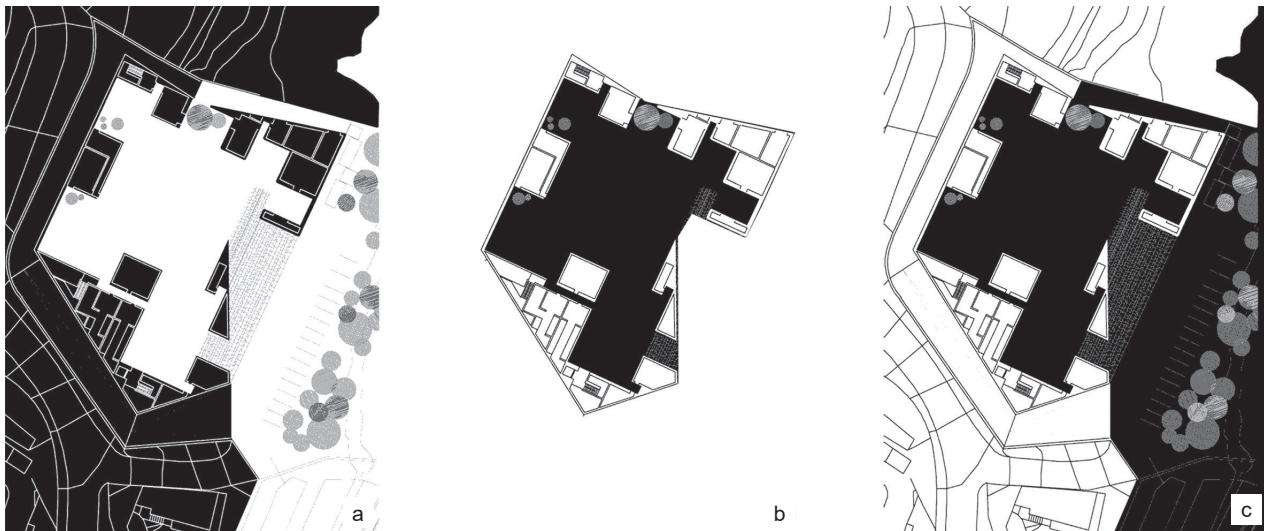


Fig. 7. Relationship groups of components based on the example of the Santo Tirso Call Center plan by Aires Mateus:
 a) highlighting servant spaces, walls and terrain, b) highlighting a served interior spaces,
 c) highlighting a served interior space connected to the outdoor space (elaborated by M. Wąsowicz based on [26, p. 192])

Il. 7. Relacja grup komponentów na przykładzie Call Center Santo Tirso projektu Aires Mateus:
 a) akcentująca pomieszczenia obsługujące, przegrody i teren, b) akcentująca wnętrze,
 c) akcentująca połączenie wnętrza i przestrzeni otaczającej (oprac. M. Wąsowicz na podstawie [26, s. 192])

representation selected by the designer. In this case, the graphic emphasis rests on the parts of the architectural drawing selected by the designer. As shown on the example of the Call Center in Santo Tirso designed by Aires Mateus, the graphic technique is closely related to the form that is seen in the drawing. The accentuation may be given to selected groups of rooms (service rooms) connected by the field of filling with partitions and the area above the projection level (Fig. 7a), the serviced internal space (Fig. 7b) or the way of connecting the serviced internal space with the external space.

On an architectural scale, the graphic articulation of selected components can be presented in schematic diagrams aiming at the clarification of functional organisation, circulation, zoning etc. in a building. The use of diagrams based on the division into components usually does not represent the correlation between the elements of the structure and those of space in a building.

Poché may include small parts of the programme and is presented in flat 2D views as one field with walls (and sometimes with the site). The purpose of such an approach is to highlight interior space having a superior function. The aforementioned division into two differently shaped functional groups can contain larger parts of the body, may not be directly connected with walls and, to a greater extent, be concerned with complementary and opposite geometries.

Conclusions

The structuring of Gestalten in the visual field plays a key role in the interpretation of graphic studies in architecture. The interpretation of architecture through the prism of Gestalt psychology has a long tradition and serves both the design of the new as well as the analysis of existing buildings. In addition to primary issues related to the recognition of material elements in design documentation, the division into the figure and the ground constitutes a tool explaining the idea of the spatial ordering of an architectural object. The perception of two-dimensional elements in projections and sections does not correspond to the perception of a building in space. Yet there are relationships between the graphic record and the visual qualities of a three-dimensional building. On the basis of the relationship between the figure and the ground observed in architectural graphic representations, it is possible to notice features of space, a degree of the opening or closure of a building in relation to its surroundings or the elucidation of the conceptual aspect. Designers use the figure and the ground to explain the structural, functional, circulation and zoning organisation in a building and its surroundings.

Translated by
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Abstract

Graphic depictions of form and space in architecture: a visual perception outlook

The article discusses the issue of the interpretation of two-dimensional graphic representations in architecture which spatially order and divide the visual field into figure and ground (background) by means of perceptive criteria. The Gestalt theory was used to explain the relationship between graphic representations in architecture and the shaping of the built environment corresponding to the recipient's perceptive possibilities. The article demonstrates that each two-dimensional representation of an architectural idea can be subjected to an analysis and interpretation in respect of the system of figure-ground fields. The ordering of gestalts in the visual field can also refer to urban and plot development plans, sections, projections and façades. The gestalt-based graphic technique makes it possible to record the relationship of space and material objects in architecture, identify space characteristics as well as clarify functional organisation, circulation, zoning and other characteristics in a building. In the article, the author proposes the classification of representations into four categories, such as: 1) interior space of the building and its material structure: walls and internal space as well as openings in the aforesaid walls, 2) body of the building in the context of surrounding spaces, 3) interior space and space surrounding an architectural structure, as well as 4) programme components. This classification is presented using examples of contemporary buildings.

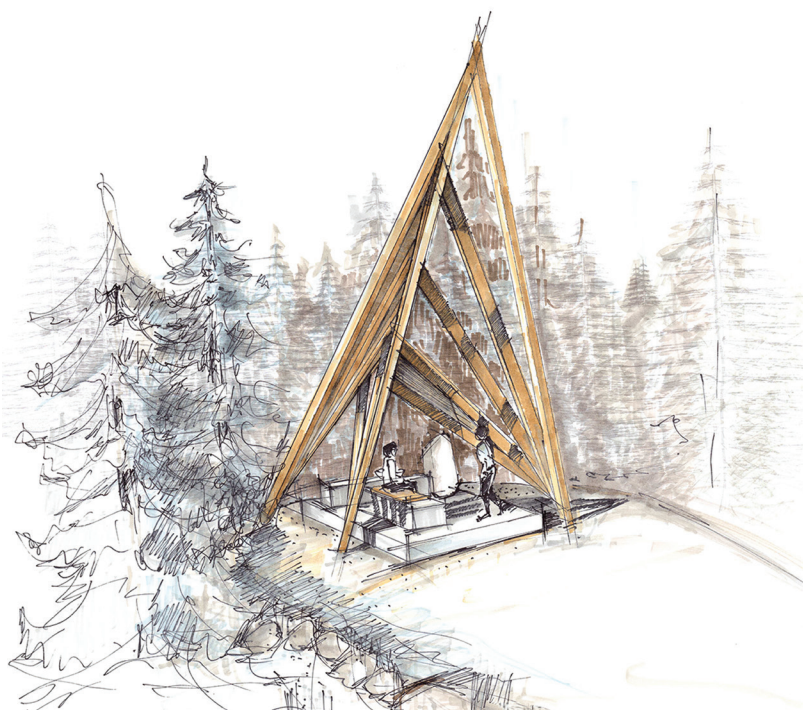
Key words: architecture, psychology of vision, Gestalt, architectural space, architectural graphics

Streszczenie

Graficzne wyobrażenia formy i przestrzeni w architekturze w kontekście percepcji wzrokowej

W artykule omówiono zagadnienie interpretacji dwuwymiarowych przedstawień graficznych w architekturze jako determinowane kryteriami percepcyjnymi, porządkującymi przestrzennie pole wzrokowe na figurę i tło. W oparciu o teorię Gestalt wyjaśniono związek przedstawień graficznych w architekturze z kształtowaniem środowiska zbudowanego odpowiadającego możliwościom percepcyjnym odbiorcy. Wykazano, że każda dwuwymiarowa reprezentacja idei architektonicznej może zostać poddana analizie i interpretacji w kontekście układu pól figura–tło. Porządkowanie gestaltów w polu wzrokowym odnosić się może do planów zagospodarowania miast i działek, przekrojów, rzutów oraz elewacji. Poprzez technikę graficzną opartą na gestaltach możliwe jest rejestrowanie związku przestrzeni i obiektów materialnych w architekturze, określenie charakterystyki przestrzeni, wyjaśnienie organizacji funkcjonalnej, cyrkulacyjnej, strefowania i innych w budynku. W artykule zaproponowano klasyfikację reprezentacji na obrazujące przestrzeń wewnętrzną i strukturę materialną obiektu: 1) przegrody i przestrzeń wewnętrzną oraz otwory w tych przegrodach; 2) bryłę budynku w kontekście otaczających przestrzeni; 3) przestrzeń wewnętrzną i otaczającą obiekt architektury, jak również 4) grupy komponentów funkcjonalnych. Klasyfikację tę przedstawiono na przykładach budynków współczesnych.

Słowa kluczowe: architektura, psychologia widzenia, Gestalt, przestrzeń architektoniczna, grafika architektoniczna



Leogang (Austria), Mountain chapel
near the mid station of the Asitz ski lift,
design by W2 Manufaktur, Bmstr. A. Waltl,
arch. B. Krynicka
(drawing by B. Krynicka)

Leogang (Austria), Kapliczka górska
w pobliżu pośredniej stacji wyciągu
narciarskiego Asitz, projekt W2 Manufaktur,
Bmstr. A. Waltl, arch. B. Krynicka
(rys. B. Krynicka)