



Studies and Research in the Psychology of Art

HANDBOOK OF GESTALT-THEORETICAL PSYCHOLOGY OF ART

Edited by
Walter Coppola



ROUTLEDGE



Handbook of Gestalt-Theoretical Psychology of Art

The *Handbook of Gestalt-Theoretic Psychology of Art* synthesizes contemporary research in the psychology of perception, cognition, language and hearing to reassess the Gestalt approach to studying the arts.

Since Rudolf Arnheim's death in 2007, the field has seen a resurgence, with scientists revisiting and reinventing previously articulated points of view. For the first time, this new work is gathered in a single comprehensive resource. Beginning with a history of the field, the book considers meta-theoretic issues before discussing the various senses. It explores topics including aesthetics, space, poetry, literature, music, and film, bringing together leading researchers from across the discipline.

It will be an essential read for all students and researchers of the psychology of art, the psychology of perception, or Gestalt Theory.

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Studies and Research in the Psychology of Art

Series Editor: Ian Verstegen

Studies and Research in the Psychology of Art is intended to make available work on art from a rich psychological point of view. Emphasis is placed on perception and cognition with full semantic and expressive significance in its relation to artistic content.

Topics covered in such a series could include traditional perceptual issues like form, color, space, pictorial dynamics, as well as wider ranging topics like emotion, expression and personality. In addition, other meta-theoretical areas touching on art and psychology like the brain, philosophy, and ethics could be treated.

The platform encourages monographs, edited volumes, and the translation and publication of foreign text of special significance. Emphasis is placed on humanistic, Gestalt, and ecological approaches to the arts that envisage art in its fullest human context.

The Gestalts of Mind and Text

Chanita Goodblatt and Joseph Glicksohn

Art and Expression Studies in the Psychology of Art

Edited By Ian F. Verstegen and Alberto Argenton

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1 Introduction

In 2007, Rudolf Arnheim died and with him a heroic chapter in the history of the Gestalt psychology of art. For more than half a century, Arnheim embodied the union of Gestalt psychological ideas and the arts. His books *Art and Visual Perception* and *Visual Thinking* are monuments of such an approach. Since Arnheim's death, the importance of ideas of Gestalt psychology has only continued to grow in the fields of perceptual, cognitive, and social psychology research. Indeed, although it is impossible to discern a strong, cohesive school, Gestalt-theoretical ideas are in their ascendancy. And examining work in the psychological study of the arts reveals a number of researchers holding to Gestalt-theoretical ideas.

The Gestalt movement was launched in 1912 when Max Wertheimer published experiments on the perception of movement. He noted that real and illusory movement were indistinguishable and hypothesized that a brain function was responsible for both. Together with his colleagues Kurt Koffka and Wolfgang Köhler, the three launched the Gestalt movement, memorialized in books like Wertheimer's *Productive Thinking* (1943), Koffka's *Principles of Gestalt Psychology* (1935), and Köhler's *Gestalt Psychology* (1929). Their trained students in Germany (like Arnheim) and influence upon Italy, and the displacement of the movement to the U.S. with the rise of Hitler, spread the movement around the world.

The purpose of the present volume is to bring together researchers from around the world for whom – whether through direct training or discovery of rich ideas – inform their works with ideas from the Gestalt tradition. *The Handbook of Gestalt-Theoretic Psychology of Art* is intended to be a reference work with coverage of most areas of the psychology of art. Of course, it is very difficult to cover all areas but an attempt has been made to treat of basic ideas, the various arts (pictures, music and literature) and then some other issues.

It is hoped that the existence of the present volume will help researchers discern a consistent point of view afforded by Gestalt theory. In general, Gestalt psychology stresses the structuredness of the perceptual world and regards works of art as distinguished examples of intelligent perception. Gestaltists follow the rich phenomenology of experience, which includes expressive, “tertiary”, and “physiognomic” qualities. They believe that while perception is a constructive activity based in the physiology of the brain, it nevertheless is able to veridically capture the world.

The present volume contains contributors from several countries, including America, Canada, Germany, Israel and Italy. Many of the authors trace a connection to the rich histories of the Gestalt tradition through its German and Italian schools, and its transplantation to the United States. The reader will notice the number of contributors from Italy.

2 *Handbook of Gestalt-Theoretical Psychology of Art*

Owing to the persistent strength of the Gestalt tradition in Italy and the many students trained in Bologna, Padua and Trieste, it is no surprise that the theory retains its power.

Working on the handbook has helped create a community and bring the work of different researchers to the attention of others. It is hoped that the handbook will continue to feed ideas, help make connections between research questions and traditions clear, and grow interest in Gestalt ideas.

1.1 **The Structure of the Book**

The book begins with a general reflection by Max Kobbert, student of Wolfgang Metzger and author of numerous texts on the psychology of art. Kobbert's career spans his student days in Münster, seeing the elderly Köhler speak, visiting Arnheim in America, and other events to the present day. His observations speak to the richness of the Gestalt approach and the orientation to the arts that is natural to its outlook. Next Walter Coppola enlightens three periods, the 1920s–1930s in Berlin, the 1950s–1960s in New York, and the 1960s–1970s in Trieste, that show how the direct interest in the arts by researchers in those milieus directly fed new innovation in psychological research. In particular, the extension of Wertheimer's laws of perceptual grouping (1923) and their extension into the temporal dimension of sound by Paolo Bozzi and Giovanni Bruno Vicario (1960) is discussed.

Three historical chapters follow that situate Gestalt ideas historically. Fiorenza Toccafondi discusses the idea that sensory qualities are intersensory beginning with Erich von Hornbostel's important reflections. Savina Raynaud and Serena Cattaruzza discuss how Gestalt ideas were used in linguistic research, especially in the career of Karl Bühler. Finally, Riccardo Martinelli discusses the rich reflection on music and musical qualities by researchers in the Berlin school, including their teacher Carl Stumpf.

Luca Taddio reviews the foundational importance of phenomenological description and variation in Gestalt psychology, from Berlin to Gaetano Kanizsa in Trieste. Contrastingly, Carmelo Calì reviews Wolfgang Köhler's physicalistic model of the brain and ideas of psychophysical isomorphism. In this way, two basic commitments (that are often in conflict in other traditions) are illuminated.

Then two chapters follow on the expressive qualities of visual forms. Michele Sinico discusses tertiary-expressive qualities in Design, while Giulia Parovel does the same for art. Each provides a firm foundation for the expressive qualities of visual forms that are the bedrock of research on the psychology of art. Charles Spence and Nicola Di Stefano discuss the basic idea of crossmodal expression in perceptual grouping and art, showing relations between complex auditory stimuli (music) and complex visual stimuli (paintings, etc.) and also how their combined experience is emergent, more than the sum of the parts.

Two chapters are devoted to the perception of pictures specifically. Ian Verstegen outlines ways in which Gestalt psychologists can understand the picture as a part of an environmental whole in addition to understanding the constituent parts within a painting. Tiziano Agostini, Alessandra Galmonte, and Alessandro Soranzo demonstrate the way in which Gestalt relational mechanisms express themselves in pictures. Related is the chapter by Nele Sophie Pohl, Mira Schwarz, Kinan Makhlof, and Kai Hamburger that considers spatial cognition and the arts, including architecture.

The next two chapters deal with language. First, Joseph Glicksohn and Chanita Goodblatt review their Gestalt-interaction theory of metaphor, where verbal metaphors

are understood as emergent wholes, created by an interaction between its primary and secondary subjects. Wolfgang Wildgen instead expounds on how Gestalt principles can enlighten linguistic narrative structures, conducting various case studies using the updated tools of catastrophe theory.

Two chapters are devoted to music. Nicola di Stefano discusses research on consonance and dissonance by Gestalt researchers, while Sebastian Klotz discusses the related notion of timbre. Both trace research from Stumpf on, Di Stefano relating consonance and dissonance to Gestalt perception and relating it to contemporary research on processing fluency, Klotz discussing the related distinctive tone quality of voices and instruments with reference to recent research on the multi-dimensional quality of sound. Finally, Adriano D'Aloia reviews Gestalt principles of motion perception and their application to the study of film, using Stanley Kubrick's *2001: A Space Odyssey* as a case study.

In the last two subject-based chapters, concepts of problem-solving and growth are discussed. Ian Versteegen reviews ideas of creativity and problem solving in Gestalt theory, introducing ideas of Michael and Lise Wertheimer Wallach. David Pariser incorporates ideas from his life-long preoccupation with the art of children, demonstrating Gestalt principles along the lines of the model of children's drawings first suggested by Rudolf Arnheim. Finally, a case study of the fruitful engagement of Gestalt ideas with psychological research is found in the work of Gruppo N, a group of artists in Padua in the 1960s, with some knowledge of research then being conducted in the psychological laboratories.

1.2 An Invitation

As noted, the book introduces a number of ideas and thinkers and provides for a possible future more engaged discussion. There are some figures it has been impossible to cover, from more Gestalt traditions around the world. Even with so much focus on Italian Gestalt psychology there is unfortunately no discussion of the ample output of Lucia Pizzo Russo, almost totally unavailable in English. Nevertheless, the handbook is an invitation to students and researchers to consider the benefits of the platform of Gestalt-theoretic psychology of art when addressing aesthetic questions. A lively network for such investigation can be found in the International Society for Gestalt Theory and its Applications, (GTA), which holds bi-annual meetings and publishes the journal, *Gestalt Theory*. [During the production of this book, Wolfgang Wildgen passed away. We recall his lifelong commitment to scholarship and his friendship and gratefully dedicate this book to his memory.]

2 Gestalt Theory and Art, from Wolfgang Köhler, to Rudolf Arnheim, to Today

Max Kobbert

2.1 On the Basic Situation of the Artist, Work, and Viewer

Let's start from the situation shown in Figure 2.1: An artist paints a picture, a woman watches. The picture suggests that both see exactly the same picture. But is this really the truth? This view corresponds to Naive Realism, according to which reality is identical to what I perceive. Gestalt theory says that we need to question this view. Every artist and art educator knows the need for this when they encounter many viewers' lack of understanding of modern art. Wolfgang Köhler, the great theorist of Gestalt psychology, in particular, dealt with the background of the perceptual situation (Köhler, 1929). Even into his old age, he tried to convey his insights on a difficult topic.

Köhler emigrated to the USA in 1935. The Nazis had stripped him of his Berlin professorship after he publicly protested against the dismissal of Jewish professors. It was not until 1967 that he visited Germany again. He was awarded an honorary doctorate at the University of Münster, and Wolfgang Metzger gave the laudatory speech. On this occasion, Köhler gave a lecture at the Psychological Institute on the relationship between the phenomenal world and the physical world. As a student, I was lucky enough to be able to take part and took a photo (Figure 2.2). Two months later, Wolfgang Köhler died in Enfield, New Hampshire.

In the USA, the emigrated Gestalt psychologists had a difficult time. Psychology was dominated by Behaviorism, which denied consciousness or rejected it as unknowable. In contrast, Gestalt psychologists were primarily interested in what a person consciously experiences. Köhler had studied physics with Max Planck, and so as a psychologist it was important to him to describe the connection between the two worlds. His epistemology has come to be known as "Critical Realism". He differentiates between two kinds of reality: conscious experience (the phenomenal world) and physical reality. The phenomenal world, as perceived by the individual, is connected with physical reality via the organism's receptors and effectors.

Even before Köhler, the physiologist Hermann von Helmholtz postulated that everything a person sees, hears, and touches must be in their head (Helmholtz, 1909/11). However, everyone's experience shows that people encounter things in the world and that they themselves are part of this world. How on earth do I see everything outside of me when it's all in my head? This problem is called the inside–outside paradox.

Köhler found an answer, and other Gestalt psychologists such as Wolfgang Metzger (1968, ch. 8) campaigned for its dissemination. Nevertheless, it has not become common

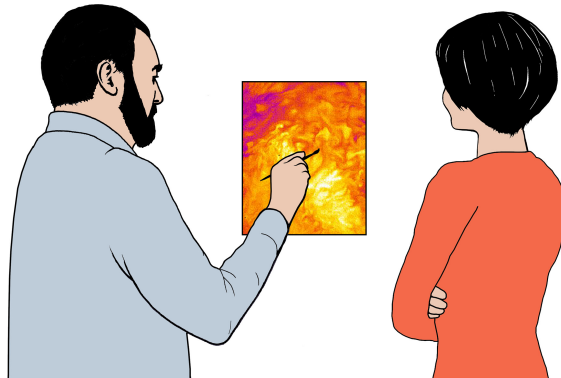


Figure 2.1 The basic situation of the artist, work, and viewer

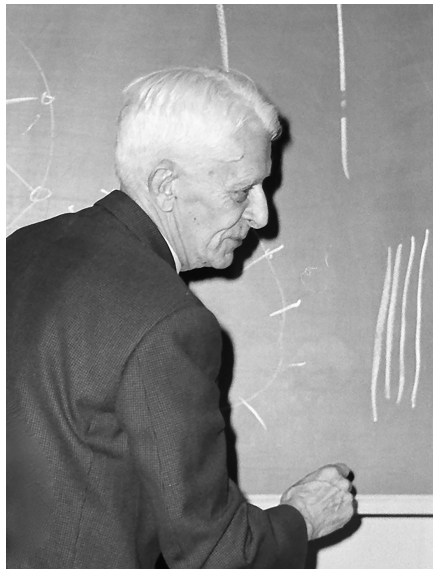


Figure 2.2 Wolfgang Köhler in Münster, 1967

knowledge, not even in the sciences. This can be attributed to the fact that it is not easy to understand and contradict basic beliefs of Naive Realism. This should be described here as vividly as possible and applied to art psychology.

Let's try to illustrate the basic situation of human existence using a simple example, see Figure 2.3: a man with an apple. The Greco-Roman philosopher Sextus Empiricus already used the apple as an example: It appears to us fragrant, sweet, and red, but this does not mean that it objectively possesses these properties. Immanuel Kant even asked whether the apple actually exists as a coherent whole as we experience it. In the past decades, "Radical Constructivism", represented, e.g., by Ernst von Glasersfeld and Heinz von Foerster, has been hotly debated. They claimed that everything that exists is a construct (of the brain)

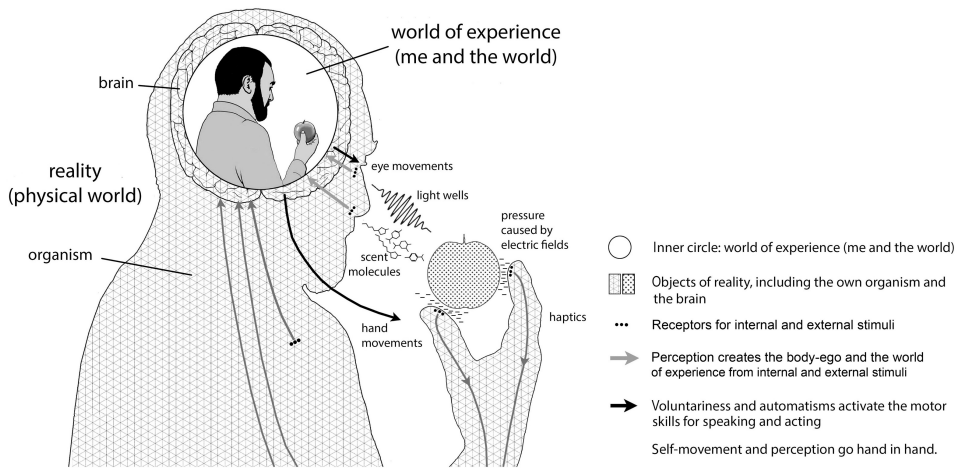


Figure 2.3 The basic psychophysical scheme

and that the assumption of objective reality is dispensable. However, this assumption leads to untenable consequences. Because if everything is a construct, the brain would also be a construct, and the world would be the construct of a construct – an absurd idea. The Critical Realism represented by Köhler and Metzger, on the other hand, is a coherent description of the relationship between the phenomenal world and physical reality.

Figure 2.3 is a vivid illustration of Critical Realism. The inner circle represents the phenomenal world that makes up our everyday experience. This includes everything we find around us: people, things, and even the stars in the sky. We ourselves, and this is very important, are part of the phenomenal world; we experience ourselves as being in the middle of it. This resolves the inside–outside paradox. Metzger says, “Man encounters things and beings in a world that encompasses him and them together” (Metzger, 1968, p. 276). This entire experienced world is related to the physical world in two ways.

First, with our brain. It includes the world of experience in the sense that certain brain processes directly correlate with the experience. How this happens is one of the major research areas of neurophysiology. Köhler called this interface PPN (psychophysical level). The German-American brain researcher Christoph Koch (2004) calls them NCC (neural correlates of consciousness).

Second, the phenomenal world is related to the external physical world, the source of all stimuli that hit the sense organs. In contrast to Radical Constructivism, Critical Realism assumes that reality is structured, and therefore the stimuli occur in a regular manner so that the brain can construct a somewhat reliable world from it. The structure of the objects in reality is symbolized in the drawing by patterns.

Light of different wavelengths hits three types of photoreceptor in the eye. From this, the brain creates the entire variety of colors in our world. Fluctuations in the density of the air affect the receptors in the inner ear. From this, the brain creates a variety of sounds, including language and music. The smell of the apple is a product of the perception based on stimuli inside the nose, where clouds of various molecules arrive. The tongue and palate contain receptors for molecules that form the basis for our taste experience.

One of the objects of reality is one’s own organism. Only a few people realize that the awareness of our own body is not given to us directly but is transmitted via receptors.

Internal stimuli in muscles, tendons, and joints give us information about the position of the limbs. Together with millions of stimuli that the skin's receptors report every second and with what our eyes receive, the brain constantly shapes the body-ego. There is no way to perceive the world and yourself other than through the sense organs!

In addition to receptors, humans are connected to reality through effectors. These are the muscles that are controlled by the brain and ensure that we can do things with our hands, walk, and talk. These activities are in turn controlled via the sensory organs, resulting in a circular process of perception and action. There is a special relationship between inside and outside in haptic perception. In the world of experience, we grasp the apple and feel its solidity and shape with our hand. At the same time, we feel our groping hand and update our body self. In the physical world, electric fields interact that we do not directly feel. The surfaces of the apple and the hand are formed by clouds of electrons that repel each other. This creates the pressure that we sense through the receptors in the skin. At the same time, the effectors are active, sensors from muscles and joints report execution to the brain.

In his Gestalt theory, Köhler assumes "isomorphism" for the relationship between the phenomenal and physical worlds, both to certain brain processes and to the external physical world. By this, he meant correspondences in continuity, distinction, topology, and metrics. Metzger (1968, p. 304) speaks of isomorphism, or Gestalt analogy, between the visual environment and the physical environment as well as between the experienced ego and the physical organism. In Figure 2.3, isomorphism is indicated by similar outline shapes in the phenomenal and physical worlds, knowing full well that this is for illustrative purposes only.

Let us now apply what has been said to the artist who paints a picture. We assume the details from Figure 2.3 and leave them out of the current presentation for the sake of clarity. A close circular process develops for the world as the artist experiences it. See Fig. 2.4.

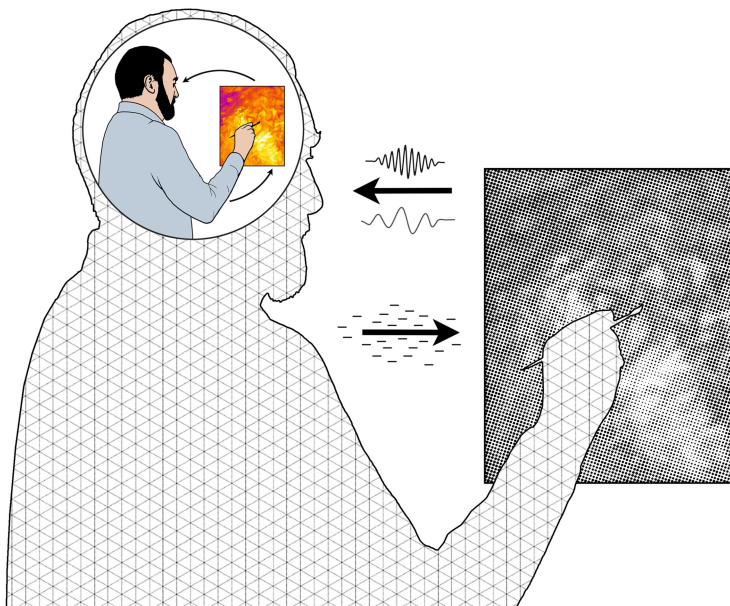


Figure 2.4 A psychophysical scheme of the artist painting

At the beginning, he may have a rough idea for an abstract picture and its colors. After the first brush stroke on the empty canvas, what he has painted begins to have an effect on him. Perhaps the artist begins by sketching out his idea in rough outline and then fleshing it out in ever more nuanced ways. Maybe he starts with the background and puts several layers of paint on top of each other – however, he controls every action with his eyes and reacts to the respective intermediate result. He pays attention to consistency with his plan and coherence within the picture. He composes warm or cold colors, creates harmonies or disharmonies, movement or calm, tensions or solutions. Occasionally he will step back and examine his work from a distance. At some point during this creative process the moment comes when he knows that any further intervention would be unnecessary and disruptive. That is the moment he puts down the brush and the picture is finished – a new Gestalt has emerged.

At the same time, something is happening in physical reality. What can be said about it? An interactive process takes place between the organism and parts of the outside world, too. The motor activities change the surface of the physical object that corresponds to the canvas seen through the application of chemical substances. These processes change the source of the light stimuli and have an effect back on the organism. In this interrelationship there is obviously an isomorphism between the experienced processes and the physical processes. An isomorphism can also be assumed between the perceived distribution of different colors in the picture and the spatial distribution on the physical surface. On the other hand, there is no isomorphism with regard to the colors themselves. The pigments reflect different parts of the illuminating light. These are different wavelengths, not color qualities. Isaac Newton had already recognized that colors such as red, yellow, or blue only arise when they are viewed and cannot be justified physically. This also applies to many other properties of colors and combinations of colors, whether they appear warm or cold, calm or lively, serious or cheerful, gentle or powerful.

Now let's look at what happens to the woman looking at the picture. What she sees is not the picture that the painter sees in the inner circle in Figure 2.4. The two images are not identical. What both have in common is the source of the visual stimuli. What is common is the physical object that is covered with pigments, i.e., with molecules that reflect parts of the illuminating light as light waves of different lengths. These hit the photoreceptors in her eyes and trigger processes there that, via a series of intermediate stages in the brain, ultimately lead to the experience of a colored image. The result is a product of her own perception, embedded in the context of the entirety of previous experiences and the knowledge of the current work. Perception is a creative achievement of the organism and is slightly different for each person.

On the other hand, a certain degree of similarity is to be expected due to the isomorphies postulated by Köhler. The physical conditions that are essential for conveying what has been created to what is received are not without order. The physical structures created by the artist are at least partially isomorphic to what he consciously sees in the sense described above. It is therefore to be expected that there is a certain isomorphism between these structures and the object of perception by the recipient. This means that structural similarities are to be expected between the way the artist sees his work and the way the recipient sees it. This means that Köhler's Gestalt theory results in both a certain similarity and an individual difference in the modes of perception. In Figure 2.5 this is illustrated by the fact that the color pattern as seen by the woman is shown in greater contrast than in Figure 2.4.

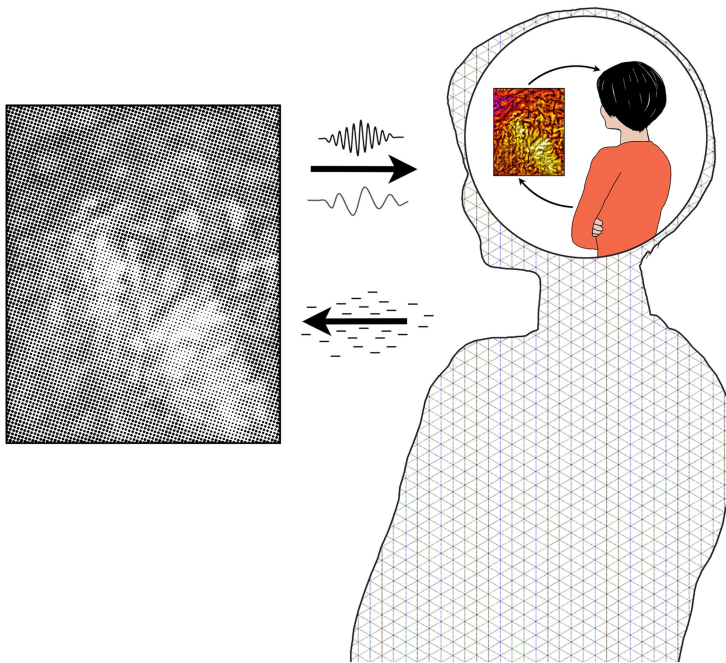


Figure 2.5 A psychophysical scheme of the museum-goer looking at the painting

2.2 Consequences for the Work of Art, Artist, and Viewer

Everyone sees a work of art in their own way. This ultimately applies to every object, but especially to images because of their fundamental ambiguity and the lack of conventional functions. The objects of everyday life are often determined by what they are used for: a knife is for cutting, a chair is for sitting, a house is for living in. Everyone agrees on that. Works of art are free from such determinations and are accordingly open to views and interpretations. In his book *Opera aperta* from 1962, Umberto Eco pointed out that modern art addresses the viewer as an interpreter and co-creator. The viewer is taken from the passive role of mere recipient into the role of co-player. According to Eco, the development that art has taken since the Romantic period is in keeping with Gestalt psychology, because this sees humans as creative beings whose creativity begins with perception.

Caspar David Friedrich, the most important Romantic painter, pointed out that everyone sees things in their own way and that it is impossible to see something through someone else's eyes. In many of his pictures he shows people from the rear looking at a landscape, the sea, a mountain, or the moon. He focuses on people as viewers and encourages the recipients of his works to reflect on their own perceptions.

As shown in Figures 2.4 and 2.5, everyone sees in their own way, even if the physical sources of the stimuli are the same. In addition, you can change your way of perception in a self-determined manner. Let's make this more concrete with examples for artists and viewers.

2.3 On the Perception of the Artist

Let's assume an artist sees a scene or a landscape and wants to paint it. In the 30 years that I have worked at art academies, I have met quite a few artists who consider such painting to be trivial and therefore only paint in a non-representational way. They talk about "poor copy". One artist said that one only needs to trace what is projected on the retina of the eye and that this is not a creative achievement.

This view is outdated; it corresponds to the perception theory of over 100 years ago.

At that time the camera served as a model: The world appears flat and upside down on the back of the eye, but this would be corrected through experience and thought. In fact, what happens at the level of the receptors does not become an object of conscious perception at all. Rather, it is the first stage in a series of processes in the brain, of which only the result becomes conscious as a phenomenon. This result is always part of the reality experienced in three dimensions, the world at the center of which the individual locates himself.

Concrete example: The retinal projection of a person at 2 meters away is twice that of a person at 4 meters away (Figure 2.6a and 2.6b). But we don't notice this difference in size. Rather, we see two people of the same height at different distances. This phenomenon of "size constancy", in which differences in size are converted into differences in depth, is an essential factor in our perception of space. This conversion is an active performance of perception that occurs completely automatically without conscious intervention. It can be detected even in children of crawling age.

The painter of a spatial scene must, as it were, translate back what he sees in order to depict it "correctly in perspective". It is claimed that Renaissance painters taught viewers to see images in three dimensions. In fact, it is completely different. The painters managed to "see reality as a picture" and to put the shape and color relationships into the painting accordingly (Gombrich, 1959, ch. 9).

To achieve this way of seeing, painters have devised a number of tools. Many books on perspective representation have been written. They laboriously reconstruct patterns that physical reality projects onto the retina but that are not immediately accessible to conscious perception. For example, Albrecht Dürer's grids and auxiliary constructions for perspective representation are well known. How difficult it is to see reality as an image

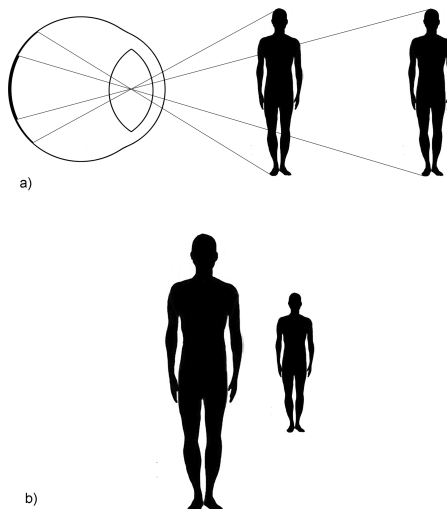


Figure 2.6 Figures seen with size constancy

can be seen in the simple example in Figure 2.7. We see a rectangular cube. But if we want to represent it, we have to draw lines with all oblique angles. There is not a single right-angle in the picture area! Yet we see a cube and take it for granted. The painter breaks away from this self-evidence and, by taking a detour through an artificial view of things, creates images that appear realistic to the viewer.

What applies to perspective relationships also applies to colors. Look at Figure 2.8. On the top of the cube there is a color field marked with a dot. On the right side of the cube there is an area of the same color, but which one? It's not about equality in the real cube, but rather about which area in the illustration is printed in the same color. You may not believe it, but the color of the lightest field on the right is identical to the darkest color on the top!

Again, we see how difficult it is to see reality as an image. Rather, perception has interpreted differences in brightness as shadows of an illuminated cube and compensates for them in the sense of a "realistic" view. This "color constancy" is the counterpart to "size constancy". Both are usually very useful for navigating in the world. But the painter temporarily suspends it for himself in order to put the world into the picture. Both are fully effective again for the viewer and make perspective images, including shading, appear realistic.

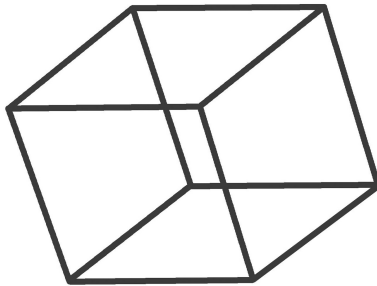


Figure 2.7 The Necker cube

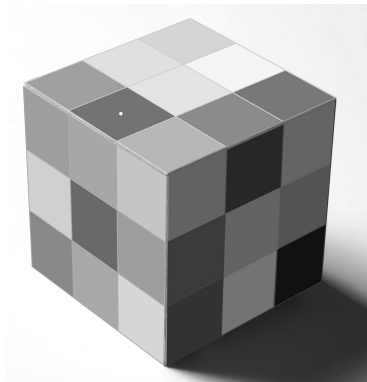


Figure 2.8 A demonstration of color constancy

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Even in Roman times, some painters knew how to use shading and glossy effects in pictures. In Impressionism the color of things became more and more pure color. Claude Monet recommended to painters:

When you go outside to paint, you have to forget what objects you have in front of you, be it a tree, a house, a field, or whatever. Just imagine, here is a small blue square, here a pink rectangle, here a yellow stripe, and paint the whole thing exactly as it appears to you.

(Gage, 1993, ch. 11)

In order to see the “pure color” independent of the color of the thing, some painters use a “reduction screen”. This is simply a black card with a hole (see Figure 2.9). If you look at a surface through this hole, the visible color section loses its connection to the object and the lighting situation. Without the context you now see the “pure color”. The effectiveness of this method can also be seen if everything in Figure 2.8 is covered except for the two color fields mentioned. Incidentally, what has been said is an example of a central statement of Gestalt psychology: The properties of a part depend on its role in the whole and change as the context changes or dissolves.

More than 100 years ago, as is well known, many painters continued along the path taken by the Impressionists and completely abandoned the representational to bring out the intrinsic value of form and color in abstract art. Wassily Kandinsky, for example, came to the conclusion that the object only distracts. Rather, in his paintings he created an event within the picture that appeared dynamic without any reference to objects and events outside the picture. An unexpected perceptual experience provided a decisive reason. He reports that one morning, in the twilight of his studio, he saw an indescribably beautiful picture in bright colors. It was generated by himself. The next day he recognized the objects again with painstaking precision. “I now knew exactly”, he said, “that the object was damaging my pictures” (Grohmann, 1958, p. 54).

With his “Action Painting”, Jackson Pollock created a new relationship to extra-pictorial reality, namely to himself and the forces that moved him. His canvas was not

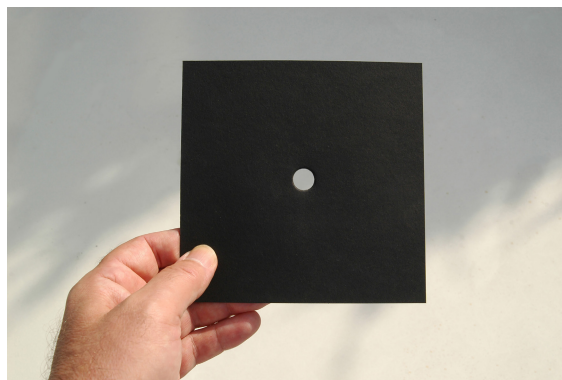


Figure 2.9 A reduction screen

an opposing object, but rather the arena in which he moved, leaving traces of gradients using the dripping process. What is perceived by the viewer will concern us separately.

Many painters have abandoned the “dictation of perspective”. Some want to banish the depth dimension from painting. However, this cannot entirely succeed because as soon as a spot of color is placed on the canvas, a figure-ground relationship is perceived. Edgar Rubin and Gestalt psychology have shown that every figure is a closed Gestalt that stands out from the shapeless ground in an elementary spatiality. In addition, the depth dimension is present in every image in that each image surface is perceived at a distance from the viewer. A completely contourless surface that fills the field of vision is not perceived as a surface, but as a foggy space. Gestalt psychology speaks of the homogeneous “Ganzfeld”. The American light artist James Turrell works with this phenomenon and conveys strange spatial experiences.

Many artists have been working with alienation effects since the first half of the 20th century. As I said, everyday objects have a generally understood utility function, while art objects are fundamentally ambiguous and therefore open. Alienization means that what is obvious and known is brought into unfamiliar contexts and thereby takes on a different role. Collage, montage, and material images are common methods. Alienation is highlighted by the ready-mades in Dadaism. Marcel Duchamp placed a bottle dryer and a urinal on a pedestal and declared them art. He stripped them of their intended use, leaving them open to artistic interpretation. The associated provocation is part of the intentional break with habits of perception.

In all the examples mentioned, the artists saw things differently than was usual at the time. With a creative effort that begins with perception, they created works that resonate with the viewer or can trigger their own reactions.

2.4 To the Viewer's Perception

Any image that depicts something can basically be seen in two different ways: first, as an illusion space with things in it in all their plasticity and object color, and second as a painted flat thing hanging on the wall. By switching between both views, the viewer switches between two realities: one is the scene created by the artist, the other is an object in the everyday environment. Every picture is a lesson about appearance and reality; it conveys epistemology without words.

The possibility of this change does not always seem to exist. I once asked an art professor why she hadn't painted in two years. She replied that she no longer saw pictures in her work, but only canvas covered in paint. Over time, her condition changed, and she painted again – in a different style.

We like to assume that things *are* as we see them, and not that they only look that way to us. Therefore, for the naive realist, there is no doubt that other people see the same thing. In fact, we agree on a lot. For example, every person sees colors as a property of things and not as what they physically are, namely sections of the illuminating light. Let's take a closer look at the differences in image perception. Four different causes can be named.

First, the biological makeup is not the same for all people. This applies to the three common types of color receptor cones. Their relative frequency can vary greatly. For 8% of all men, at least one type is not or only weakly represented. This has a significant impact on color perception, including color blindness. Relatively many people cannot see the difference between red and green. There is no way to describe this difference to them. I have often tried in vain. For comparison: no one can see the patterns that hot

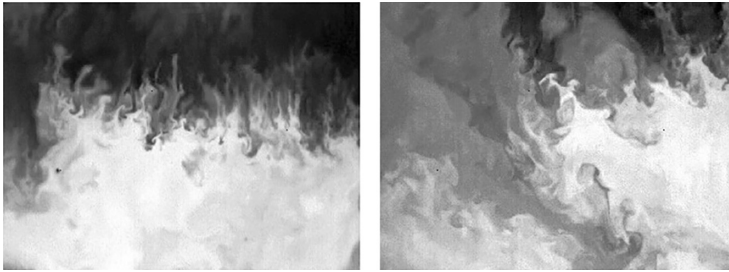


Figure 2.10 Hot and cold water mix in the bathtub. Image taken with a thermal imaging camera

and cold water create in the bathtub when they mix. You can make them visible with a thermal imaging camera, see Figure 2.10. There are animals like the rattlesnake that “see” thermal images with a special organ and can therefore recognize a mouse or a frog in the dark. We do not have such an organ and therefore cannot see patterns of warm and cold. Similarly, a colour-blind person has problems recognizing red apples in the green foliage of an apple tree. It is clear that the effect of colored works of art is different. Take a look at colored pictures in very weak residual light. Then the light is too weak to stimulate the color receptors, and we see everything in gray tones like a totally color-blind person. Because the active light receptors have a special spectral sensitivity, the brightest color is not yellow, but green, and what looks red in daylight now appears black. An interesting and important experience, also for art students. Because many artists are convinced that colors exist independently of humans!

Second, every current perception of a person is related to his or her previous experiences and attitudes. These depend largely on the cultural environment in which someone grew up. We involuntarily try to place everything we see into contexts that are familiar to us. This tendency is fundamentally inherent in us, because our survival can depend on our ability to recognize something even under unclear stimulus conditions. That’s why it’s not surprising that many viewers of abstract art repeatedly ask, “What is this supposed to represent?” Karl Otto Götz, art professor at the Düsseldorf Art Academy and founder of Informel, was so tired of this question that he finally answered ironically: “Call it scrambled eggs” (Götz & Götz, 1972, p. 10). See the pictures of K.O. Götz on his website www.ko-götz.de. The attitude changes and the pictures are perceived completely differently if the viewer has previously informed himself about Götz’s working method. He does not represent anything objective, but rather carries out a gestural action that arises from an approximate idea of movement. Götz concretizes them in several variations with a brush and squeegee and subjects the results to a sharp aesthetic selection.

Third, by changing behavior we are able to see the same thing differently. We often step back and forth to view an image from different distances. We do this, for example, on the one hand, to let the whole picture affect us and, on the other hand, to explore the design of the picture. I showed what effects this can have on a picture by Jackson Pollock in a lecture at a symposium that Rudolf Arnheim organized in Ann Arbor, Michigan, in 1988 (Kobbert, 1989). From a great distance, No. 32 (Kunstsammlung Nordrhein-Westfalen, Düsseldorf) appears felt-like, the entirety of the traces vividly merging into a chaotic texture, a material quality, as Gestalt psychology would say (Fig 2.11). When viewed from a few steps away, the gradient shape of the black traces dominates. Each individual track

appears dynamic due to its specific curvature. The contrast of the gradients increases the dynamism and agility and allows the painter's lively movements to be experienced to a certain extent. When viewed from very close up, the character of the image changes again. We see static circular disks and lines in gentle gradients on the even texture of the canvas. The picture becomes quiet (Figure 2.12).

Eye movements play an important role. They are the only way to see all areas in an image sharply. They are also important because we hardly have any color receptors in the outer area of our visual field and because there are no receptors for short-wave light



Figure 2.11 Jackson Pollock's No. 32 installed in the Kunstsammlung Nordrhein-Westfalen, Düsseldorf

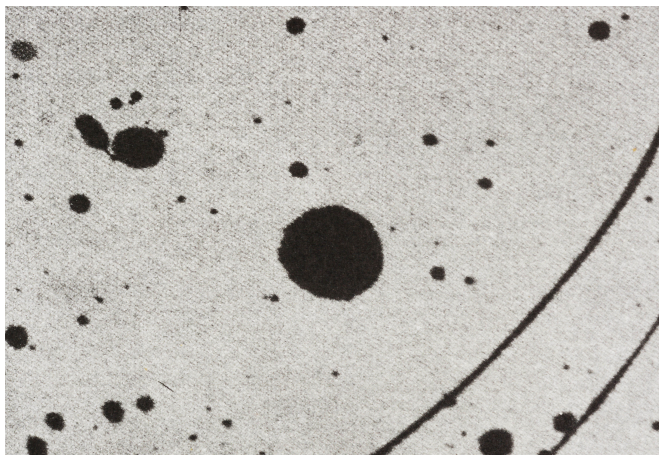


Figure 2.12 A close-up of splatches in Jackson Pollock's No. 32 (see Figure 2.11)



Figure 2.13 Erich Kühnholz, *Romeo and Juliet*, 1981

in the fovea centralis, the zone of sharpest vision. Most eye movements are involuntary and are directed from one part of the picture to the next. On the other hand, we can actively search and discover and focus our attention on specific places, depending on our interests.

Let's take the ceramic in Figure 2.13. The viewer involuntarily follows the gaze of the people depicted back and forth and puzzles with the two lovers as to what the other means. The sculpture was made by Erich Kühnholz, who became totally blind at the age of 18. He became a judge and began working with clay after his retirement. He does not see himself as a blind person, but as a "seeing person without eyes". He has retained his visual imagination for 50 years and with his sculptures he continually evokes what has been painfully lost. By knowing the personal fate behind this work, we see it with different eyes.

Fourth, there are interactions between humans and images that are not noticeable in the physical world and are not expressed through observable behavior. The viewer can direct attention to details or to the image as a whole (focusing or dilating). He can concentrate on the colors, the formal composition, the dynamics, and statics. If possible, he can concentrate on what is being depicted and its meaning. He can focus on the artist's style and compare the current image with others he has seen before. Anyone who knows the painter and his work well can try to see the picture from the artist's point of view – an attractive task. By the way: None of the last-mentioned processes could be captured using the methods of Behaviorism, but they could be captured using descriptions of experiences such as those that belong to the method inventory of Gestalt psychology.

2.5 Consequences for Art Education and Communication of Art

Let's start with very simple consequences from the Gestalt psychology insight that perception is a creative process and that originating something new begins with perception. This opens up a rewarding field for art education. Leonardo da Vinci already advised his students to let random structures on weathered walls inspire their painting. In Africa, a favorite game for children is to spot animals and people in cloud formations. The painter Max Ernst incorporated random patterns into his pictures to let the viewer's imagination play along. This can easily be done with children.

The ambiguity of the visible can easily be shown using so-called picture puzzles. They allow for different interpretations through the alternation of figure and ground, for example in “Rubin’s Vase” Figure 2.14. Children should enjoy making variations of this.

It can be exciting when it is conveyed that one’s own way of seeing can be changed at will. With an image like Figure 2.7, one can ask what can be seen. In general, a cube is described as alternating top and bottom views – a tilting figure. It is more difficult to see that the figure consists of crooked triangles and trapezoids. Gestalt psychology has shown that, in general the simpler and more regular order dominates, and therefore a cube is seen (principle of “good Gestalt”). This changes when the child copies Figure 2.7. When drawing, the child experiences the figure as flat and understands something of the connection between image features and the three-dimensional effect.

Younger children enjoy painting; for them it is a form of immediate expression. Adults should not correct them until early school age. Around the age of 10, they begin to be more demanding and self-critical. Around the age of 12, they often lose their desire to paint. This is partly due to the fact that verbal language is now the preferred means of expression. It is also often related to the fact that they want to paint “realistically” but have difficulties with spatial perspective and are frustrated because they cannot cope with it. To help them overcome these difficulties, they can be offered methods of “seeing the world as an image”, which have already been mentioned.

Just looking with one eye is helpful. This eliminates stereoscopic vision and the compelling spatial impression associated with it. Looking through a window or a reticule can enhance the image character of what is visible. What’s interesting is the method of first not drawing the objects but outlining the space between them. This allows the draftsman to see everything in a new way and saves himself from drawing familiar schemes. This helpful intermediate stage to the “realistic” representation is as alienating as it is astonishing. Nobody would think of assuming the Empire State Building in the outline of Figure 2.15 (see also Figure 2.16). By drawing gaps, you force the three-dimensional situation into a surface and gain amazing insights into the relationship between image and space.

In addition to perspective, students often have problems with the satisfactory representation of faces. They often retain long-standing childlike habits, such as depicting the nose with its own outline, as children do with everything. Here it can help to suggest that they do not reproduce the features of a face, but instead only the shadow areas of the head. Children



Figure 2.14 Vases or faces?

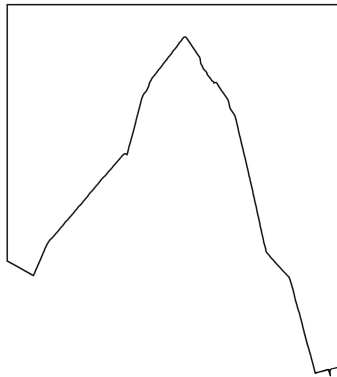


Figure 2.15 A mysterious outline



Figure 2.16 The Empire State Building, New York

generally do not pay attention to shades. Adolescents see them as a new experience and an interesting challenge. The result can lead to an ambiguous image like Figure 2.17.

Another way is to not worry about questions of perspective and form at all, but to just concentrate on the colors in the field of vision. According to Claude Monet's recommendation mentioned above, the student can try to completely ignore the fact that they are objects. Instead, he only pays attention to the colors in his field of vision and uses them as inspiration to create a color composition on the painting surface. A reduction screen like the one in Figure 2.9 is quick to make and can be of good use.

All of these methods involve the student learning that seeing is not a passive reception, but an active process that he or she can consciously influence.

Let us now try to draw further consequences from Wolfgang Köhler's Critical Realism. The insights of his Gestalt theory are not easy to convey in their entirety. Even if you



Figure 2.17 An ambiguous figure

have understood Köhler's theory, you will hardly live and communicate differently in everyday life than on the level of Naive Realism. This applies to scientists as well as to non-scientists. This is especially true when dealing with children who need a simple, unified view of the world. Educators and parents have long figured out how to deal with it. They engage in a language that the children understand. But it's not just the language; it's the entire child's worldview that they get involved with. As in a game, in certain situations you accept the as-if. You know that the real world is more complex, but you play the game for pragmatic reasons. You know about Critical Realism, but you live in Naive Realism.

It is the knowledge from which one can draw useful consequences for everyday practice in dealing with art. The first is to always be critical of your own prejudices and open to new experiences. Such openness is one of the "Big Five" of personality research; it is a personality trait that can be expressed in very different ways. Fortunately, it's a trait that can be trained. Art education and communication of art have an ideal field for this and can rely on using didactic skills to achieve success with many people.

Apodictic claims that do not tolerate contradiction must be met with skepticism because the claim to absolute truth cannot be legitimized with Gestalt theory. Occasionally, however, skeptical benevolence is in order. Artists often have very strong opinions, which are sometimes poorly founded. Such strong views are part of their understanding of autonomy, from which they develop their creative power. You can have discussions with them, but you shouldn't try to lecture them because that would disrupt the context that forms the foundation of their work. You don't have to adopt every one of their views, but you do have to be flexible enough to understand them. Good art historians know how to adequately describe artists, their work, and their background. The cultural scientist Mircea Eliade has studied the myths of different peoples and presents them sensitively, allowing them to apply side by side, even though they partly contradict each other. Many artists and poets cultivate their own myths, and it is beneficial for the recipient if he sees what

they do as complete artworks. Artists are rarely interested in physical reality. For them, what is primarily important is the phenomenal world with its colors, lights, and things, its smells and sounds, its roughness and bitterness, fascinations and adversities. This also includes the experience of one's own body in its being in the world, moving, pleasure and pain. Above all, this includes the experience of transforming something insignificant with your own hands into something special, of making a mere idea concrete into something new in which others can participate.

Particular attention should be paid to the fact that works of art are viewed very differently. In many seminars at art colleges, I let the participants independently describe pictures that they had painted themselves and brought with them. It was always very exciting to compare the results, especially with those of the authors themselves, who always had their say at the end. The obvious assumption was that a description is more "correct" the more it matches the author's description. But it was not uncommon for the painter to find someone else's description more accurate than his own. This shows that under certain circumstances it is entirely possible to empathize and think with the artist.

I can only recommend this exercise to art teachers. It is exciting and educational for the students. Communicating about what we are experiencing is the only way to determine how different our perspectives are or how similar they are. Unfortunately, this doesn't happen often. Verbal exchange about works of art is one of the rare and therefore all the more important opportunities to reflect on one's own perspective and get to know others.

Many artists choose not to give their work a title. They consider any description or explanation to be superfluous and want the viewer to fully immerse themselves in their visual impression. The fundamental ambiguity and the associated scope for interpretation are consciously accepted because it corresponds to the "opera aperta" of our time. However, the artist runs the risk that their works will remain misunderstood and will be described by some viewers as just "blobs", as Jackson Pollock had to experience. The title of an artistic work can be helpful in facilitating understanding. However, finding a good title is often not an easy task for the artist.

At exhibitions it is common to provide information about biography and artistic development either acoustically or in writing. Occasionally a description or interpretation of the work is also offered. This is particularly necessary when it comes to images from early eras whose iconography needs to be explained to the general public, such as those with mythological motifs. With more recent works, it often makes sense to convey the openness of the perspective. This can be achieved by offering different short descriptions of selected works by different people. The authors of the texts could be experts and reasonably informed laypeople. The diversity of the texts will convey the principle of openness to the recipient and encourage them to reflect on their own way of thinking and to find agreement or contradiction.

The question arises here as to whether all modes of perception should be viewed as equal. There are artists who accept this for their work and see the diversity of what they trigger in recipients as a value. Most artists, however, want viewers who come to an adequate understanding, i.e., one that roughly corresponds to their intention. Jackson Pollock, for example, vehemently defended himself against the claim that he creates random patterns. When the *Times* newspaper described his paintings as chaos in 1950, he responded in a telegram: "No Chaos Damn It!" Descriptions that refer to the artist's working methods can, as they say, open the eyes of the recipient. Pollock saw his mural No. 32, which is shown in Figure 2.13, as an expression of inner energy through real

movement. A viewer who knows Pollock's way of working can immediately experience the violent dynamics of the traces. A good example of successful isomorphism between the artist's emotional expression, the image as a carrier of dynamic progressions, and the impression of the viewer, who is emotionally touched.

Anyone who works as a guide at exhibitions has the opportunity to respond flexibly to visitors. They should be prepared for the question, "What is that supposed to represent?" in front of works of classical modernism. Some visitors don't dare ask such a question because they don't want to look like a philistine. It can be helpful to ask the question yourself rhetorically and first make it clear that it makes sense because it is usually vital to recognize something in what we see. The modern artist has made discoveries in the realm of the visible that go beyond this and which he would like to share with us. This can include the interaction of colors like Josef Albers, the aesthetics of shapes like Constantin Brancusi, the dynamics of gradient shapes like Jackson Pollock, or the play of inside and outside like Henry Moore. In this way, the visitor experiences an enrichment of their comprehension without appearing limited.

Readers also learn the same thing from books by Rudolf Arnheim (1954/1974, 1969), the Nestor of art psychologists from Gestalt psychology. He succeeded in happily combining imagery and verbal language while giving visual thinking the independent status it deserves. He made a significant contribution to the visual arts being recognized as a university of vision. The untrained eye does not notice the secrets of artistic composition, higher order symmetries, the creation of movement, and the subtleties of color relationships. Much remains unclear, such as the symbolism of images from past eras. We see and are blind to many things if we are not made aware of them. But what we once understand makes our vision permanently richer.

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3 Berlin, New York, Trieste – Laboratories of the Arts

Walter Coppola

3.1 Berlin, 1920s and 1930s

The Berlin Institute of Psychology, under the leadership of Carl Stumpf, saw extraordinary development in the early 1900s thanks to substantial investment by the Prussian Ministry of Finance, the Prussian Academy of Sciences, and through donations from private individuals. Funds were thus established and regularly increased to further expand space and equipment in order to cope with the large increase in enrollment in psychology and laboratory courses taught by Stumpf himself. Indeed, in 1907 the institute had 250 students, and Stumpf, described as a fatherly and friendly professor, was, however, extremely strict in the evaluation of his students' work and operated a very harsh selection process with regard to theoretical or experimental theses completed under his direction.

Among the students who passed the selection brilliantly and later became Stumpf's collaborators are, naturally, those who are universally recognized as the founders of *Gestaltpsychologie*, namely Max Wertheimer, Kurt Koffka, and Wolfgang Köhler.

These scholars, despite their different experiences and personal contributions, managed to work together, arriving at a psychological theory that took into account the needs of science and those of philosophy, creating a synthesis between philosophical and empirical conceptions of reality that at that time had become urgent.

Moreover, in this way we can grasp and frame what is the fundamental theme of this chapter: the three of them had solid expertise in the artistic field: in fact, they were all fine musicians.

Max Wertheimer (Prague, 1880 to New Rochelle, NY, 1943), from a German-speaking Jewish family, enrolled in the Faculty of Law at Charles IV University in Prague after his high school studies. However, he soon changed his university focus by taking courses in philosophy, music, and art history. Fundamental was the influence on him of attending the courses of Christian von Ehrenfels, an intellectually independent personality of enormous depth who was extremely seductive by virtue of his philosophical, literary, and musical knowledge. In 1902 Wertheimer moved to Berlin, where he actively participated in experimental work in the laboratories of Stumpf and Friedrich Schumann;¹ he then attended lectures by musicologist Max Friedlaender² and also became friends with Erich von Hornbostel (Stumpf's collaborator at the Phonogramm-Archiv³). A deep connoisseur of music, having studied violin and piano – a passion he inherited and shared with his

mother Rosa Zwicker, a talented pianist – he took an active part in Berlin’s cultural life and spent evenings at the home of industrialist Georg Stern making chamber music.

Between 1905 and 1910 he moved between Vienna, Prague, and Frankfurt, but regularly returned to Berlin, mainly to collaborate with von Hornbostel in the field of ethnomusicology. His essay on the music of the Vedda, a primitive tribe on the island of Ceylon (Sri Lanka), dates from this period; this music was performed without the accompaniment of instruments and consisted of short fragments of two, at most three, notes. However, even in the extreme essentiality of this music, Wertheimer identified in it a whole range of well-defined forms and structural laws:

It may be said that a melody does not consist of individually determined intervals and rhythms, but is a Gestalt whose individual parts possess a free variability within characteristic limits.

(Wertheimer, 1910, p. 305)⁴

The term Gestalt used in this context is not given a specific technical meaning. But in the analysis of a melody, Wertheimer’s words undoubtedly recall the considerations of authors such as Meinong, Schumann, and Stumpf, not to mention the *Gestaltqualitäten* of von Ehrenfels (1890/1988), who made melody the conceptual paradigm underlying *Gestaltpsychologie*.

This essay indicates to us that the time was already ripe for the realization of a theoretical proposal that would analyze perceptual processes from a new and original point of view, with a well-defined structure, supported by a clear and precise set of laws. In 1921 the journal *Psychologische Forschung*⁵ was founded by Wertheimer, together with Köhler, Koffka, the neurologist Kurt Goldstein, and the psychiatrist Hans Walter Gruhle (they would be joined by Adhémar Gelb in 1929). In the journal, rightly considered, especially in its early years, to be the official organ of the Berlin Institute, Wertheimer published a series of articles outlining the fundamental assumptions from which *Gestaltpsychologie* takes its origin, and figuring, in the landscape of psychological schools of the time, as epistemologically innovative, almost revolutionary.

The articles “Untersuchungen zur Lehre von der Gestalt” (I and II) published in *Psychologische Forschung* in 1922 and 1923 (the latter being part of a *Festschrift* in honor of Carl Stumpf), set out the guidelines of the new conception in the domain of perception, with an exhaustive enumeration of the laws underlying this approach.

Taking our cue from Wertheimer’s writing, we want here, in a schematic way, to summarize the principles that are universally acknowledged to underlie Gestaltist theory regarding perceptual experience, especially highlighting the correlations between visual and auditory perception; in this way, we seek to delineate the physiological perceptual processes and the consequent aesthetic enjoyment of pictorial and musical art.

3.2 Principles of Formal Organization

3.2.1 Proximity

According to the principle of proximity, all things being equal, nearby rather than distant elements tend to be experienced as constituting a perceptual unity. In Figure 3.1, we see a set of dots: elements in the perceptual field are joined into forms with greater cohesion the less distance between them. Within a composition or image, elements close to each other are thus perceived as a unitary element.

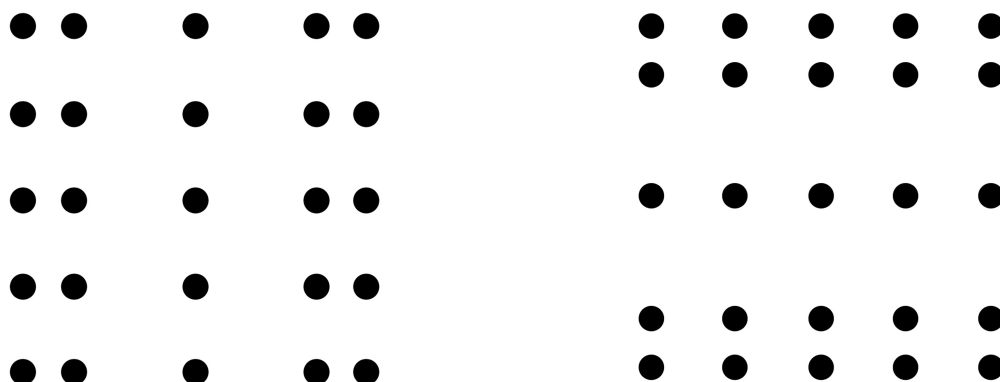


Figure 3.1 The role of proximity in determining groups

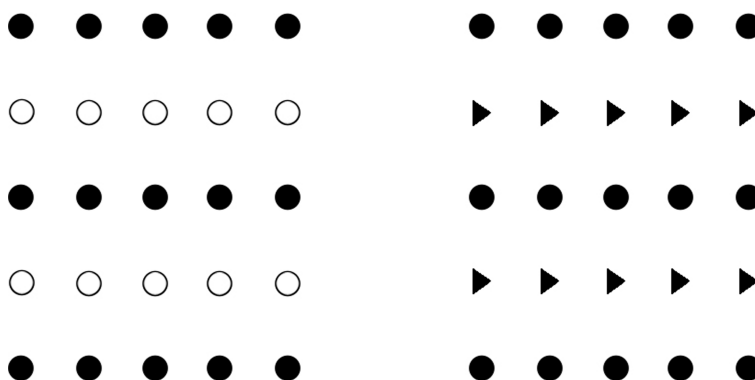


Figure 3.2 The role of similarity in determining groups

In music, this principle applies to notes or chords that occur close to each other in time, creating groups of sounds that are perceived as cohesive. For example, a series of notes following one another is perceived as a melodic or rhythmic pattern.

3.2.2 *Similarity*

As Wertheimer further explains, all things being equal, elements that possess some kind of similarity tend to unify with each other, so similar elements tend to be perceived as a whole. This principle suggests that our brains organize visual information based on similarities in color, shape, size, or other characteristics. In the left part of Figure 3.2, the group of circles of the same color (white or black) is perceived as a separate category. In the right part, the creation of the whole among elements is due to the similarity of shape (circles or triangles).

In music, this may refer to how similar groups of notes or chords are recognized as belonging to the same section of the composition. For example, repetitions of melodic or rhythmic motifs may be perceived as part of a larger musical idea.

3.2.3 Common Fate

The parts of the visual field that move together, or similarly, or otherwise move differently from other parts of the field, tend to constitute themselves as segregated units. For example, in Figure 3.3, the four circles in the first and third rows all seem to move to the right. Instead, the elements in the middle row appear to be heading to the left.

Applied to music, it refers to how musical elements that move together or follow a similar rhythmic or melodic pattern tend to be perceived as a unity. This principle suggests that listeners perceive elements that share similar characteristics (such as rhythm or melodic pattern) as part of a cohesive whole.

3.2.4 Continuity

Elements with a common direction tend to be perceived as belonging to the same object. In the figure above (Fig. 3.4), it is just as likely that the “wavy” line turns abruptly at each of the “teeth” of the meandering pattern. However, we do not perceive it that way. Instead, our perception maintains the integrity of the square patterns and the wavy pattern.

In music, this principle is applicable to melodies and harmonic progressions. For example, a melodic passage that develops smoothly and continuously is more easily perceived as a single musical unit rather than as a discontinuous sequence of notes.

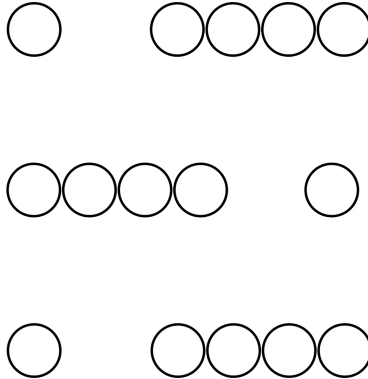


Figure 3.3 The effect of common fate on perception

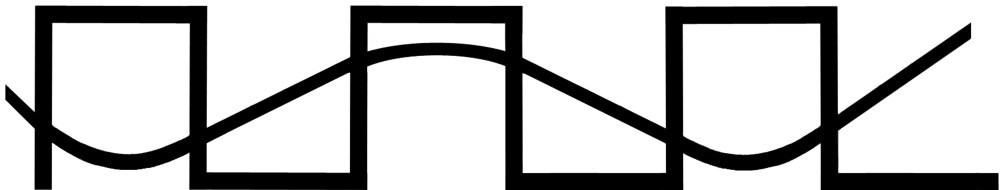


Figure 3.4 A demonstration of continuity in perception

3.2.5 *Closure*

Other things being equal, a closed rather than an open area is experienced as a perceptual unity. In the two figures represented (Figure 3.5), we see four lines in the “square” and in the “circle”. These could be perceived as independent parts with spaces in between them. But instead we see an integral shape (the square or circle) with interruptions in their basic contours.

In music, this can manifest itself in the expectation of a harmonic conclusion or resolution. For example, harmonic progressions tend to resolve into final chords that “close” the musical sequence satisfactorily.

3.2.6 *Good Form*

The perceptual field is segmented in such a way that it results in perceptual units and objects that are as balanced and harmonious as possible, built according to the same principle in all their parts, which thus “belong” to each other. The law of good form suggests that we prefer configurations that are simple and organized rather than complex and

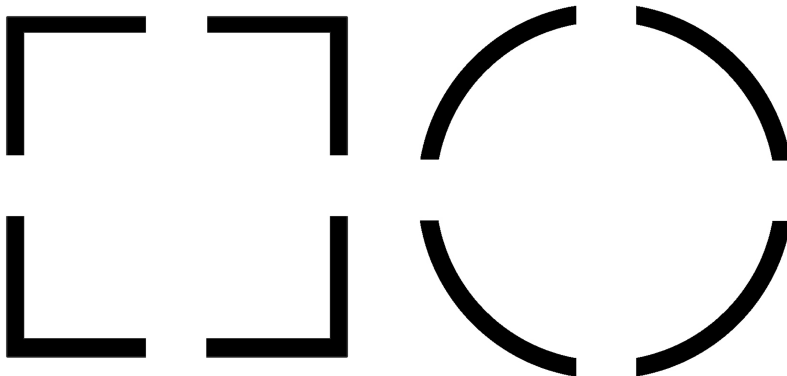


Figure 3.5 The effect of closure on geometric forms

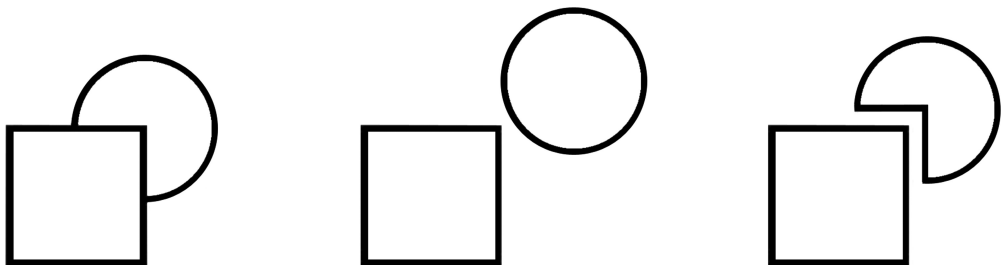


Figure 3.6 A demonstration of good form on perception

disordered. In Figure 3.6 we tend to see a square superimposed on a circle rather than a square to which a section of a circle is adhered.

In music, this translates into a preference for melodies and harmonic structures that are perceived as coherent and well organized, and refers to listeners' tendency to perceive and interpret musical information in such a way that clear and meaningful patterns are formed. In other words, musical elements tend to organize themselves into recognizable structures, facilitating interpretation and memorization.

This principle applies to various aspects of music, such as melody, harmony, and rhythm. For example, melodies tend to follow simple, coherent lines, while harmonies are organized around progressions that create expectation. Good form is also important in music, where sections of a composition develop in ways that seem logical and natural.

3.2.7 Past Experience

All other things being equal, field segmentation also occurs according to our past experiences, favoring the establishment of objects with which we are more familiar rather than unfamiliar or unfamiliar forms. Thus the elements of a whole that are able to revive perceptual experiences of a given object are grouped together, resulting in a figure.

In Figure 3.7 we see some segments, but we clearly perceive two capital E's because the lines placed that way stimulate the memory we have of that letter.

When we apply this concept to music and past experiences, we can explore how emotions and memories influence our musical perception. For example, a piece of music can evoke specific memories, creating a deep connection between music and past experiences. This interaction between music and memory can give rise to an emotional "Gestalt", where melody, rhythm, and words combine to generate an overall emotional response.

3.2.8 Figure–Ground

The figure–ground law concerns how we perceive and organize visual and sound information by distinguishing a main object (figure) from its surroundings (ground). The most famous application is undoubtedly the Rubin's Vase optical illusion (Figure 3.8), in which

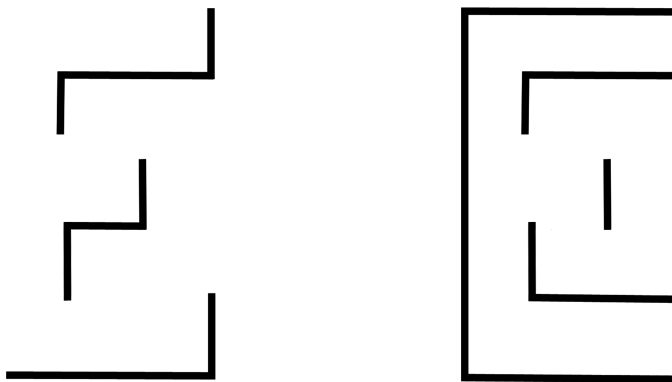


Figure 3.7 A demonstration of past experience on perception

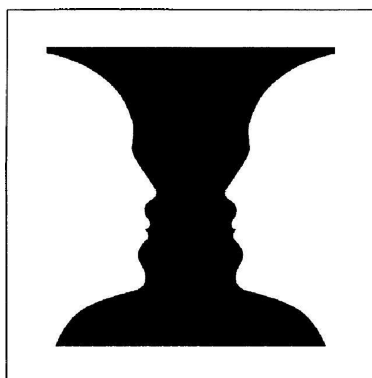


Figure 3.8 The Rubin figure–ground Illusion

we see both the silhouette of a vase in the black part and the profile of two people looking at each other.

In music, it refers to the perception of musical elements as prominent figures and less relevant grounds. The listener, therefore, tends to isolate main melodies or rhythms (figure) from the surrounding harmonic or rhythmic context (ground). For example, in a piece of music, the main voice or a solo instrument may be perceived as the figure, while accompaniments and harmonies form the ground.

Unfortunately, none of the three members of the Wertheimer–Köhler–Koffka “triumvirate” ever ventured into a fully fledged treatise on the philosophy or psychology of art. From their publications or lectures, there undoubtedly emerges a deep knowledge of the artistic disciplines, and certain conceptual approaches peculiar to Gestalt psychology are very relevant when applied to the understanding of the structural organization of various creative activities and their aesthetic and expressive value.

In his early work Köhler was an expert on acoustic perception (Köhler, 1909, 1911). He loved music above all; he played the piano discreetly, favoring the great German classics. Köhler famously played chamber music with his university assistants as they waited for the Gestapo after the publication of his editorial⁶ condemning the firing of Jews from universities; however, they never came, and he soon emigrated to America (Ash, 1995).

More important was the foundation he provided for the psychology of the arts through his discussions of the basic expressiveness of experience. I quote here a few excerpts from Carroll C. Pratt’s introduction to Köhler’s 1969 volume, *The Task of Gestalt Psychology*.

Köhler at his best was such a brilliant lecturer that students flocked to his general course in great numbers. The lectures were carefully prepared, and students were often held spellbound by the fortunate combination in one man of so many attractive gifts: handsome appearance and an impressive bearing, a fine sonorous speaking voice, a smooth flow of words guided by a sensitive ear for sound and *le mot juste*, a good sense of timing and cadence, and the art of developing a theme as though it were a fugue moving relentlessly to an inexorable conclusion through a wealth of philosophy and art as well as science.

(Köhler, 1969, p. 6)

Köhler's great love was music, although any form of art was more than likely to capture his interest. Music was a great source of comfort as well as pleasure to him. He was a man of moods. His courtly manner and amiable disposition at times seemed clouded over. Music more than almost anything else was capable of restoring the smile and cheerful expression.

(Köhler, 1969, pp. 19–20)

And so it is no coincidence that, in Chapter VII of *Gestalt Psychology* – devoted to behavior – in order to describe the phenomenon according to which the mental organizational process succeeds in producing a bodily articulation that perfectly traces the basic intentional neurological structure, Köhler resorts to a particularly successful example, that of the pianist performing a sonata. The performer has clearly delineated within himself the dynamic interpretive path he intends to take; if, for example, he wants to achieve a *crescendo*, he acts on the instrument making use of the motor innervation of the muscular system capable of producing the desired effect. The same happens if he performs a *ritardando* in the next phrase, which is accomplished by resorting to the same neurophysiological modalities. Both *crescendo* and *ritardando* are “Ehrensels qualities”, that is, Gestalt qualities. According to Köhler, the dynamic mental schema and the subsequent practical realization are components of the same organization.

This is even more supported by the fact that the audience unitarily experiences the sound waves as a sequence of oscillations whereby the *crescendo*, which possesses the Ehrensels quality of “increasing intensity”, is structured in the audience's auditory fields as an objective correlate of the pattern enacted by the performer. Gestalt psychology thus presupposes an absolute structural relationship between the intentional processes, their neurophysiological correlates, the sound impulses realized through the neuromuscular system, and the auditory response of the listeners. Indeed, it is the latter who, through sound, directly experience the intentional dynamic patterns of the pianist.

It cannot be underestimated the extent to which the arts suffused the Berlin environment. Wertheimer's and Hornbostel's⁷ work on ethnomusicology has already been mentioned. But von Hornbostel (1926a, 1926b) also laid out the principles of sound perception in his writings. Mention should also be made of Johannes von Allesch⁸ (1925), who studied color perception at the Berlin Institute and published many art historical studies. Finally, one must mention the young Rudolf Arnheim, whose *Film als Kunst* was published in 1932 (Arnheim, 1932), and reflected Gestalt principles in its discussion of the emerging medium of cinema.

The paradise of active research and scientific discoveries at the Berlin Institute was interrupted by the rise of Nazism. Wertheimer, Lewin,⁹ and others were dismissed from their university positions (Ash, 1995). Koffka had already migrated to the United States, and soon almost all of the major figures were in America. In particular, Swarthmore College, where Köhler, Duncker,¹⁰ and Wallach¹¹ transferred, and the New School, where Wertheimer, von Hornbostel, and Arnheim migrated, became the new homes of Gestalt theory. It is there that the next efflorescence of Gestalt theory and the arts occurred.

3.3 New York, 1950s and 1960s

A major setback for the cohesion and prosperity of the Gestalt school was the early deaths of key Gestalt figures, including Duncker (1940), Koffka (1941), Wertheimer (1943) and

Lewin (1947). Of the first generation, only Köhler survived into the 1950s. However, his students, including Arnheim, Wallach, and new American students like Solomon Asch and Mary Henle, strengthened the second-generation Gestalt school. Asch (1952) in particular wrote about issues of expression that were directly applicable to the arts. And Arnheim's great work began, including *Art and Visual Perception* (1954/1974) and *Visual Thinking* (1969).

Upon arriving in America, Arnheim remained close to Wertheimer until his death and took over some of his courses at the New School for Social Research. He began studies on abstraction and expression (Arnheim, 1966). But his great achievement was *Art and Visual Perception*. This truly was a comprehensive Gestalt psychology of art, although strongly focused on visual art. The exposition passes through various problems – space, light, color, movement – but they are bookended by larger themes, “Balance” at the beginning and “Tension” and “Expression” at the end. The book, therefore, is more than a treatment of individual perceptual problems but framed in terms of the task of art to embed expression in structure.

During the 1950s, a good deal of work was being produced at both Swarthmore College and the New School, including research by the older Köhler, Hans Wallach, W.C.H. Prentice, Solomon Asch, Mary Henle, and talented young students. The Americans were aware of the work being produced in Germany, particularly by Wolfgang Metzger, the greatest Berlin pupil to remain in Germany, whose *Gesetze des Sehens* and textbook *Psychologie* were issued in successive editions. It appears that Arnheim was aware of the work of the major Italian Gestalt psychologist, Cesare Musatti (1931), reflecting positively on his discussion of perceptual organization as a singular operation.¹²

In this American period, Arnheim produced a major study of metaphor (1966; see **Glicksohn & Goodblatt** in this volume). Meanwhile, Asch (1961) produced studies of metaphoric meaning, and Fritz Heider (1958, 1959) made acute psychological observations on literature in his writings on social psychology.

Psychologists also worked on music perception. The most significant was Carroll C. Pratt,¹³ who had visited Berlin. His book, *The Meaning of Music* (1931), took seriously Gestalt ideas about the natural expressiveness of sound and presented a psychology of music very sympathetic to Gestalt thinking. Other authors who were also influenced by Gestalt theory were Leonard Meyer (1956)¹⁴ and Victor Zuckerkandl (1956, 1959, 1963).¹⁵

In his most significant work, *Emotion and Meaning in Music*, Meyer details key aspects of his thinking closely related to gestalt principles. Regarding musical perception, Meyer argues that music is a complex experience involving active perception on the part of the listener, who organizes musical elements into meaningful patterns; musical structure, which includes elements such as melody, harmony, and rhythm, contributes to the overall perception of the work. Important is the role of expectations in musical perception: listeners build anticipations based on familiar musical patterns, and when music meets or surprises these expectations, a profound aesthetic experience is generated. Integrating ideas from psychology, philosophy, and music theory, Meyer emphasizes the fact that music communicates emotions and meanings in ways that often exceed words, thus highlighting the underlying Gestalt framework in his thinking. Musical perception thus becomes an emotional and intellectual experience, similar to that of other art forms.

Viktor Zuckerkandl's *The Sense of Music* is a seminal work in musicology and music perception theory. In this book, Zuckerkandl explores the relationship between music, perception, and meaning, arguing that music is not just a sequence of sounds. He argues

that music must be perceived as an organic unity. Individual musical notes and phrases do not have isolated meaning but contribute to a larger structure that engages the listener in an emotional and intellectual experience. Listeners construct meaning through the interpretation of sounds; in musical experience, imagination and memory are extremely important, highlighting that music evokes images and emotions. Zuckerkandl relates music to other art forms, highlighting how music interacts with them, suggesting that there are parallels between musical and visual experience. This interdisciplinary approach reflects a Gestalt view of perception. The author then investigates how music communicates emotions and ideas, thus becoming a universal language capable of conveying complex feelings. Zuckerkandl challenges traditional formal analyses of music, shifting the focus from technical analysis to understanding the experience and emotional impact music has on listeners. Just like Arnheim, Zuckerkandl sought to unite different disciplines, linking music, philosophy, and psychology to better understand aesthetic experience.

Arnheim, who played the violin his entire life, interspersed observations on music throughout *Art and Visual Perception* (1954/1974) and his other writings. However, in 1984, he published an article in *The Musical Quarterly* entitled "Perceptual Dynamics and Musical Expression", which appeared two years later in the collection *New Essays on the Psychology of Art* (Arnheim, 1984/1986). This article represents a mature if abbreviated theory of musical expression from Arnheim's perspective.

Arnheim's Gestalt theory of musical form is entirely consistent with his broader theory of composition, illustrated in his 1988 work, *The Power of the Center: A Study of Composition in the Visual Arts*. Tones are centers of perception, which interact with the scale structure. These are the words of Victor Zuckerkandl, whom Arnheim quotes approvingly in his 1974 *Art and Visual Perception*:

An order in which every point reveals its position in the whole must be called a dynamic order. The dynamic qualities of tones can be understood only as manifestations of ordered forces. The notes of our tonal system are events in a field of forces, and the sounding of each tone expresses the precise constellation of forces existent at the point of the field in which the tone is located. The sounds of music are carriers of active forces. To hear music means to hear the effects of forces.

(Zuckerkandl, 1963, p. 39; cit. in Arnheim, 1954/1974, p. 432)

What are these forces? According to Arnheim, the traditional assumption that the visual world is composed of "objects", stationary or moving, comes from the common practical use of visual information. For practical use we treat the components of our world as "things", which are defined by their physical properties, shapes, dimensions, and also by their colors, textures, etc. Selective perception clouds our awareness of the fact that percepts are evidently dynamic; that is, that objects are perceived as possessed by directed forces.

In the visual arts in particular, the main effect of, for instance, a painting remains inexplicable as long as images are described simply as an agglomeration of objects. A painting speaks only when it is seen as a configuration of directed forces, generated by its different visual components. Similarly, in aesthetic theory one cannot adequately explain the nature of a visual statement without referring to it as a pattern of forces.

This is truer still for music because, by the very nature of the auditory medium, sounds are perceived not as objects but as activities generated by some source of energy. While visual objects reside outside the dimension of time unless they move or are perceived in

a context of movement or change, sounds are always events in time, and this constitutes the main dynamic vector of music. The persistent presence of a sound is heard not as an uninterrupted reality of a static entity, but as an event in progress.

The corresponding frame of reference in the music of the Western common practice era is, of course, the tonal center. In the major mode, in particular, the relation of the different pitches to the level of the keynote is fully dynamic and represents the main perceptual source of musical expression. It is not only a matter of measurable distance from the keynote, but of the tension generated by the attractive power of the base. The configuration of forces that determine the dynamic action of a given tone includes, quite prominently, the relation to the tonal base. Above the keynote, the melody soars, defying the attraction of the base through its own upward-directed impulses; below it, the melody moves downward against the resistance of the base. Each sound above or below the pitch level of the base represents a small triumph of emancipation from the state of inaction. This is the fundamental phenomenon of all musical perception.

3.4 Trieste, 1960s and 1970s

Among the second-generation European Gestalt psychologists – Edwin Rausch, Wolfgang Metzger, Kurt Gottschaldt, and in some ways Arnheim himself – we must necessarily mention the most famous Italian Gestaltists: Cesare Musatti, Fabio Metelli,¹⁶ and Gaetano Kanizsa. Musatti trained both Metelli and Kanizsa; however, neither he nor Metelli wrote substantially on art. That was left to Kanizsa, who was both an expert on visual perception and a practicing painter.

Gaetano Kanizsa (1913–1993) was born in Trieste to a Hungarian Jewish father and a Slovenian Catholic mother. After classical high school, he attended the Faculty of Philosophy at the University of Padua and became a student of Cesare Musatti (who in turn was a student of Vittorio Benussi, Gestaltist school of Graz).

Under his guidance, Kanizsa was steered toward psychology and graduated in 1938 with a thesis on eidetic images. Affected by racial laws, he was stripped of his Italian citizenship, banned from university teaching, and sent to confinement. However, he managed to escape to Rome where he joined the anti-fascist resistance. When the war ended, he was employed as Musatti's collaborator at Olivetti's Psychology Laboratory and then, after spending a brief period at the University of Florence, became Musatti's assistant at the University of Milan. In 1953 he became a full professor at the University of Trieste, where he founded the Institute of Psychology.

As already mentioned, the founding fathers of *Gestaltpsychologie* were not only dedicated to their scientific work but were deeply involved in the world of art, where they could express their attitudes; in fact, from the very beginning, the concept of Gestalt in psychology had its own fundamental aesthetic connotation.

Kanizsa, in investigating perceptual processes, was a particularly representative scholar of that special fusion of scientific and artistic activities, juxtaposing rigorous and solid empirical research with passionate pictorial activity. Kanizsa's scientific activity is well known (suffice it to recall his research on illusory contours – the famous triangle – on amodal completion, on contour gradients, etc.), but a similar knowledge of his paintings would be equally desirable, as a continuation, completion, and objective representation of the principles underlying his theoretical considerations in the domain of visual perception.

We quote here a fragment from Kanizsa himself, describing his *modus operandi* in painting activity.

As with every artist, my research moves on two parallel and complementary planes: the technical-linguistic level and the expressive-evocated level. I consider both moments important, but I definitely privilege the investigation of language, the experimentation of the communicative medium: For me, as for the painters who, due to the interests that characterize them, can be called perceptual, the interest in “seeing” and its grammar becomes focal. Therefore for the exploration of the perceptive rules that are at the basis of the subtle and problematic relationship between operator and observer. In this perspective the communicative medium, which is normally considered only or above all, as functional to the accomplishment of other artistic purposes, takes on a central role in the pictorial work. My linguistic investigation is linked to the peculiar production technique of my works. It is rather unusual procedure consisting in the juxtaposition of a multitude of prints left by the brush pressed with the tip on the canvas. The images are formed starting from an initial nucleus of signs, which gradually expands organically through successive additions of signs, with always different shapes, and new constructive nuclei. And it is precisely an organic growth and not the execution of a project previously conceived in detail. In fact, the work develops according to the lines of force intrinsic to its own structure and, as in every organic process, what already exists contains its own future, claims for a predetermined continuation, and imposes the features of its own growth.

(Kanizsa, 1990/20020, p. 27)

An example that shows artistic practice informed by scientific reflection is the series of “Watches” that were painted using his typical techniques (Figure 3.9). They are not illustrations of anomalous contours but explore the creation of contours through an experimental procedure that enlightens that scientific problem.

And we find particularly fitting Fitzek’s consideration from his short essay in the catalog of Kanizsa’s pictorial works edited for the 23rd Scientific Conference of the Society for Gestalt Theory and its Applications (GTA): University of Milano-Bicocca, 25–27 September 2024.

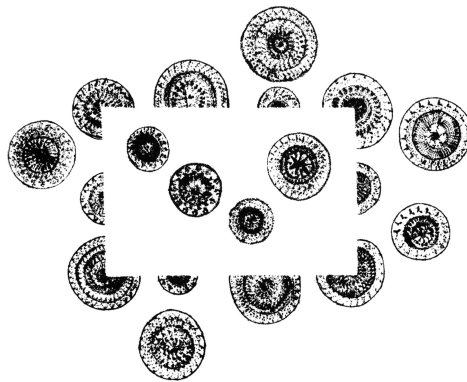


Figure 3.9 Gaetano Kanizsa, *Watches (Orologi)*, 1985 (collection of Silvia Kanizsa)