

LEONID TCHERTOV*

SEMIOTIZED SPACES IN PICTORIAL ARTS

SUMMARY: Each picture evoking perception of another space is included in processes of subject-object representation and inter-subject communication. Pictorial arts create their separate spaces distinguished by structures, functions, and relations to reality. The depicting space is two-dimensional and closed, unlike the depicted space, which can be three-dimensional and open. It can be formed in a real object (drawing, painting, photo, etc.) as a flat projection of a volumetric original. The depicting and depicted spaces are semiotized with the help of various spatial codes, and their connection is regulated by a special complex of iconic and indexical semiotic means. It is possible to speak about a special perceptographic code regulating the formation and interpretation of indexes, due to which the viewer's gaze can penetrate "through" the depicting surface into the depicted space "behind" it. Depending on the concentration of the viewer's intention on these spaces or on their connection, diverse spatial codes become relevant in the picture's interpretation. Various stylistic directions have differently highlighted these codes and relations between pictorial spaces. Accordingly, the picture could be treated mainly as a "wall" with a painted surface, a "window" open to a three-dimensional space, or a "curtain" between the real and transcendent worlds.

KEYWORDS: depicting and depicted spaces, semiotization of space, spatial semiotics, spatial codes, perceptogram.

* International Association for Semiotics of Space and Time. E-mail: leonid.tchertov@gmail.com. ORCID: 0009-0002-4968-7598.

1. Introduction

The pictorial arts (painting, drawing, engraving, etc.) represent reality in a special way. On the one hand, the pictures belong to real space—as paintings hanging on the walls of a gallery. On the other hand, they lead the viewer’s eye into some other spaces, which are absent at least in the gallery space, and may be absent altogether, beside the subject’s mind. So, each picture is stratified into the *depicting* and *depicted* spaces that are different but related.

This stratification has been noticed by scholars of different disciplines. Psychologists have noted the paradoxical nature of the picture, which is both two-dimensional and three-dimensional (Gregory, 1970), and which “always specifies something other than what it is” (Gibson, 1979, p. 273). Different “stratums” of the picture were also distinguished in classic works of aestheticians (Hartmann, 1966; Ingarden, 1989).

The ability of a picture to represent something different from itself makes it possible to include it in the class of signs, which was defined by Augustin as a thing that is not only perceived by itself but also evokes thoughts about something else (Augustin, 1995, I.2.2). It is not surprising that pictorial art became the subject of *sign studies* in both Peircean and Saussurean versions of them, appearing as early as the 1930s (Morris, 1971; Mukařovský, 1978).

A complex semiotic mechanism of objects represented in the picture and their interpretation at various mental levels can be revealed in theoretical analysis with the concepts of *spatial semiotics*. They can help to consider the “doubling of reality” in pictorial spaces as a result of a complex space semiotization with the help of an ensemble of semiotic means. Various spatial codes participating in the semiotization of the depicting and depicted spaces function in the real world as well, although some special semiotic means are used for the connection of these spaces.

The objective of this paper is a semiotic analysis of spaces created in pictorial representation and the codes used in their formation and interpretation. This theoretical analysis is carried out using the concepts of spatial semiotics in its author’s version. In particular, a general concept of semiotized space is applied in the article to distinguish pictorial spaces with different structures and functions, whereas the differentiation of spatial codes is applied there to clarify various semiotic means used for the interpretation of the depicting and depicted spaces. The concepts of various semiotic schools are also touched upon in the paper, as far as it is important for the consideration of its topic. At the same time, a detailed methodological discussion of conceptual similarities and differences is beyond its limits (see such discussions in Tchertov, 2019).

2. Diversity of Pictorial Spaces

2.1. Spaces of Pictorial Representation

The *picture* is seen here in a broad sense—as such, a means of an object’s representation and inter-subject communication, which can show the represented objects due to certain configurations of lines and color spots on the surface of a spatial bearer. Not all pictures are art pieces, but many art pieces belong to the class of pictures.

The picture can fulfil the same communicative and representative functions that were distinguished for verbal language in its “Organon model” by Karl Bühler (1965, p. 28). Like words, a picture is also capable of expressing some internal states of the author, to evoke similar states and certain behavior in the viewers, and to represent some other objects. However, the structures realizing these functions are different in the cases of words and images. Any picture can represent some objects to the extent that the spatial configurations of spots on its surface induce the perception of another space, where the represented objects are visible.

Whether these objects are of real origin or have arisen only in the subject’s imagination, they are perceived visually due to spatial relations formed in a physical bearer as long as optical contact with it is maintained. These relations are involved in processes of pictorial representation together with their mental models formed at different levels of the psyche. Both material and ideal formations of spatial relations, independent of their modelling or modelled functions, can be considered as *pictorial spaces* insofar as they participate in this common process of spatial representation.

The *space* is understood here not as a concept of a particular science (physics, mathematics, art studies, etc.), but as a general philosophical category covering complexes of spatial relationships with different modes of existence. Regardless of physical or psychical existence, the space in this sense is a complex of variable location relationships between coexisting objects, provided that this complex has a constant set of basic qualities. Such qualities as isotropy or anisotropy, discreteness or continuity, openness or closedness, one-, two- or three- dimensionality, etc., can be combined differently in *autonomous spaces* of diverse types with different structural laws of formation. Spaces with common laws and types of autonomy may be *separated* from each other by borders or without them—as far as they do not have a unitary order of relations between their parts, a unitary scale of their measurement, or if diverse, their conditions do not belong to a unitary series of events (for more details, see Tchertov, 2022).

Both concepts of autonomous and separate spaces give an opportunity for a more detailed semiotic analysis of spatial formations involved in pictorial representation.

2.2. Distinctions of Pictorial Spaces by Modes of Existence

A picture can only be perceived as far as a relationship is formed between separate spaces of different modes of existence. If the picture represents *real objects*, they belong to a certain physical space and time (1). The *spatial bearer* of the picture (canvas, paper, etc.) itself exists as a real physical object, although it can be as far distanced from the original as possible in space and time (2). This mediating object can be considered a *picture* insofar as its surface contains the *depicting space* (3) formed by lines and color spots with certain features. These features serve as means for evoking, besides a *perception of the painted surface* (4), also an *alternative visual perception of the depicted space* (5). The latter focuses not on the medium of the picture presented to the viewer, but on the represented objects outside the given situation, regardless of their real existence.

Perceptions of the depicting surface (4) and the depicted objects (5) are formed in the subject's mind as *ideal images* belonging to internal models of space. Unlike them, at least the material bearers of depictions (2) and sometimes also originals represented by them (1) are *real objects* existing in a certain external space and time. As far as a pictorial representation of some phantastic creatures in the depicted space (5) is also possible, their images can be formed only as mental constructions, with a different mode of existence than real objects (1) existing independently of their representation in any depictions.

The perceptions of the picture's surface (4) and of the depicted space (5) also differ in their properties. The bearers of pictures are perceived *directly* as parts of the spatial environment, where they are situated and can be categorized as "paintings", "engravings", etc. In contrast, the depicted space is separated from this environment and current events; it is formed in an *indirect* perception of "virtual objects" absent in actual space and time (cf. Gibson, 1979, p. 283). Such *shifted perception* also differs from images of memory or imagination, because it depends on visual contact with the configuration of color spots on the picture bearer and arises from their perceptual interpretation. This result is formed when the viewer's gaze is directed not *at* these spots themselves, but as if *through* them into the depicted space, where the represented objects are shown. An ability to evoke such shifted perception of the represented objects is a proper feature of the picture that differentiates it from other means of shifted comprehension, like conventional signs intended for their shifted understanding on the conceptual level (Tchertov, 2018).

Not all features of the physical bearer (2) participate in the formation of the shifted perception (5), and not all in the direct perception of this bearer (4) serve the representation of depicted objects. The perception of the depicting surface contains many irrelevant elements: glares on it, shadows from other objects, possible defects, etc., which are not included in the depicting space proper (3), containing only details responsible for the shifted perception of the depicted objects (5). Dividing relevant and irrelevant details requires the cultural skill of picture vision. Therefore, the existence of the depicting space (3) cannot be re-

duced to pure physical or psychical nature but depends on the ways picture vision developed in culture, especially in art. In this respect, the relevant characteristics of the depicting space are similar to those of a written text, which also cannot be reduced either to its material medium or to its perceptual image but needs the ability to select the appropriate elements. The relevant elements of the depicting space (3) form their own *spatial text*, which can be detached from the initial bearer (2a) and transferred to others (2b, 2c, ...)—as is evident in the case of printed graphics or photocopies.

This “transferable” spatial text, designed to induce a shifted perception, can be called a *perceptogram* (see also Section 3.4 of the current paper). Although the replacement of an original painting with copies or reproductions is usually associated with the loss of their aesthetic and historical values, such “autographic” works of art (in the terms of Goodman, 1968, p. 113) also contain perceptograms that have the same mode of existence as culturally produced written texts. All these visible texts exist independently of the psychological processes of an individual, but in dependence on both objects serving as bearers of depicting space and subjects culturally prepared for their shifted interpretation.

2.3. Structural Diversity of Pictorial Spaces

There are *structural differences* between these spaces that have not only diverse modes of existence, but also different principles of formation. The pictorial spaces belong to distinct *types of autonomy* and are *separated* from each other.

The structural distinctions between the spaces of different modalities were considered already by Ernst Cassirer (1925, p. 107–108). In contrast to the space of Euclidean geometry that is *infinite, homogeneous, and isotropic*, the space of perception is *finite, inhomogeneous, and anisotropic*. The more so there are differences between the *three-dimensional open* space of represented objects (1) and the *two-dimensional closed* space of the perceptogram representing them (3). Similar differences are also found between the *flat* depicting space of the perceptogram (3) and the *three-dimensional* space of its material bearer (2), which can have a *flat, convex, or concave surface* (cf. difference between *flat* and *surface* in Gabrichevsky, 2002). Artists can, in varying degrees, coordinate the depicting space with the *curvature* of painted surfaces—subordinate to them (as in paintings of ceramic objects) or disregard it (as in Michelangelo’s painting of the Sistine Chapel, ignoring the concavity of the painted ceiling).

The structural differences between the space of the material bearer (2) and depicting space (3) can also be related to the properties of *continuity* and *discreteness*. So, the discrete structure of printed raster or display pixels can provide a physical basis for depicting a space that seems continuous—in contrast to the pictorial spaces of Byzantine mosaics or Pointillists’ paintings, where discreteness of single brushstrokes is an intrinsic quality of the depicting spaces (3). In a similar way, the *three-dimensional* and *limited* space of depicted objects (5) viewed in their shifted perception differs structurally, on the one hand,

from the *two-dimensional* and *closed* depicting space (3), on the other hand, from the *three-dimensional* and *open* space of objects themselves (1), if they really exist anywhere.

Thus, the spaces participating in a unitary complex of pictorial representation have different combinations of basic qualities and therefore belong to *distinct types of autonomy*. The pictorial spaces are also *separated*—as far as they have different *ordinal structures, measures of size*, and belong to independent *streams of events*. Neither the positions of the viewers in front of the paintings, nor their sizes, nor the sequence of their actions are usually included in the pictorial spaces, which are also separated from each other.

In particular, a combination of spots and lines on a flat depiction (3) has its *own order*, which principally cannot save the full three-dimensional order of the depicted original (1). The order of surfaces represented in the depicted space (5) is also separated: it depends on a certain angle of view and could be changed with another perspective. The depicted space formed beyond the linear perspective is also separated by its own order and, for example, can change left-right relations—as is typical for the Medieval paintings composed from “an internal point of view” (Uspensky, 1971). In a similar way, the depicting space (3) has its *own scale* and usually does not save the initial *sizes* of spatial originals (1), decreasing them in miniature or increasing them in monumental painting.

This depicting space (3) contains a simultaneous spatial text of the perceptogram that *should be excluded from the current temporal stream*. On the contrary, its material bearer (2) naturally *cannot be excluded* from this stream and is subject to undesired changes—such as tarnishing of colors, cracking of layers, etc. The restorers try to minimize them, and, for example, their work has helped to preserve Leonardo’s fresco *The Last Supper* (Figure 1a) to save its initial spatial text (3), despite heavy damage to its physical bearer (2). At the same time, the depicted space (5) *is fully excluded* from any current events, and no damage to the surface can change it.

Meanwhile, the separated spaces of the picture have common features related to the anisotropy of the anthropomorphic space, in which top and bottom, left and right, front and back are endowed with different meanings.

The pictorial spaces of each mode of existence can be structurally multiplied if they are included in a complex of similar spaces. So, a picture gallery with many separate spaces of paintings (1) can be represented by one depicting space (3), which evokes the shifted perception of a depicted space (5), where many other depicting and depicted spaces can be separated (Figure 4). Similarly, the separate bearers of depiction (2) can be combined into a single polyptych, where their depicted spaces (5) can also be separated—as in the open upper panels of the Ghent altar by the van Eyck brothers—or combined into a single common space—as it is in the lower panels of this altar. Besides the *extensive heterogeneity* of pictorial spaces, *intensive heterogeneity* is also possible if, for example, a depicted space (5) contains several other structurally different, separate spaces belonging to diverse “levels of reality” (Sandström, 1963).

2.4. Diversity in Semiotic Functions of Pictorial Spaces

The *functional diversity* of pictorial spaces can be described semiotically with the help of various theoretical models, which highlight distinct aspects considered at different scales. One of these models can be based on the concepts of *Peircean semiotics*: Object, Representamen, and Interpretant (Peirce, 1960, p. 135). Accordingly, three separated spaces should be differentiated in the case of a picture: the *space of the represented Object*, whether it exists really or is only imaged; the *depicting space* as its *Representamen*, and the *depicted space* formed in its perceptual image and functioning as the *Interpretant* (cf. Nöth, 2003, pp. 382–384).

Although the depictions may show not only the space of existing objects, the relation of representation in any case saves its own semiotic structure. Even phantastic creatures can be depicted and viewed as *Objects* of representation, distinguishable from their perception by the viewer and from the depicting means. The function of the *Representamen* as the second part of the triple is performed by the space of the perceptogram (3), although the space of its bearer (2) and the space of its perceptual image (4) are also connected with this mediating function. At last, the function of the *Interpretant* is fulfilled by the depicted space (5) forming in the shifted perception of the picture. It is important in Peirce's system of concepts that an Interpretant is not a final link in the chain and can be itself interpreted on other levels of mental activity, including various narrations and symbolic interpretations.

The functional distinctions of the pictorial spaces are described somewhat differently using the bilateral model elaborated in *structural linguistics* and *semiology* developed on its ground. As both planes of language in Saussure's comparison are similar to two inseparable sides of a sheet of paper (Saussure, 1959, p. 113), so too are the two planes of a picture connected, because they are literally viewed from one and the same side.

Antoine Arnauld and Pierre Nicole, already in the 17th century, considered the picture as a combination of “two ideas”, regarded as the represented object and representing means (Arnauld, Nicole, 1996). This division of “ideas” can be treated psychologically as a relation between two mental images—like the relation between *signifier* and *signified* was considered by de Saussure (1959, pp. 65–66). A pictorial analog of the verbal sign should be described by such an approach as a combination of two perceptual images: direct perception of the depicting two-dimensional surface (4) and the shifted perceptual image of the three-dimensional depicted space (5).

Another, “anti-psychological” approach can use an opposition introduced by Louis Hjelmslev between “form of expression” and “form of content”, which differ from both their psychical and physical “substances” (Hjelmslev, 1961). Such an approach applied to pictorial spaces gives an opposition between the visual schemas used by the formation of depicting space in the perceptogram (3) and of depicted space in its perceptual image (5).

One further opposition considered by Hjelmslev (1961) between *denotation* and *connotation* prompted Roland Barthes to distinguish *denotative sense* in a picture—as objects which can be seen in the depicted space and *connotative senses*—as various symbolic interpretations that can relate to these objects (Barthes, 1964).

Analogies with linguistics open possibilities for semiotic generalization of the concept *text* to various non-verbal means of representation including pictures (as in Lotman, 1998, p. 482). This concept highlights a complex organization of pictorial art pieces, where the *planes of expression* and *content* are more complicated than the signifier and signified of a single sign.

3. Semiotization of Pictorial Spaces

3.1. Capabilities of Spatial Semiotics

Parallels with verbal language have their limits connected with both the syntactic and semantic peculiarities of pictorial representation. The features of depicting and depicted spaces, as well as their relations, need specific analysis. The expressive and representative means used in these spaces and the way they are connected may be described in more detail with the concepts of *spatial semiotics*. This branch of semiotic studies deals with the ability of spatial forms and their relations to express senses formed at various mental levels. Its subject includes diverse means of space semiotization and distinct spatial codes regulating formation and interpretation of semiotic constructions with non-one-dimensional syntax and non-verbal semantics (Tchertov, 2019, pp. 120–248). Compared to other approaches, spatial semiotics considers the means of representation in art pieces on a “larger scale”. A researcher using its concepts can see in the depicting and depicted spaces already not a simple sign with its meaning and even not only a spatial text with its sense, but distinct *fields*, where spatial texts of diverse types are regulated by various semiotic systems.

3.2. Space Semiotization and Its Means

The pictorial spaces distinguished above can be considered semiotized in different ways. The *semiotization of space* takes place as far as relations between objects in it are structured and interpreted according to one or more semiotic systems.

There are various *spatial codes* that can be used for semiotization of space. Each of them sets norms of choosing, formation, and interpretation of meaningful spatial relations and therefore their own ways of semiotizing space. Among them, *somatic* and *extra-somatic codes* can be distinguished. The somatic codes use as meaning bearers some features of human bodies and their relationships—their faces, figures, gesticulations, meaningful distances, etc., interpreting with codes of *mimic*, *kinesic*, *haptic*, *proxemic*, and so on (cf., in particular, Birdwhistell, 1952; Eco, 1976; Hall, 1966; Kreidlin, 2002).

The extra-somatic codes convey meaning through the diverse forms and colors of various objects and their relations. There are among them the *object-functional codes* connecting the visible forms with their functions in various spatial objects—clothes, utensils, furniture, technical instruments, etc. The *social-symbolic codes* regulate the interpretation of these objects as signs of the social positions of their users. Such *object-based codes* can be differentiated from *quasi-object codes*—like *writing, music notation, heraldry*, and others—which are based on certain graphic features drawn or painted on various surfaces. Some visible effects not connected with definite objects can be the signs of *objectless codes*, for example, in color or light signaling.

The complex of codes applicable to the semiotization of the pictorial spaces can be more or less large, and there is always the possibility that a new one will be involved in communication through pictures.

All these codes have in their *expression planes* spatial relations between relevant elements that are ordered mainly in non-one-dimensional syntactic structures. Their *content planes* also usually have specific semantics, because these relations can be interpreted not only on the level of logical concepts, but also at various infralogical levels of mental activity—as schemas of perceptions, recognitions or actions, diverse visual ideas, feelings, etc. (for more details, see Tchertov, 2024).

The same area of semiotized space can be formed and interpreted with the help of several codes jointly participating in the creation of a united sense. Various means of space semiotization can be applicable to the depicting and depicted spaces separately, although each picture also contains special semiotic means for connecting these spaces with each other.

3.3. Codes Used for the Semiotization of Depicted Spaces

The viewer's attention is usually directed towards the objects represented in the picture. It is mainly directed not toward *how* it is formed, but rather toward the objects *that* are shown in it. In this case, the *depicted space* becomes the main field, where the considered objects are placed and interpreted with the help of codes used beyond the picture as well. An identification of persons or things represented in the picture needs a *code of recognition* to do so. The recognized objects could again be interpreted with the help of other spatial codes, like the object-functional and social-symbolic codes mentioned above. Some of them can have clear semiotic functions. If a portrait shows a person with some *orders, insignias, emblems*, and other obvious signs, the interpretation of their recognized depictions needs the involvement of corresponding visual-spatial codes that function in the culture independent of pictures. In a similar way, depictions of *written texts* or *note records* involve codes, which do not need to be connected with the pictorial representation.

Various less obvious spatial codes from the semiosphere of culture can also be found among the means used to interpret the objects of the depicted space. In

the same portrait, a painter can use the *physiognomic* and *mimic codes* for the expression of individual features of the depicted person. *Gesticulation* and *distances* studied by *kinesics* and *proxemics* can be used in theatrical performance or in paintings for the interpretation of figures' movements, facial expressions, meaningful use of objects, etc. (Figures 1a, b).

Figure 1

a. Leonardo da Vinci. The Last Supper. Fresco. 1495–1498. St. Maria delle Grazie, Milano

b. Jacopo Tintoretto. The Last Supper. 1592–1594. St. Giorgio Maggiore, Venice



There are also specific *iconographic codes* connecting the depicted objects with certain symbolic senses—as combinations of attributes and colors enabling recognition of definite saints in religious paintings or symbols of the finality of life in still lifes with skull, extinguished candle, etc. (“Vanitas”).

3.4. Codes Used for the Semiotization of Depicting Spaces

Some spatial codes can participate in the semiotization of the depicting space considered as a separate field of their functioning. It is clear in non-figurative paintings, where the depicting function is absent, but the expressive possibilities of the painted surface remain. In this case, the perceived space also contains some figures and color spots that may be interpreted using codes with infralogical semantics.

In particular, the *architectonic code* connecting visible spatial forms with a feeling of balance or imbalance dominates in the abstract paintings of Mondrian and Malevich, influencing static and dynamic impressions from them (Figures 2a, b). It is also used in the abstract compositions of Kandinsky (Figure 2c) together with the means of the *synesthetic codes* (color-thermal, color-tactile, color-sound, etc.) connecting visual sensations with quasi-sensorial images of other modalities (cf. Kandinsky, 1911).

However, the same codes take place in figurative paintings too, although their presence there is not so obvious. For example, the paintings from Figures 1a, b, with a common theme differently treated in the depicted space, clearly differ also

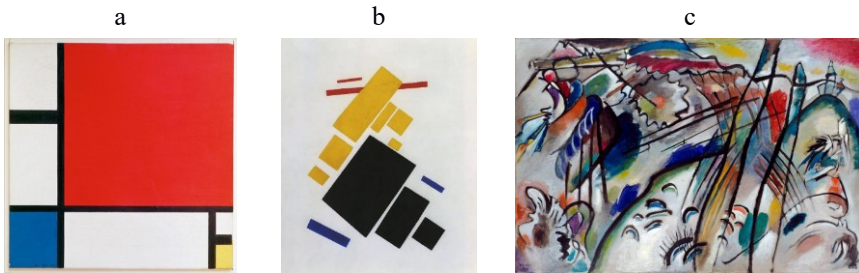
by the syntactic and semantic constructions of the architectonic code formed in their depicting spaces. The “stable” horizontal of the table in Leonardo’s fresco contrasts with the “unstable” diagonal in Tintoretto’s painting. These are features of constructions from the *depicting space* only, because in the depicted space the tables remain horizontal in both cases.

Figure 2

a. Piet Mondrian. Composition With Red, Blue and Yellow. 1930. *Kunsthaus Zürich*

b. Kazimir Malevich. Suprematist Composition: Airplane Flying. 1915. *MOMA, New York*

c. Vasily Kandinsky. Improvisation 28. 1912. *Solomon R. Guggenheim Museum, New York*



The traces of some movements and actions of artists belong to another group of semiotic means that take place only on the surface of the picture. Different brush strokes, pencil strokes, needling, etc., can be treated in both figurative and non-figurative paintings as *indexes* of the artist’s technical skill or his emotional state and as *signals* for the emotional response of the viewer.

4. Semiotic Means Connecting the Depicting and Depicted Spaces

4.1. On Connections Between the Depicting and Depicted Spaces

Thus, the depicted and depicting spaces can be semiotized separately by a complex of spatial codes used also beyond the pictorial mode of representation. Meanwhile, nothing in the depicted space could be formed without connection to a particular configuration of lines and spots in the depicting space. These two spaces do not simply coexist as the result of alternative ways of viewing but have a functional connection. The depicting space is designed to evoke a perception of the depicted space, which cannot arise without it.

A picture stimulating some natural mechanisms of vision and cultural ways of achieving shifted perception is more “transparent for meaning” than verbal texts. If the artist, following the advice of Leonardo, hides all brush marks on the

depicting surface, the viewer sees the depicted space as if *through* a window—another favorite idea of Renaissance painters (Figure 3).

The idea of visual transit through the “transparent” surface of a picture is supported primarily by *linear perspective*. Albrecht Dürer had translated the Latin word *perspicere* as *Durchseen*—“vision through” the depicting surface into the depicted space which, as if, unfolds “behind it” (Panofsky, 1998, pp. 664, 716–717).

This vision is an act in a certain sense opposite to the projection of depicted three-dimensional objects onto a two-dimensional surface, because in this shifted perception, the relations of lines on the surface are interpreted as an image of volumetric objects in the deepening space. As a method of formation and interpretation of pictures, the perspective is therefore a “symbolic form”, in the sense of E. Cassirer (1923–1929) and E. Panofsky (1998). The linear perspective is one of the methods to connect the depicting and depicted spaces. There are other means for geometric projection of three-dimensional bodies onto a two-dimensional surface, and the choice of depiction method depends on various cultural and historical grounds, including differences in worldviews (cf. Florensky, 1993a; 1993b; Mochalov, 1983; Raushenbach, 2001).

Figure 3

Albrecht Dürer: The Painter Studying the Laws of Perspective. Engraving. 1525. Extract from Dürer's Treatise on Perspective and Proportions



4.2. On Iconicity and Indexicality in Relations Between Pictorial Spaces

The picture is considered after Charles Peirce as an *iconic sign* insofar as it “may represent its object mainly by its similarity, no matter what its mode of being” (Peirce, 1960, p. 157). This *similarity* was interpreted by Charles Morris as the *identity* of certain properties between the iconic sign and its denotate (Morris, 1946). An opposed view was suggested by Umberto Eco, who accented a similarity not between the picture and the denoted object, but between perceptual structures, or “perceptual senses”, which the viewer has when seeing both (Eco, 1976, p. 194). A real horse does not possess a contour that has its outline

on a sheet of paper, but an impression of their similarity is a result of “a graphic convention”. An “extreme conventionalism” (according to Gombrich, 1981, p. 14) was suggested by Nelson Goodman (1968, p. 38), who treated the painting as a conventional sign that could only be understood by means of a certain code. Meanwhile, an impression of some similarity with depicted objects is an irreplaceable feature of each picture, even if it appears not as a condition, but as a result of its interpretation (cf. Sonesson, 1994). In any case, a picture on a material bearer can be regarded as an external model of the represented object to the extent that it has a greater or lesser similarity to it and is therefore capable of evoking its internal models at the perceptual level of mental activity (on relations of external and internal modelling in pictorial representation, see Tchertov, 2025).

In the discussion of the relationship between iconicity and conventionality in pictures, another important component of the Peircean triad—*indexicality*—disappears. Meanwhile, it is no less important for the creation of detailed depictions. Unlike the volumetric sculpture, the planar picture as a bearer of a depicting surface (2) and as the perceptogram formed in it (3) has a limited similarity with figures from the space of physical objects (1). In its projection onto a plane, too few features remain similar to the three-dimensional original. Although an iconicity in the relation of the projected figure to the three-dimensional original always arises due to a similar arrangement of parts in both of them, this is not sufficient for a detailed perception of the depicted object. As mathematicians say, this is a homomorphic but not isomorphic transformation, because not all one-to-one mappings are preserved in it (Gastev, 1975, p. 36).

The impression of the similarity of a picture with an object appears after perceptual interpretation of a flat depiction (3) forming a three-dimensional image of the depicted space (5). This “return” transition can be provided by the same rules of linear perspective demanding, besides iconicity, also deviation from it. These rules introduce, therefore, diverse *indexes* of the third dimension—various intersections, overlapping, perspective reductions, and other meaningful relations between the drawn lines.

In particular, unlike orthogonal projection, which saves the forms of depicted objects representing faces of a cube as squares, circles in cylinders as circles, etc., the rules of the linear perspective demand certain transformations of the volumetric figures projected onto the surface. The drawings, made according to them, contain at the surface oblique quadrilaterals instead of the square faces of the cube, ovals instead of circles in depictions of cylinders, etc. The equal vertical columns should be represented on the depicting surface of the drawing by lines with unequal length, and this inequality in the vertical direction denotes increasing distance in depth of equal horizontal intervals between them, etc. So, the obligatory *deviations from iconicity* are nevertheless important semiotic means serving as *indexes* of relations in the depicted space.

The visual penetration into the depicted space is possible as an alternative interpretation of the sensorial data received from the picture bearer. The indexes

chosen are not those that point to the surface features of the picture, but those that are specifically shaped by the artist to cause a shifted perception of the depicted objects. Just as the reading of letters provides the possibility of their shifted interpretation as signs representing something else, so the view “through” a painted surface is a “reading” of such indexes prepared by the painter. But unlike written words evoking only more or less abstract ideas of represented objects, the painted picture evokes their perception.

4.3. Perceptographic Code as a Pictorial Indexing System

The semiotic means, by which a visual “transit” through the painted surface into the represented space becomes possible, form a special code, where the depicting space functions as a *plane of expression*, and the depicted space is created in a *plane of content* as a result of the shifted perception. Insofar as this semiotic system provides the exteriorization of artists’ perceptual images and the stimulation of corresponding images by viewers, it can be named “the perceptographic code”. Like many other spatial codes, it has non-one-dimensional syntax and infralogical semantics.

This code includes diverse means of systematic creation and interpretation of meaningful dissimilarity between the depicting and depicted spaces. Various *non-iconic* elements serve here as *indexes* stimulating the perception of objects represented. Unlike the related natural perceptual code that develops in the cognitive processes of individuals, the perceptographic code has evolved in inter-subject communication and is modified in culture, especially in art.

The rules of linear perspective are only a part of the perceptographic code in one of its cultural-historical versions. There are also other means, in particular, the distribution of contrasts and nuances between various lines, light and dark spots, and other elements of the depicting space. Combinations of such indexes form specific *spatial texts*, in a broad semiotic sense.

It is essential that the indexes of such pictorial texts do not have any constant meanings, and any “dictionary” of their units is here impossible; the perceptual images of depicted objects can be created only due to their mutual co-relations. The connections of such an indexical text with its perceptual meaning are not “lexical” but rather a “grammatical” in nature—using the terms of F. de Saussure, who had opposed the less motivated lexical units of language to its more motivated grammatic structures (Saussure, 1959, pp. 133–134). An importance of mutual relations between the means of the perceptographic code also falls under the general principle of Saussurean conception, according to which “in language there are only differences” (p. 120).

A similar principle in relation to pictorial arts was formulated independently of F. de Saussure by the artist and art theoretician A. Hildebrand: the depicting space contains only mutual relations of visible factors—sizes, colors, lights, and shadows, etc. They “can have no meaning alone, but gain their significance only through that peculiar connection, which constitutes their total unity”

(Hildebrand, 1907, p. 37). According to Hildebrand, the artist transforms the “form of being” (*Daseinsform*) of the depicted objects into the “form of expression” (*Ausdrucksform*) intended for the viewer’s perception.

From this point of view, the main work of the painter is the organization of meaningful relations (contrasts, nuances, etc.) among lines and colors that can evoke a perception of depicted objects only in their totality. A syntactic feature of the perceptographic code, which is correlated with the absence of constant meanings by these elements in the semantic plane, is the possibility of continuous transitions between lines at different angles or between colors with distinct lightness, brightness, and similar properties. So, the “principle of palette” is used here instead of the “principle of alphabet” (see more detailed: Tchertov, 2005, pp. 145–146; 2019, pp. 91–100).

4.4. Perceptogram as a Spatial Text

A drawing “from life” can be considered roughly as a “record” of the artist’s perception (cf. Gibson, 1979, p. 174), although the explication of Hildebrand shows that the expression of the artist’s perception is a more complex process. This “record” can evoke a perception of depicted objects by viewers due to a complex of semiotic means, where some iconic features are coordinated with visual indexes of the third dimension, and spatial modelling is coordinated with coding. Thus, the picture functions as a *spatial text* constructed from lines and colors on the depicting surface, which are able to express the perceptual image of the artist, and to evoke in the viewers a corresponding perceptual image of the depicted objects.

The spatial texts of this type were already called above *perceptograms*, which differ from other forms of shifted comprehension intended for higher levels of interpretation. Unlike *pictograms*, which are simplified depictions sufficient only for the *recognition* of a represented object, and in contrast to even more conventional *ideograms* interpreted at the *conceptual level* of mind, *perceptograms* are spatial constructions intended to evoke the *developed shifted perception* of depicted objects (cf. a difference between notions *schemata* and *pleromata* in Wallis, 1970, p. 524).

At the same time, like the pictograms and ideograms, the perceptograms can be “taken off” a certain bearer and transmitted into another one—as prints or reproductions made in many copies. Therefore, the perceptogram is not equal to the piece of art that can contain some essential moments connected with a given material bearer and saves traces of the artist’s movements. Nevertheless, such “autographic arts”, in Goodman’s terms, have perceptograms as well—like a person’s signature, which carries common elements and structures in written form and can be reproduced in other records. Being independent of material carriers, the perceptogram retains its “form of expression”. Similarly, the scheme of its perceptual interpretation retains its “form of content”.

Thus, the separate space of the perceptogram (3) formed by the means of the perceptographic code differs from the physical space of represented objects (1) and physical bearers of the picture (2), as well as from the space of their perceptual images (4). The perceptogram evokes a shifted perception of the depicted space (5), where a constant “aspect” on the represented objects is formed.

This *aspect* (cf. Ingarden, 1989) contains not all of the details of depicted objects situated in physical space (1), and even fewer details of the depicting surface (2) or space of its perceptual image (4) mediating its emergence. Formed as a colored configuration of depicted surfaces, this aspect belongs to the depicted space (5) and is systematically correlated with the space of the perceptogram (3) as a perceptual sense (cf. mentioned above Eco, 1976, p. 194) extracted from its text as a result of its interpretation by means of the perceptographic code.

4.5. Some Other Codes Connecting the Depicting and Depicted Spaces

Besides the perceptographic code regulating the visual “penetration” into the depicted space, there are semiotic means that connect certain features of a depiction with meanings of the depicted objects. So meaningful distinctions in sizes of represented persons served in Ancient Egyptian times or in Medieval paintings not as indexes of their different distances from a viewer, but as signs of their social or other inequality and distinct places in a hierarchy. These means are sometimes labelled “meaning perspective” (*Bedeutungsperspective*; Onasch, Schnieper, 2007, p. 263).

Another way to significate differences in the importance of the depicted persons is formed by the relations of their depicted figures to the structure of the depicting space as its “regular field” (Schapiro, 1969). Their placement at the top or at the bottom of the picture, left or right, in its center or at the periphery, etc., serves as signs of a semiotic system, which connects these places with different meanings. Through their relations to this spatial structure and to its places with different “energetic charge”, the images acquire meanings that they would not have outside the “regular field” of the painting (cf. Daniel, 1990, p. 84). Unlike the proxemic code formed by the relations between figures of people, albeit depicted, the spatial code that emerges within the borders of the picture is formed by the spatial relations between these figures and their places in this field.

These “syntactic” constructions built in the depicting space are often combined with some “lexical” units formed in the depicted space by means of the *iconographic code*. For example, in Medieval paintings, the recognizable figures of saints formed in the depicted space serve as *signs-nominators* equal to their names, whereas their disposition regarding the structure of the picture’s “regular field” functions as a set of *signs-predicators* pointing to their importance in a hierarchy. In such a way, some spatial texts of the iconographic code are formed from meaningful units of both depicting and depicted spaces. The possibility of having a subject-predicate structure as well as their discursive semantics brings them closer to verbal sentences. Accordingly, the same feature of the

iconographic code distinguishes it structurally and functionally from the means of the perceptographic code.

5. Relations of Pictorial Spaces to Ways of Seeing

5.1. On the Difference Between the Spaces of Action and Contemplation

The depicted and depicting spaces are not only perceived differently but can also be important to different degrees for the viewer. The depicting or depicted spaces can dominate in distinct viewers' preferences. A viewer can look more *at* the depicting space as on a *wall* or more *through* this surface, like through a *window*. Accordingly, the color spots on a plane become either an independent object of perception or sensorial material for a perceptual image of the depicted space. The preference for one or another way of seeing depends on the kind of art, stylistic differences, and other factors.

In the first case, the picture is considered as an object that exists in the same *space of actions*, where viewers are situated. So, workers hanging painted canvases on a wall deal with objects in the space of actions, and they should take into account their sizes, weights, and other physical and geometrical properties. On the contrary, a story-driven viewer might not notice at all the depicting space and fully dive into the depicted space, traveling among the objects represented in it (Figure 4).

Figure 4

Jean-Antoine Watteau. L'Enseigne de Gersaint [The Shop Sign of Gersaint]. 1720. Charlottenburg Palace, Berlin



The pieces of applied arts are usually perceived as parts of the space of actions. Accordingly, the depictions decorating them are designed often as parts of their surfaces for looking on them, but not through them—whether they are painted ceramics, textile, or even monumental paintings.

Another case occurs in easel painting and graphics, which create a depicted *space of contemplation*, where only movements of one's gaze looking *through* the depicted space are possible. The space of the picture, as it was formed after the Renaissance, is opposed to the space of the viewers. The frame of the painting sharply divides the space of action with moving observers and the space of contemplation “behind the frame”, which is open only to their eyes.

5.2. On Different Relations Between the Pictorial Spaces and Spaces of Actions

Such sharp bordering between the spaces of action and contemplation takes place not always in the history of painting. Not even speaking of pictures on the surfaces of objects in applied arts, paintings on a wall can relate to the space of action in a different way. For example, cave paintings of animals were included in ritual actions imitating hunting for them. In another way, a connection between the space of cult action and the transcendent space “behind” medieval mosaics and frescoes in the churches or cathedrals was established when the worshipper directly addresses the object of worship by standing in front of it.

In turn, the space of contemplation created by pictorial means can “draw into itself” the space of the object or social action. The easel painting breaks the connection between the actions depicted in it and those in front of it, and usually the depicted space is separate from and independent of the place the painting hangs.

The space of contemplation in a painting is separated from the space of action not only by the frame, but also by the picture plane, which can serve as a more or less manifested border between the spaces “behind” and “in front of” this plane. Meanwhile, these spaces can be connected in different ways. For example, the “concentric” space of the Renaissance and Baroque painting are formed by rules of “direct” linear perspective “running away from the viewer”, and it differs in this relation from the “excentric” space of Medieval paintings with their “return” perspective “moving towards to the viewer” (Tarabukin, 1993, p. 190).

The spaces “behind” and “in front of” the picture plane can be connected semantically. For example, according to the tradition established in Florence, a fresco depicting the *Last Supper* was placed in the monastery refectory, in which the depicted space was treated as a more or less illusory continuation of the room—as it is in the frescoes on this subject painted by A. Castagno, D. Ghirlandaio and, most famously, by Leonardo in Milan (Figure 1a). This tradition has a semantic reasoning in that people gathered for a meal in front of the mural had to “constantly remember the sacramental value of food and drink” (Sandström, 1963, p. 112).

In these cases, both meal scenes “behind” and “in front of” the depicting plane form comparable spatial texts, which are constructed according to a common complex of codes: object-functional, social-symbolic, proxemic, mimic, kinesic, etc. At the same time, the depicted space is also semiotized by a special iconographic code connecting the represented persons with their significant attributes. It is also arranged in an artistic whole in accordance with certain compositional schemes, and “the forms of being” in them are transformed into “forms of expression”, in Hildebrand’s sense. The fundamental difference between spatial texts of the depicted space and similar texts of the space in front of it is that the former cannot appear without its perceptual image created by means of the perceptographic code.

5.3. Stylistic Differences in Relations Between the Depicting and Depicted Spaces

The depicting and depicted spaces can be opposed to each other to a different degree, depending on the extent to which the functions of “window” or “wall” are actualized in the treatment of the picture. Relations between these spaces and between codes participating in their semiotization are differently formed in various stylistic directions (cf. the idea to consider art history through the changing of “semantic structures” in Wallis, 1970).

Medieval paintings on the walls and Byzantine icons serve not as a “window” but rather as a translucent “curtain” behind which the skilled eye can find images of the transcendent world (Danilova, 2004, p. 24). Their perceptograms contain not “records” of painters’ perceptions, but perceived and recognized symbols of ideas constructed in religious consciousness. They are structured according to canonized composition schemes reproduced by various artists and being “read” by viewers.

Painters of the Renaissance were fascinated by the idea of turning the surface of a picture into a semblance of a transparent window (Alberti, 1991). Accordingly, the means of the perceptographic code are developed here and become of paramount artistic importance. For example, Leonardo’s version of the *Last Supper* (Figure 1a) differs from other interpretations of this scene due to a specific application of this code. Christ’s head is highlighted here not only with the means of proxemic code and composition placement in the center of the depicted space, but also by being placed at the point of convergence of the lines constructed in the system of central perspective. So the means of the perceptographic code are included here in a joint “rhetorical construction” together with mimic and kinesic codes, which are also developed in Leonardo’s work (cf. the concept of “rhetorical text” in Lotman, 1998, p. 611).

However, already the late Titian made this “window” less transparent, and the space depicted there became clouded. Baroque painters such as Rubens or Hals no longer followed Leonardo’s advice to hide brush marks on canvas and preferred to show the viewer the mastery of their tools. By opening the brush

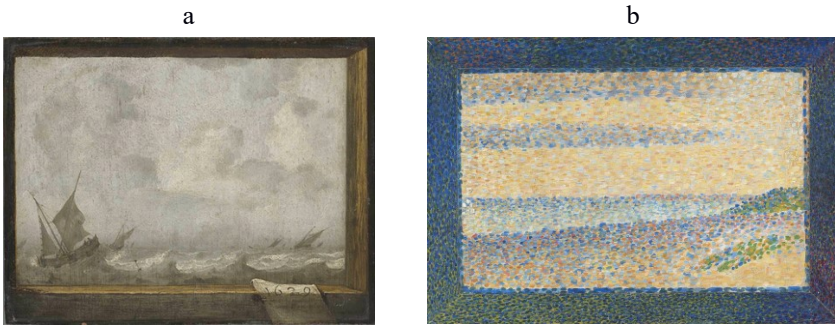
strokes to the viewer's perception, they force him to oscillate between the depicting and the depicted spaces, when the same spots of paint are perceived both as material on the canvas' surface and as colored parts of the represented object. An aesthetic appreciation of the skillful combination of both is thus encouraged.

The Impressionists and Neo-Impressionists made the paint on the canvas even more visible, thus further clouding the depicted space (Figure 5b). Many twentieth-century painters—Matisse, Picasso, Klee, and others—return to “flattened” depictions, not to mention abstractionists such as Mondrian or Malevich. In all these cases of preferring spaces, different spatial codes dominate.

Figure 5

a. *Jan Porcellis. Raging Sea. 1629. Old Pinakothek, Munich*

b. *Georges Seurat. Seascape. 1890. National Gallery of Art, Washington*



In this way, the relation between the depicting and the depicted is also an important stylistic moment influencing its aesthetic perception. When the depicting surface is treated as a transparent window, as if hidden from active perception, it functions as an optical tool for seeing the objects depicted (Figure 5a). The space enveloped in this “window” is semiotized mainly by codes used also in the space of actions beyond the picture. On the contrary, when the painted surface forces attention to itself, an aesthetic appraisal of the depiction's quality is evoked due to a comparison of the depicting and depicted spaces. In this case, for example, the exactness of the lines in Dürer's engravings or expressions of brush tracts in the paintings of Van Gogh can be valued aesthetically. Fixation of the viewer's attention on such a painted “wall” entails decreasing the importance of the perceptographic code and increasing the role of the architectonic and synesthetic codes. At the same time, it is clear that analyzing the semiotic means used in pictures does not replace aesthetic analyses of the feelings they evoke, just as grammatical studies do not replace poetic studies of verbal texts.

6. Conclusion

In this way, the concepts of spatial semiotics help to understand in a new way the expressive and representative means in works of pictorial arts. The pictorial mode of representation is carried out due to stratification of depicting and depicted spaces, which are semiotized differently and at the same time connected with special semiotic means. From this point of view, it is right to see in a picture not a single sign, but a combination of manifold spatial texts, regulated by diverse spatial codes. Instead of a single “language of painting”, which was to be studied by analogy with verbal language, the semiotics of space considers spatial codes with different structures and functions.

They can be used together or separately for the semiotization of the depicting and depicted spaces. Both spaces can also be understood as planes of expression and of content connected by means of perceptographic code in a certain cultural-historical version of that code.

Thus, an art piece can be seen as a heterogeneous spatial text, where various spatial codes interact in diverse functions, although many of them can be used separately. This heterogeneity is generated not only by the variety of spatial codes used for its formation and interpretation, but also by the differences of pictorial spaces where these codes are involved in distinct ways.

Thereby, in the “magnifying glass” of such semiotic analysis, even a little work of pictorial art can be seen as a small semiosphere, in which the larger semiosphere of culture, in Lotman’s sense, is reflected.

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