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PERCEPTION AND INTERPRETATION (BASED ON THE WORKS OF DECENTRISM'S ARTISTS)

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ABSTRACT

The weekly *SCIENCE* had published a list of twenty five questions to which humanity does not know the answers, few years ago. These included questions about the biological substructure of consciousness. This article will help to take the first of a million necessary steps toward raising the awareness, enabling the readers to begin to answer these questions and at this occasion to understand the art of decentrism.
Keywords: Consciousness, decentrism, perception, seeing, senses.

We know of objects that one can draw on paper, but nobody can transfer them into three-dimensional space. It seems not to be possible! One such three-dimensional impossible objects is called Roger Penrose's triangle (Fig. 1). Let us try to imagine it in the real world. It is difficult, but there was a man who had created a 3 m high monument showing what Penrose's triangle looks like. This monument is located (since 1955) in the town of Ophoven (Belgium). Viewed from the side it looks like in Fig. 1a. The author of this monument is Mathieu Hamaekers – it is amazing how creative you have to be to find such a solution.

Now look at the second photograph (Fig. 2). Both photos show the same object, except that the image was inverted 180 degrees. We judge convexity and concavity assuming that the direction of light is from above and slightly to the left. In the inverted picture, the light falls from below, but convexity is judged according to the scheme just mentioned.

We illuminate architectural objects mostly from below, and we must be aware how this affects the possible deformations of the facade [1].

The main principle of biology is that *every organism gets from the external world just as much information, as is necessary for survival*!! The intellectual development of a man is far ahead of his body's biological capacity. The information we receive from the environment often does not fit our expectations.

Sight seems to play the dominant role among the senses through which we perceive the world. Please draw your arm straight ahead and look at your thumbnail. Its arc spans about three degrees! Only in this narrow cone of space do we see sharply. The rest of the visual field we perceive, of course, as a continuous image (Fig. 3). It is an illusion, created by our minds. I would add only that the lens in our eyes causes us to perceive a reversed image, and if the floor were really on the ceiling, and vice versa, there would be nothing surprising in this.

Our task, as technicians, is to ensure optimal working conditions for vision. That is, adequate illumination, contrast, luminance distribution, etc., are necessary for a proper job of distinguishing visual detail, but in life we have(?) only common sense. Jonathan Heidt compares the human psyche to the rider on an elephant [2]. The rider is our sense perception and the elephant is our emotion (in just such proportions). The rider reaches the goal if he knows where he is going and if he can effectively tame the elephant and manage it. We want to understand our environment and predict its fate. We want to control the world. Matter constitutes about 4% of the universe; the rest consists of something we do not know and do not understand, called as dark matter and dark energy. Based on knowledge of about the 4%, we draw conclusions about the whole; we examine outer space, and

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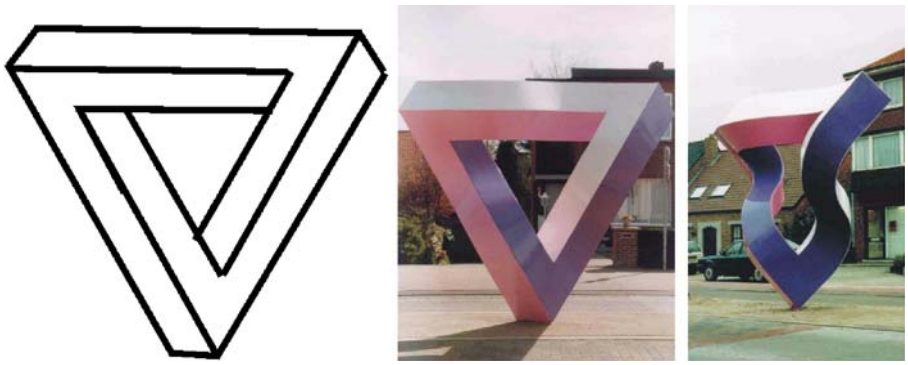


Figure 1: Roger Penrose's impossible triangle and its implementation, made by Mathieu Hamaekers [3].

Figure 2: How does the direction of light influence the assessment of convexity?

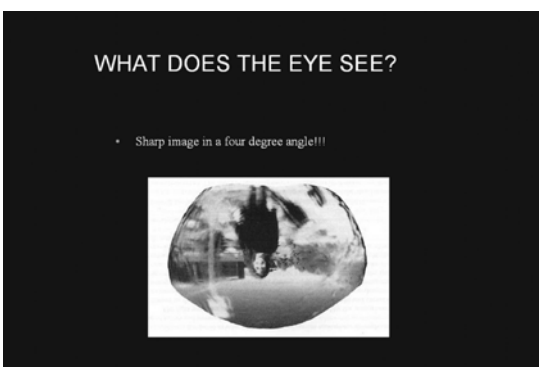


Figure 3: We see sharply only in a three-degree portion of our visual field [4].

make long-term flights. Similarly, on the basis of marginal knowledge about analytical thinking, we try to understand the space in which man lives. Little is known about the sphere of emotions, about the processes that give an important quality to our knowledge, about the influence of emotions, affects, and moods – in short, about all that has an impact on our lives and psyche. We do not know

how to adjust lighting to provide emotional comfort. Perhaps, in terms of Thomas Kuhn's theory, an increase in our knowledge about the non-intellectual sphere of the psyche will soon lead to a change in the scientific paradigm of lighting. For now, we know too little to adjust lighting to real human needs. We try to impose on our vision the imperfect tool of cognition – a structure in which there is specifically understood order, defined on the basis of a small fragment of reality. I invite you to join this expedition to the mysterious country of visual perception. Perhaps it will bring us closer to understanding the nature of our elephants.

The first phase of this vision is called senseption – an image created on the retina, is converted into electrical impulses, with constant amplitude and varying frequencies (Fig. 4). The signals from the receptors, respectively summed and subjected to condensation, are sent by the synaptic connections of nerve cells to the brain. Here, objects are identified. In another area, the spatial position of those objects is analyzed. Elsewhere associations are induced; there arise emotions and intentions to act. Since the last decade of the 20th century, we have been able to investigate this process scientifically. Since that time there has arisen the discipline called cognitive science, collecting the experience of neuroscience, linguistics, psychology, philosophy, and many others, necessary for understanding the processes of perception, decision-making, and work on artificial intelligence.

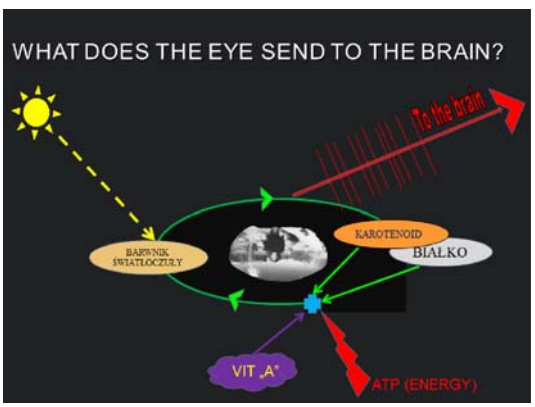


Figure 4: What does the eye send to the brain?

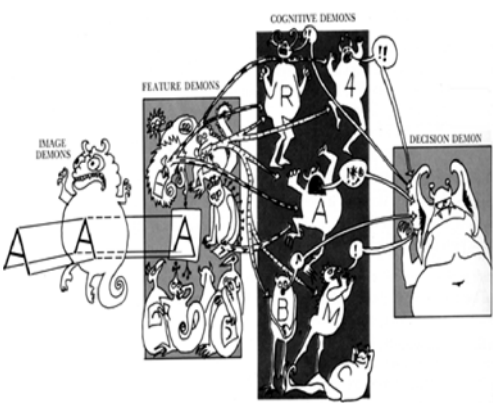


Figure 5: Pandemonium [5] (from Lindsay and Norman, 1977).

The diagram above of what happens in the brain was introduced in 1959 by Oliver Selfridge. This schema seems to be a significant simplification, because vision is a dynamic process, not a static one, and in the case of social relationships, it is achieved by a variety of dynamic interactions, but this schema allows us to organize thinking about the vision, so let me show it.

In the brain, we have what Selfridge called 'demons' (appealing to the ancient Greek meaning of the word, which did not have a negative implication). Those who receive preliminary information are specialized in the perception of elementary features of the image – vertical lines, diagonals, arcs, etc. When each demon encounters the feature it is attuned to watch for, it begins to scream. Other demons are better educated. Over the course of our lives, they have learned what the letter 'A' looks like, what a treble clef looks like, and likewise for a tree, a hammer, and various other objects. If the lower-level demons watching for the features defining these objects scream, the demons at this level also begin to scream. A decision-making demon, hearing the screams of the demons beneath it, decides what we have seen (Fig. 5). This decision depends on many factors. Let us ask ourselves: What factors are they, and how do they affect our view of the world?

What is drawn in Fig. 6a? For simplicity, I will say that the designer of a theater in Vienna drew it, saying that something like this she would have on stage.

It is an oil lamp (see the Fig. 6b). Our demons have not yet learned to see the oil lamp; hence, our difficulty in identifying the image.

In the next phase, we determine the semantic category of what we see; that is, we decide what it is. From among many possible designations of the object, we choose the most suitable. A dog can be for us a quadruped at one level, a mammal at another level, and at yet another level a dachshund. The same object could be assigned to different semantic categories depending on differences in how it is perceived.

In Fig. 7, we see the space, because our demons know that percept should be associated with the line perspective shown. We see it as a space even while knowing that it is a flat image on a page.

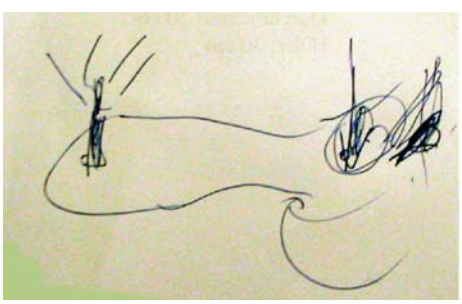
(a)  (b) 

Figure 6a, b: What is drawn in this picture? An oil lamp.

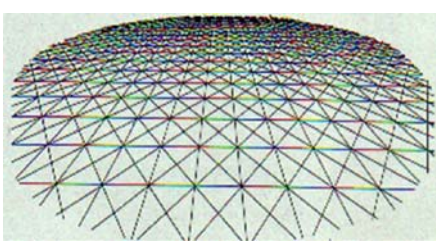


Figure 7: Do you see the space?

And what happens if our demons receive conflicting signals? Our decision-making demon is helpless! In this case, there are two possibilities: either the image seems ridiculous or we deny its truth. Figure 7: Do you see the space?

In Fig. 8, there is no backbone. Although it is not there (these are only branches of a tree), we see a skeleton nonetheless, because seeing the skeleton is the decision of highest priority for the relevant demon. It is important for human survival, because where there is a skeleton, there might be danger. Gestalt psychology, and more generally Rubic rules, determines what and how we see – it considers similarity, simplicity of shape, object–background relations, etc. If you are interested, I recommend the literature [6,7].

The same object can be seen by different people differently – a maple leaf is a symbol of the homeland for Canadian, a cellular system for a biologist, a toy for a child, and compost for a gardener. Assigning a metaphorical value to the object is another step of the process of vision.

The last stage of perception seems to be its persuasive effect. A picture causes (or does not cause) a behavioral effect. The methods here are different – and usually involve our emotions. Here in Fig. 9, for example, we have a matrimonial advertisement.

The image does not trigger a wave of passion in women. The candidate is likable and smart, because he has glasses, but unfortunately the advertisement is poorly prepared.

It is commonly believed that if we embed in a movie a frame containing a subliminally persuasive message calling for drinking something, the audience at the end of the projection will rush to the bar and buy up all the drinks there. Such a proceeding is illegal in many countries. In point of fact, though, not everyone knows that it does not actually work. The signal is too weak to reach the subconscious. Is it possible to operate on the subconscious in a different way? Research on this topic will be certainly continued, because too many people and companies are interested in influencing people by this way.

More than 1300 respondents filled out a questionnaire about associations between different items (such as objects or events) and colors. That is how the color atlas (Fig. 10) [8] was prepared. How is it intended to be used? For example, if a bank intends to advertise loans for the purchase of a house, it uses the set of colors pointed to by the arrow, because that set is associated with luxury. It is pertinent to remember that colors do not exist in nature. There are only wavelengths of the light striking our eyes. Our impressions of color also depend on the context, our culture, and other factors.

Our impression of color also depends on culture. What in our European culture is categorized as green or red does not match the colors recognized in the culture of New Guinea. Instead, there is a color called NOL, which contains more than one of the colors known by us. To them, however, it is only one color! We Europeans do not see the difference between their colors called WAP and NOL!

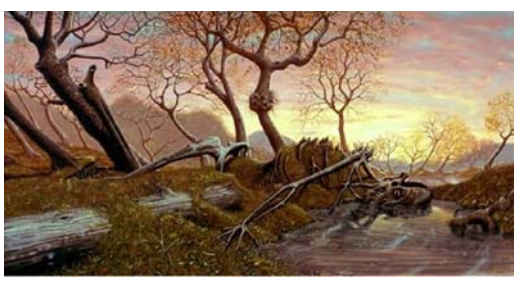


Figure 8: Do you see a skeleton here? (Picture by Alan M. Clark.)

Figure 9: Matrimonial ad. Why ineffective?

Figure 10: Atlas of color associations (section).

Figure 11. The World.

And how many shades of white snow do the Eskimos recognize? That also illustrates the impact of culture.

To better illustrate this – let us look at a map of the world. We all know how the world looks like – it looks like the left hand panel in Fig. 11. If we were Chinese, the world would look like the middle panel of Fig. 11. (As you may know, China calls itself The Middle Kingdom.) The map on the right can be found hanging in many classroom in Australia. It is the same world, but seen differently depending on the requirements of local culture.

Let us look at the face in Fig. 12 [9]. Here, we have two identical images, but reversed by 180 degrees. We can see that something does not agree. On the left hand picture everything seems fine, but on the right – no! Why? Well, we can recognize the picture on the left as an upside-down face. Unlike the face on the right, however, the one on the left is not in the correct position to activate the program in our brain for evaluating faces, which is sensitive to the perception of micro-expressions. Reading another person's face, and perceiving his or her intentions by that means, is one of the most important human social competences.

And now for the next task. Figure 13 contains an inverted red triangle (i.e. a triangle with its apex pointing downward). Can you find it?

Have you found it? Let us now see what happened. If you are like most people, you first noticed the crosses and squares, then concentrated only on the red triangles, and finally chose this one. Once the inverted triangle if finally located, people tend to see only that triangle and nothing else. Was this how you experienced it?

So this is vision. Seeing is not simply shooting the environment as though with a camera. It is a process of continuous exploration of the environment and rejecting what is unnecessary. We focus

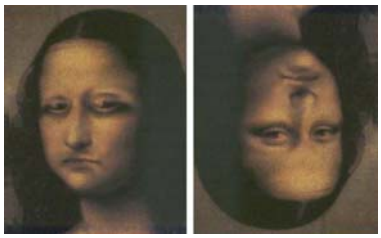


Figure 12: Face assessment program allows the seeing of micro-expressions.

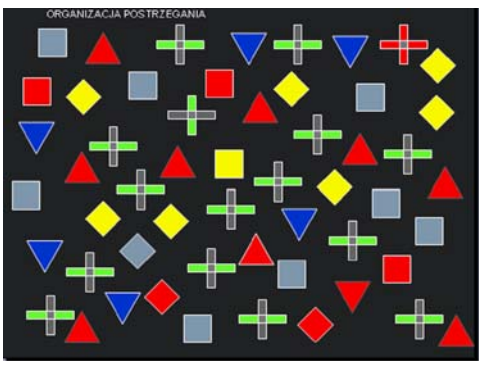


Figure 13: Please find the red triangle, with the apex pointing downward.

only on what our mind considers important. This phenomenon is called economization of perception. For example, if we walk on a lawn, we tend to see a green plane not single blade of grass. We can of course, at any time, focus our eyes on details, which we consider interesting, such as the blades of grass. But usually our eyes (and the 'demons' in our brains – see the discussion of Fig. 5 above) serve to us a message in economized form. Such an image, for example, might be the set of lines constituting the imagined stages of a journey. What is important on that occasion is how to get from point A to point B, and for that purpose, other details about a town or city are not important. Children have a special gift for this sort of economization. For an adult, to draw a tornado is a problem. Child will quickly and accurately economize the perception of such a complex atmospheric phenomenon.

Great philosophers talked about this problem. Husserl wondered what is meant by the 'cupness' of a cup. He rejected the act of imagining a cup as everything in the cup that is 'not-cupness' to get to the essence of 'cupness'. Picasso tried to reach the 'bullness' of the bull. He has eliminated from the bull, everything what in a bull is 'no-bullness'. In this way, he arrived at the 'bullness' of the bull (Fig. 14).

What we see depends on our culture and knowledge. Suppose you are asked, 'What is shown in Fig. 15?' Many people will have trouble answering, but if we learn that it is a giraffe's neck, then immediately we can imagine the head, torso, and legs. In this way, a verbal description can determine what we see!

It may happen that a distractor will appear in our field of vision – something that provides us with a very strong incentive and our attention. The presence of a distraction causes significant impoverishment of perception. Let us look briefly at the scene from the library – Fig. 16 (left).

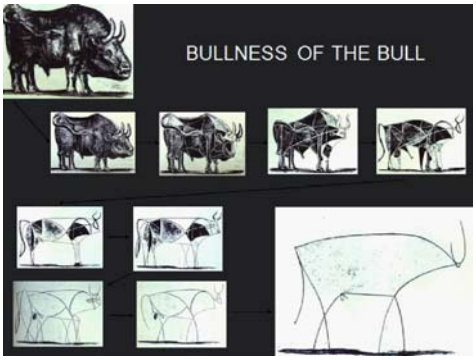


Figure 14: The effect of Picasso's deliberations over the 'bullness' of the bull.

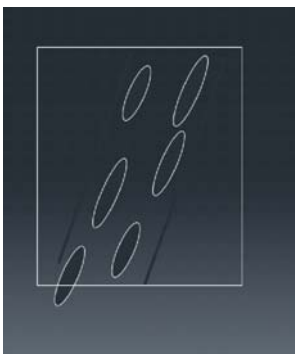


Figure 15: What is shown in this picture?

Figure 16: The effect of distraction on perception – scene from the library (left) no helmets – the cause of accidents in Jamaica (right) [10].

Now please answer the question – Are the titles on the back of the books written in English? Please check. It turns out that the picture did not represent a library after all! It is a cigar shop. A strong distractor in the central field of vision meant that we uncritically accept the suggestion that we are dealing with a library. Now let us look at the picture on the right. What is the cause of accidents in Jamaica? Of course, the lack of helmets? Nonsense! Lack of helmets can affect the consequences of an accident, but not be its cause. Operational memory works poorly in the presence of distractors, and unfortunately we are gullible. Memory seems a more likely to be involved in this second example, but most people will still not see the point unless you explicitly say how memory is involved – for example, that people call up from memory the knowledge that helmets prevent injury in the case of accidents and confuse that with helmets we prevent the actions in the first place

Experience also determines what we see. We may see something like on Fig. 17 (left) in a gallery and say 'I do not understand this painting'. If we know that it shows the stages of a 100 dollar bill slipping under a table cloth, we will understand this image quite differently.

When we see red, ripe strawberry, our brain is activated in several areas – the ones responsible for color perception, for the extraction of strawberries from memory and for motor activity. We want to grab and eat the strawberry before someone else eats it instead of us. And if the strawberry were blue? Again, the area responsible for color is activated, but there is little or no extraction of the concept of strawberries from memory: we do not want to grab and eat the blue strawberry. It seems important that in this case an extremely important area of the brain is activated – the one which is responsible for monitoring of the environment. We want to understand what we see, and as a result of this understanding, know how to behave. Brain research allows us to understand the nature of man. It shows us that the 'demons' in our brains not only allow us to understand the environment but also influence our decision about what we see. As promised in the introduction, we have now accomplished some first steps of a very important but very long march.

Let us think back to those stages of perception that we call detection and interpretation. Detection of color, shape, and object recognition are involuntary perceptual automata. They are therefore sometimes referred to as 'low' cognitive processes. Interpretation is based on the decoding of the implicit and ambiguous content of observed objects. Acts of interpretation require commitment, depend upon associative processes, and involve knowledge, culture, and emotions. In the scheme described above, interpretation belongs to the stage of categorization and the recognition of metaphorical value. In the case of the reception of art, the viewer is co-creating the work of an artist. In this sense, acts of interpretation are viewed as 'higher' cognitive functions.

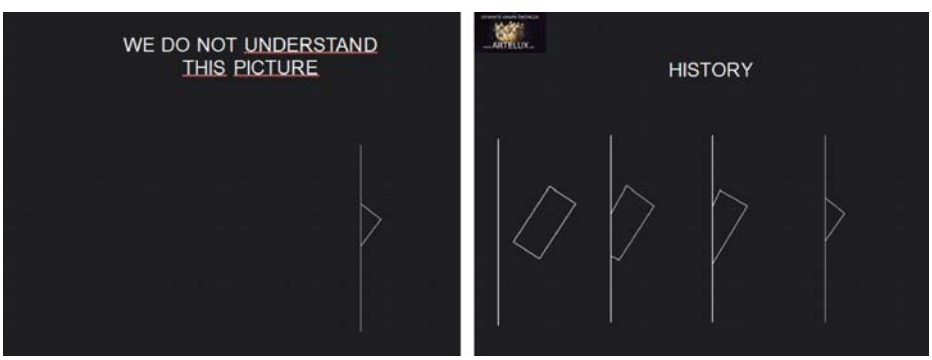


Figure 17: Experience determines what we see.

Semir Zeki [11] says that the human brain is capable of processing three types of information: explicit information (e.g. a wavelength of light), ambiguous information (e.g. ambiguous shapes), and even more ambiguous information (?), where there are many equally possible interpretations. From the standpoint of the perception of art, the most interesting mechanism is the third one. 'Ambiguity is not uncertainty, but certainty – certainty of many, equally possible interpretations, each of which is independent, when it appears on the stage of consciousness.' Artists, being 'unconscious neurobiologists', often use this function of the human brain and create works that are open to different interpretations.

An excellent example of this type of art in painting and photography created is the trend called Decentrism. In 1986, the Polish writer and intellectual worker, Adam Wisniewski-Snerg, in the manifesto, 'My principle of decentrism' [12], formulated this new direction of modern art. Wisniewski-Snerg's Decentrism provides a new way of expressing and interpreting the art, restores its traditional character, and enhances its meaning through the use of intuitive communication.

In the semantic layer, artists preach the idea of 'man as a hidden dominant' of art. The human person is not presented on their paintings or photographs directly. Rather, its presence is suggested by the sometimes blurry shape of a shadow or silhouette. The most characteristic feature of this technique is the layer of composition: the object (e.g. the human) painted or photographed by the artist is presented fragmentarily or by a symbol (e.g. a shadow). Decentrists opposed the work of centrists, who sought 'a full exposition of the present subject…. Centrism permits the passage of reality, but only if the item does not fit the picture'. Artists were already often excited by the possibility of going beyond the work, painting on the picture frame itself, or on the back of the canvas. The Decentrists went further. Their image is created in the mind of the recipient. Such appropriation of an unusual medium is achieved in such a way that the decentrist's works draw attention to what you 'do not see, what is hidden and does not impose its presence'. Consequently, decentrists do not show reality explicitly or ostentatiously, but through context and understatement [13].

The painting 'Before the performance' (Fig. 18) represents a performer standing behind the curtain and preparing to take up the challenge of stepping eye to eye with the audience. Notice how little information is shown about the performer – we know only what can be derived from three patches of color. The image vibrates with dynamics – we feel her stage fright, we hear the silence, preceding a storm of applause, which will appear at the moment she enters the spotlight. Blinded by the glare, she will not see the audience, just as we do not see her. The artist, Lili Fijałkowska, builds a tension, including not only the structure of light, shadow, and color but also the feeling of emotions and the hearing of future sounds. Perhaps we are dealing with the phenomenon noted by Walter

Figure 18: Lili Fijałkowska 'Before the performance'.

Doyle and Kathy Carter that 'a key objective of the narrative policy is the fact that human beings have a natural tendency to rewrite the story of their experience'. Searching for stories in the message, transmitted by the image, is the result of this predisposition.

Mira Rewers (Fig. 19) presents the dominant by means of shadows, silhouettes, and fragments of reality. We sense the monotonous rhythm of the street, the bursts of street musicians' music. We feel we can hear the steps of the passersby. We feel monotonous daily life of the street noise. As this example shows, the perception of decentrists' work extended to experiences from other sensory modalities.

Neuropsychologist and brain researcher, S. Kosslyn, who has studied the imaginative processes by means of neuroscientific methods for many years, tried to show that the imaginary processes activate areas of the brain which are similar to those activated by seeing [14]. There is a strong relationship between the processes of vision and visual imagination, which authorizes us to speak metaphorically of 'seeing through the eyes of imagination'. Looking at the picture (Fig. 20) by Lili Fiałkowska in panel (a), we see the silhouette of a woman, with the only visually accessible parts being a portion of her legs and the shadow thrown on the floor. Because of the erotic context of the situation, an even stronger 'imagination game' is evoked by 'Diptych Dating' in panel (b). In this case we have the opportunity to 'see' what is taking place between a woman and a man, which we can easily imagine as occurring between the first and the second image of the diptych. Similarly ambiguous are the work entitled '008' by Robert Andre in panel (c), and 'Naked Whisper' by Sergiusz Sachno's in panel (d), obtained by imposing shadows. Knowing that photographs (c) and (d) show the feminine act stimulates the imagination of the viewer and orders him or her to see what the author of the photograph did not show directly. If the author titled the work 'cats', the interpretation would be different and the work would not be decentristic.

Art is sometimes perverse, and sometimes artist acts against the rules, which in other situations they apply. Decentrists do this as well. Let us look at the two photos by the photographer Marek Rachwał (Fig. 21a and 21b).

It might appear that they have departed from the decentrists' program of exposing the presence of the subject – of human beings - in the world. But this is only an illusion. Imagine that we have visited an exhibition of decentrists' works, where we saw dozens of paintings and photographs presenting very different forms and configurations of parts of the human body, which were regarded as belonging to people who are doing something. When finally we finally enter the room where these two Rachwal's photographs are, we will probably experience a shock. Our minds set to search for objects in the world will not perceive the bodily presence of a human being and indeed the human body does

Figure 19: Mira Rewers's street scene.

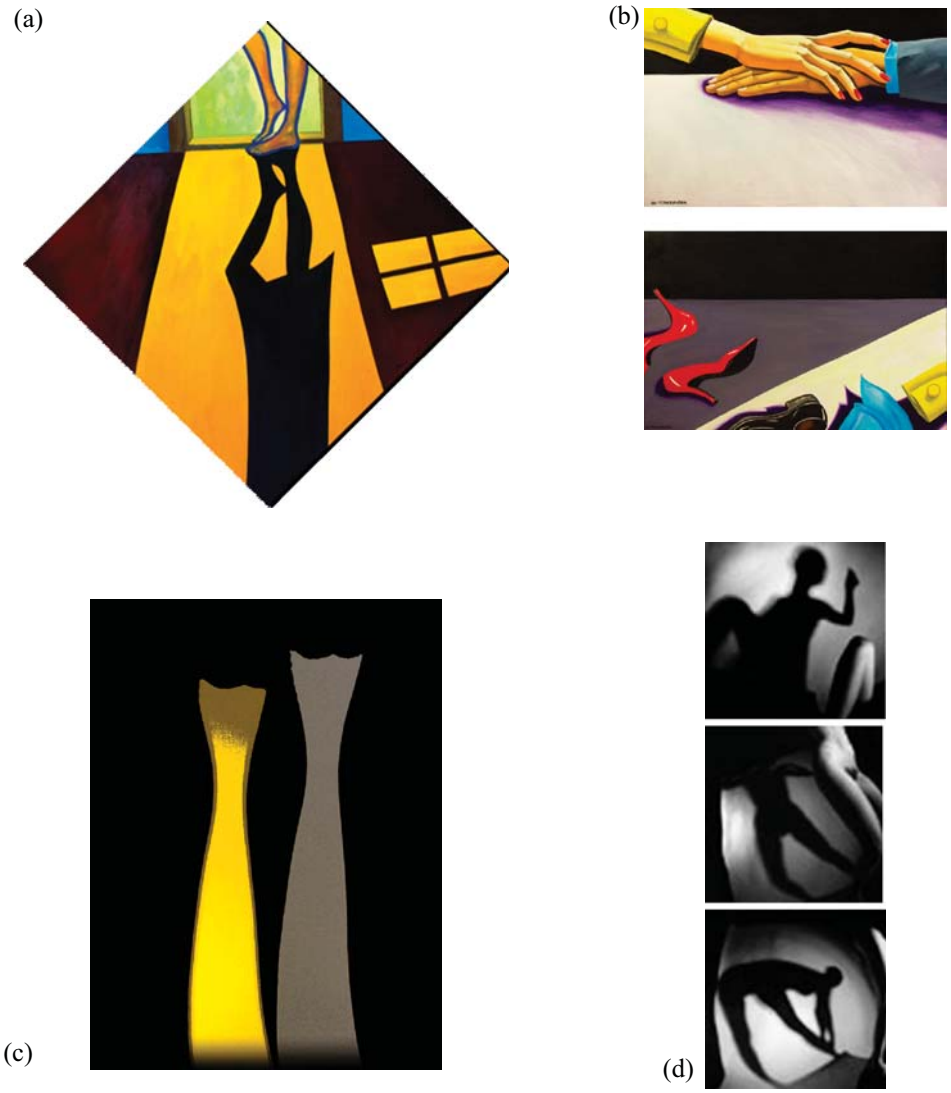


Figure 20: Examples of decentrist's art (a) Lili Fijałkowska Hot Summer/oil on canvas, (b) Lili Fijałkowska, Diptych Dating, (c) Robert Andre 008, (d) Sergiusz Sachno Naked whisper.

not exist in the picture directly. But it does exist in our consciousness of the picture. We see it through the eyes of the mind, even though we did not see it in the picture itself. We feel its absence. So instead of departing from the decentrists' program, these photographs actually take it a step further!

Look again at the photograph by Marek Rachwał: motionless carousel, ball, cemetery behind the wall. These pictures inspire genuine sadness and melancholy. We believe that they can be seen as the decentrists' answer to the picture 'Melancholy' by J. Malczewski, where in the center of the image we find a dynamic procession of allegorical figures. Malczewski's Melancholy lies in the realm of the symbolic; Rachwał's lies – literally, actually – in the visual realm [15].

Figure 21: (a, b) Marek Rachwał, photographs, (c), Jacek Malczewski, Melancholy (National Museum in Poznan).

Malczewski's melancholy can be understood, but Rachwał's melancholy can be felt.

Each man receives the world differently.

When we encounter a problem, we focus on that problem, each of us in our own way, for its identification, understanding, and solution. We see the world narrowly, precisely because of this concentration on detail. When we are happy, we see the world broadly, our minds reversing the process economization of perception discussed earlier. Such a wide perspective, and the happiness that accompanies it, I wish for you.

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