

THE CONFUSION BETWEEN ART AND DESIGN

Brain-Tools versus Body-Tools

Tsion Avital

Holon institute of Technology Faculty of Design

Translated by Judy Kupferman

Vernon Series in Art



VERNON PRESS

Copyright © 2017 Vernon Press, an imprint of Vernon Art and Science Inc, on behalf of the author.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of Vernon Art and Science Inc.

www.vernonpress.com

In the Americas:
Vernon Press
1000 N West Street,
Suite 1200, Wilmington,
Delaware 19801
United States

In the rest of the world:
Vernon Press
C/Sancti Espiritu 17,
Malaga, 29006
Spain

Vernon Series in Art

Library of Congress Control Number: 2017934977

ISBN: 978-1-62273-239-5

Product and company names mentioned in this work are the trademarks of their respective owners. While every care has been taken in preparing this work, neither the authors nor Vernon Art and Science Inc. may be held responsible for any loss or damage caused or alleged to be caused directly or indirectly by the information contained in it.

By the same author

ART VERSUS NONART: Art Out of Mind

In memory of my brother

Shlomo Yedidiah Avital

For whom science, art and religion

Were different aspects of the same thing.

Table of contents

Preface	1
1. Invitation: Can a chair be a sculpture of a chair?	5
1.1 On the need to do away with fake sacred cows	5
1.2 Modernism: The main source of the confusion between art and design	11
1.3 Duchamp's Syndrome: Camouflage, disguise and fraudulence in nature and culture	36
1.4 Which art versus which design?	54
1.5 Can a chair be a sculpture of a chair?	57
2. The human tool kit: Body-tools, Brain-tools, Mind-tools	71
2.1 Body-tools: First-order reality- phenomenal reality	72
2.2 Brain-tools: Second-order reality	103
2.3 Mind-tools: Third-order reality: Structuralism or mind in tools	111
3. The roots of confusion between art and design	129
3.1 The confusion between object and symbol	130
3.2 In prehistory there was no distinction between art and design	134
3.3 The confusion between art and design produced by the Greek concept "tèchne" and Plato's metaphysics	141

3.4	Scientists in no-man's land: Science inadvertently promotes the confusion between art and design	149
3.5	The confusion between art and design in mathematical art	162
3.6	A whirlpool of confusions between art and design: Self-deceit and eyewash by academia, museums and some parasites on art	171
3.7	Tools as art?	176
3.8	"Painting": A linguistic trap	191
4.	Art versus design: A horde of contradistinctions	195
4.1	There is natural design but no natural art	196
4.2	Art versus design: some basic distinctions	204
4.3	Art versus design: symbol versus object	226
4.4	Art versus design: systemic versus discrete entities	252
4.5	Art versus design: paradigms versus styles	274
4.6	Art versus virtual design	282
4.7	Complementary aspects between art and design	293
5.	If it is holy it is not art. If it is art it is not holy: The confusion between art, design and icon in religious art	303
5.1	Art and iconoclasm are incompatible	304
5.2	Art, design and iconoclasm in Judaism	312
5.3	Art, design and iconoclasm in Christianity	324
5.4	Art, design and iconoclasm in Islam	347

List of illustrations per chapter	373
Bibliography	395
Index	405

Preface

The ideas in this book were created in a very extended process over a period of over thirty three years, during which I taught a course for third year students of design and art whose title was: " Inter-relations between art and design" at the Holon Institute of Technology, Faculty of Design, Israel. The students were from the departments of industrial design, interior design, visual communication design, and for several years there was also a department of art. Each year I began the course with the question: who thinks that design is art? Only a few of about two hundred of the students present raised their hands. My second question was: who thinks that design is not art? Again, only a few students raised their hands. The vast majority of the students could not decide whether or not design is art. Out of curiosity I checked the answers to these questions among experienced designers and architects, including about two hundred members of the Faculty of Design from all departments. Again, the vast majority could not decide whether or not design is art. Some claimed, with justice, that the answer to these questions depends on the manner in which art and design are defined, and therefore they were unable to answer my questions. Surprisingly, cross tabulation of the answers according to the departments to which the faculty belonged did not show dramatic differences between the various departments. This fact indicates that uncertainty as to whether design is art or not lies at a far deeper level than the differences between the various areas of design. Moreover, through years of discussions with students and with experienced designers, I found that both those who think design is art, as well as those who think design is not art, reach their conclusions relying more on baseless conventions, intuition and gut feelings than on a solid theoretical basis which in any case does not exist. The reason for this is simple: in our time, everything and anything may be presented as a work of art. Therefore designers have no clear criterion according to which they can reasonably claim that design is indeed art or not. Therefore, in order to clarify the existing confusion between art and design it is necessary to understand the problem at two different levels: on one hand it is necessary to understand the many different factors that led to this conclusion, and on the other, it is necessary to understand the profound differences that exists in characteristics of the two areas, which in most cases are diametrically opposite. In order to compare the two fields, it is necessary to understand the qualities

that characterized art throughout its twisting evolution over 40,000 years up to our own day. This should be contrasted to characteristics of design, that began about 2.6 million years ago in relation to production of stone tools, and in our own day is done on computer without a necessary connection to material of any kind. The confusion between the two fields is not helpful to either, but just the contrary: it is destructive to both, and especially to design, for art cannot be destroyed more than it already has been. On the other hand, it is important to differentiate art from design in the clearest manner, both in order to protect design from the ills of modern art, and to afford some chance for the rebuilding of art in the future. In order to achieve this purpose, this book proposes a totally new conceptual framework that can help us distinguish most effectively between art and design. Moreover, this book presents for the first time, nearly *one hundred* distinctions, contradistinctions and comparisons between art and design, thus showing most clearly that art and design are two totally independent domains. In a sense, this book is The Magna Carta Libertatum (Medieval Latin for "the Great Charter of the Liberties") of design from art.

Acknowledgements

Each time I finish writing a book or article, along with the satisfaction there is always great sadness that the most important mentor I have had in my life, Nathan Rotenstreich, is no longer alive. He is the first person to whom I would wish to bring the fruit of my labors, and I never cease mourning his premature demise. My deep thanks to David Moalem Maron, who in his sixteen years of service as president of the Holon Institute of Technology where I worked helped me in many ways even though he knew my opinions were controversial. My deep thanks also to Eduard Yakubov, the current President of the Holon Institute of Technology, for his support towards publication of this book.

Heartfelt thanks to my translator, Judy Kupferman (PhD in physics), who translated this book from Hebrew to English in an exact and clear manner that exceeded my expectations. Heartfelt thanks also to Wang Zuzhe of Shandong University, who translated my first book into Chinese and Sandra Luz Patarroyo who translated my first book into Spanish, both with unceasing and extraordinary dedication and effort. Thanks to Denes Nagy, the President of the International Society for the Interdisciplinary Study of Symmetry, the most erudite person I know, who is always ready to help me with his enormous fund of knowledge and his sharp sense of criticism. Thanks to Ioannis Vandoulakis

who suggested my book to Vernon Press and to Argiris Legatos, Rosario Batana and Carolina Sanchez for their exceptionally positive attitude, understanding and warm cooperation along the process of publishing this book.

Throughout all the years of the development of the ideas presented in this book, the previous book and other essays, I did not in fact have a single colleague in Israel, the country in which I live. The many students I have had over the years, first at the Hebrew University of Jerusalem and later at the Faculty of Design at the Holon Institute of Technology, were my real colleagues. The intensive intellectual interaction with them over three decades was the chief means of sifting my ideas, and the grindstone against which all the ideas presented in this book received their form. I have no way of thanking them sufficiently for all that. Thanks to my former assistant, Sandra Folk Kanner, who for many years saved me from much exhausting work. Thanks to Orel Bob, a gifted designer and former student of mine who designed the cover of this book. To Yossi Galanti, who processed all the pictures that appear in this book. Thanks to my brother Avshalom Avital, who took a number of excellent photos for this book. Thanks to Mel Byars and Josiah Kahane who always willingly shared their vast knowledge of design with me. Thanks to my friends and colleagues whom I list in alphabetical order: Pia Aisen, Elise and Patrick Assaraf, Reuven and Janet Cassel, Leonid Dorfman, Alec Groysman, Ozer Igra, Joshua and Kendal Latner, Estelle Alma Mare, Sam Meisels, Vladimir Petrov, David and Eva Shinar, whose caring and friendship have served as vital encouragement for me over the years to keep expressing my views, which often involves swimming against the tide.

Finally, thank you to my three sons, their wives and children: Oded and Edna, Yuval and Elisa, Daniel – the youngest and my consigliere - who are the main source of warmth and joy in my life. Indeed, emotion is the fuel of mind without which no worthy writing is possible.

Chapter one

Invitation: Can a chair be a sculpture of a chair?

1.1 On the need to do away with fake sacred cows

Usually writing an introduction to a book is easy in comparison to writing the other chapters of the book, for the introduction is written after all the chapters are completed, and the introduction only needs to give a general and attractive picture of the content of the book, in hope that the reader will be curious enough to read the book or part of it. The trouble is that ideas are not just a logical or informative matter. From the moment we have taken a position with regard to them, we also have an emotional commitment to them, that at times is very strong and even obsessive, and they become part of our identity. Therefore the last thing an author should do is to write things in the introduction that constitute a frontal attack on opinions and feelings of the reader, and thus may annoy or hurt his\her feelings. In this case, almost certainly the reader will close the book, even without really investigating its content, and will recommend to all his\her friends not to waste their time reading this book. When a book contains only a few ideas that may be controversial, they are not written in the introduction but later on, and even then they are wrapped in sweet syrup with the hope that their deviation will not harm the book. At times this even makes a positive contribution to the reputation of the book. Especially if it contains very few innovations, for then such ideas can be like a sharp spice that upgrades cooking that is generally bland. The problem begins when most of the ideas in the book are liable to challenge the opinions of the reader, and then there is no way to camouflage this fact, and this is the case with this book. The situation is particularly bad when the book deals with art and design, which for most people is an emotional rather than a rational issue. For today everything, including nothing, can be presented as a work of art, and there is no opinion that is not ostensibly

legitimate with regard to art. Therefore the view that negates this anarchy will not be happily received. As a result of the chaos reigning in art, everyone feels that his\her personal opinion with regard to art is no less relevant than the opinion of a theoretician who has spent decades studying this subject.

On this matter I will briefly note that the validity of an idea is contingent on the width and depth of the context in which the idea is rooted. The more personal or emotional the idea, the more it lacks validity from a cultural point of view, although it can be extremely relevant to the person who believes in it. In contrast, the more the opinion is anchored in a wider, deeper and more coherent cultural context, the better the chance that it will be adequate. Moreover, readers who see art as a completely subjective matter, and these are the majority of art lovers today, are not even committed to the criterion of validity. Infinite times have I heard the fallacious sentence: "*For me, art is...such and such,*" as if art is a completely personal matter. Is it even imaginable that someone would dare say the same about other areas of culture such as philosophy, science, literature, poetry, etc. without being taken for a fool? On the other hand, those who consider that art is a purely subjective matter need to reach the inevitable conclusion that art is not a component of culture. Of course they would not agree to this, for then art cannot serve to define their personal identity as "artists." Similarly, the economic value and the justification of an overblown ego that art supplies them with will vanish. In our day many do not absorb the fact that culture does not deal with subjective matters, but only with spiritual or cognitive assets that have importance for all, and everything else sooner or later falls into the trash heap of culture. Actually, the very fact that the execution and understanding of art is perceived today as a subjective matter is in itself evidence that something very fundamental is flawed in modern art.

I fear that the present book is indeed overflowing with controversial ideas, and therefore in these introductory words I would like to note that this book is not intended for those who are satisfied with the state of art today, nor for those who are pleased with the complete confusion that exists between art and design. On the other hand, this book is definitely intended for those of the readers who possess some measure of doubt as to whether indeed art today is as important a cultural achievement as it is presented by the art establishment. Evidently the book is especially intended for all those who ponder the question whether art and design are one and the same, or not, and especially for students and lecturers in these two fields. For my part, I can promise the reader that not one idea in this book was written offhand, but every idea presented here has been weighed infinite times in light of study, research and deliberations over

decades. In return I would like to hope that the reader will not rush to judge these ideas based on his/her emotional reactions, but rather based on consideration that is as reasonable, educated and coherent as possible.

Probably there are readers who would like to bring counter arguments to the ideas presented here, based on facts of one kind or another. I would like to remind these that a "fact" is a problematic matter, immeasurably more elusive than is generally thought. For facts do not have autonomous existence, but are the fruit of *interpretation* of a certain state of affairs in light of theories, beliefs, feelings, motivations, etc. In fact, a considerable part of the history of culture and of science in particular was generated by "facts" that dissolved the moment the theories on which these facts were based were refuted. True, it is a fact that an infinite number of works are presented in the best museums as works of art even though after reading this book I hope that the majority of readers will become convinced that these works are not works of art at all, but products of design of one kind or another. In the world of science theories are checked very precisely and for a long time in hope of refuting them to reach a more coherent theory, and perhaps also to win the Nobel Prize. In contrast, in the world of art, penny philosophy such as the theories of the fathers of modernism are taught and pile up and nobody attempts to seriously check them out or refute them, even though they have actually brought about the ruin of art as an area of culture. As we will see below, the main reason for the confusion between art and non-art as well as the confusion between art and design, which is a special case of the first confusion, stem from the fact that the fathers of modernism and the artists who adopted their ways did not at all understand the concept of *abstraction*. Therefore they confused the abstract with the concrete, art with non-art, and confused art and design. Some of the readers will claim that there is no room for comparison between art and science. To these I would like to say that as long as there was *real* art, that is, figurative art, there was a great deal in common between art and science, and at their deepest layers. Only since the beginning of the age of modernism is there no common denominator for art and science, but rather they are complete opposites in a great many parameters. In another essay I have shown that from a structural point of view there is a very deep common denominator between the reading of footprints about four million years ago, prehistoric art and modern science, but there is no significant common denominator between these and between that which is called "abstract art" (Avital, 1998a). In my opinion, this fact ought already to awaken serious doubts with regard to the question whether modern art is art at all, and if it is a true component of culture. The concepts "modern art" and "modernism" in art are fairly vague concepts, and so in order to reduce

misunderstanding, I will note that in the context of this book, by the terms "modern art" and "modernism" I refer to the totality of works in painting and sculpture that are called "abstract works" or all forms of visual non-figurative works.

I am old enough to know that when there is a conflict between rational understanding and an emotional relationship to things, people are not always capable of changing their feelings, even though their brains say the opposite of what they feel. This situation can be respected when the matter is personal, but when the matter is related to culture there is no room for such an approach, and in fact it attests that the speaker does not really understand the subject. Thus for example an art historian who read my first book told me in these words: "I am afraid you are right but my heart can't take it." Another historian told me in a despairing voice: "What you write is completely logical, but what do you expect me to do with everything I've done all my life? To throw it in the trash?" The poor fellow continued teaching students perceptions that he knew to be incorrect, only from his need to continue surviving. I have empathy for these people, who for emotional or existential reasons are incapable of parting from perceptions they know to be incorrect. But fortunately there were also those who reacted completely differently. There was the Dean of the Faculty of Art and Design who resigned from the university after he realized that for dozens of years he had taught nonsense, but he was too old to learn everything anew. His wife scolded me for because of me they lost part of their pension funds, and I did not tell her that because of those ideas my pension is far more tiny. And there was the head of the Department of Art History with whom I had a harsh conflict of opinion while I still taught at the Hebrew University of Jerusalem. One day he invited me into his office and told me that he had failed two of my students in their MA exams because they identified with my ideas. He failed them so that they would not be able to continue to a doctorate, in order to avoid the possibility of having "another two Avitals" in his department, as he put it. The next day I resigned from the Hebrew University of Jerusalem, for I could not bear the thought that young people would risk their future because of my opinions. But thirteen years later that same department head telephoned me and asked to visit me at home. I was amazed, but I agreed. After he sat down in the armchair opposite me, he said to me: "I had to come and tell you to your face that you were right. I am leaving the Department of Art History." And indeed he left this field and went over to another field. And there was an art dealer with courage and exceptional integrity who sold modern art, and closed down his business after he understood that the things he sold were not art at all. In general, my impression is that in recent years there may be the

beginning of movement in the direction of wisdom at least among part of the art world. I have no doubt that the great avalanche is still to come, sooner or later, and every great avalanche begins with imperceptible movements. This process is not easy and not simple, for it is not sufficient to present strong claims in order to refute a view that is rooted in some field, but by nature sooner or later people gain understanding. This is true even in science, which is an immeasurably more rational field and immeasurably more critical than art. True, science itself is certainly rational, but it exists in the hands of scientists or people who are also motivated by irrational motives. In his classic book Kuhn (1970) claimed that a new paradigm is not accepted because scientists realize it is better than the old one, but because scientists that were committed to the previous paradigm die eventually, and only then is the road open to acceptance of the new paradigm. Thus for instance here is an example from our own time. In 1982 Dan Shechtman, a scientist from the Technion in Haifa, Israel, discovered a new set of materials that had previously been unknown, and that he named quasicrystals. For about three decades he paid dearly for this discovery, until he received the Nobel Prize for chemistry for that same discovery: "People just laughed at me," Shechtman recalled in an interview this year with Israeli newspaper Haaretz, noting how Linus Pauling,... mounted a frightening "crusade" against him, saying: "There is no such thing as quasicrystals, only quasi-scientists." (Lannin and Ek, 2011). Then the head of his research team asked Shechtman to leave the team for "bringing disgrace" on the team.

Even in science, belief in a certain idea may blind the observer to another possibility, especially if it contradicts his\her belief. In contrast to science, which does not exist without a paradigm, the world of art continues to exist, so to speak, even though it has lost the only paradigm it had: figurative art. Therefore this field today has unlimited tolerance for a jumble of possibilities and whims none of which threatens the existence of another. But when it is claimed that the totality of "abstract art" is not art at all, but at best trivial design, then except for a very few, the majority close their eyes and seal their ears. Tolerance of such a claim is nonexistent, for it threatens the identities of too many people, and threatens economic and other investments at a colossal scale. However, the change will have to come or there will be no art. After a hundred years of stagnation and degeneration, perhaps it is time for the art world to dare to reexamine the axioms of modernism and its true contribution, if any, to culture. Without reexamination of modernism art will be unable to progress beyond the current stagnation and move towards more promising horizons.

Let it immediately be said that this book does not deal with any specific schools of art or design, nor with any specific artists or designers, but rather with a far more basic issue. An investigation that is as thorough as possible of the differences between art and design is a necessary condition for construction of a solid theoretical basis that will enable a clear distinction between these two areas that today are assimilated one into the other to the detriment of both. This confusion exists not only among the general public, but also among artists, designers, curators and collectors in both fields. This confusion is also well entrenched in academies that teach these fields, while lacking the ability to clearly distinguish between them, and it exists in museums and galleries of art and design that have no clear criteria to aid them in distinguishing between products of the two fields. Therefore even in the best museums one can see objects of design in the art departments and vice versa. What does this say about the curators and museum directors? That they are incapable of distinguishing between art and design, or that they believe there is no difference between the two areas. This situation creates considerable embarrassment, not only among lovers of art and design, but also among artists and designers. This embarrassment is particularly evident among students in both these areas, whose teachers in fact do not have the necessary theoretical tools to clearly distinguish between art and design.

When creating a synthesis between two fields, as is often the case in sciences, the result is creation of a new area, or at least a new layer of knowledge that extracts maximum benefit and insights from both of the fields. For example, astrophysics employs knowledge from the fields of physics and chemistry in order to achieve a deeper understanding of the characteristics of heavenly bodies. The understanding achieved by syntheses of this sort create a far more profound understanding than can be achieved with the help of either of the two fields separately. Syntheses of this sort create new layers of understanding, new viewpoints, and create enrichment of knowledge and of culture. In contrast, when one confuses art and design and creates a muddle of both, one does not create a synthesis but rather a *reduction* of art to design. A reduction of this kind does not provide us with new layers of knowledge or new insights, but exactly the opposite: all that remains of art is color, form and object, just as with design. Cultural reduction leads to loss of past achievements, creates impoverishment of the two fields and retreat to a stage that was simpler in terms of culture. Therefore, for the benefit of both fields and of those who work in them, it would be best to devote every effort to finding the way to build clear lines of demarcation between them. The confusion between art and design is a special case of the confusion between art and nonart, and so

a significant part of this introductory chapter will be dedicated to the presentation of an extremely brief overview of this issue, which I have discussed extensively and fairly thoroughly in my previous book (Avital, 2003)¹. Obviously this introduction is not intended to provide a convincing answer as to the distinction between art and design, but only to arouse the reader's curiosity and to challenge him/her in approaching the following chapters, where far more sophisticated theoretical tools will be presented, that will clearly sketch the difference and the separation between these two areas.

Throughout cultural history there has never been a clear distinction drawn between art and design. As long as art functioned in the framework of the figurative conception, this lack of distinction did not impair functioning of the two areas. However, from the start of the 20th century, when the figurative conception in art disintegrated, the demarcation lines between the two areas were totally blurred to the detriment of both, and they were absorbed one into the other. Hence, the confusion and anarchy pervading art in the course of the last century is also the main reason for the current confusion between art and design. All products of design are either objects, concrete or virtual, or compositions of color and form, with or without pictorial and/or linguistic symbols. Because modern art has reduced art to composition of color and form and to objects, the lines of demarcation between art and design have become totally blurred. The aim of this book is to eliminate this confusion as far as possible by pointing out the roots of the confusion and also to present a horde of contradistinctions between the two domains. Discussions of the relationship between art and design usually argue either that design is a kind of art and is therefore not distinct from it, or else that design is fundamentally distinct from art, making their linkage irrelevant. The problem with these two approaches is that they do not propose any solid theoretical justification for the attribution of design to art, nor for its complete differentiation from art. The uniqueness of this essay lies in the attempt to provide as solid a theoretical justification as possible for the differentiation of design from art.

1.2 Modernism: The main source of the confusion between art and design

The confusion prevalent today between art and design results from many factors. Some of these are prehistoric and some historic, and they will be

discussed in Chapters 3 and 5. However, at this stage it is already possible to note that the most dominant factor in the confusion between the two areas in the past hundred years is the total chaos reigning in modern art. The central characteristic of this art is the reduction of art to its perceptual components: color and form. Reductionism is the definition of the whole based on one of its parts. What is an elephant? A large fat animal. What is a hot chick? A girl whose measurements are 90-60-90 cm. What is a human or subject? The responses of the organism to stimuli. What is thought? Electrical activity in the brain. What is art? Composition of color and form. However according to reductionist logic, anything we perceive with our senses is a work of art; the moon is a tennis ball because the moon is round; a cello or viola da gamba might qualify as Miss Universe; human is a robotic mechanism and Einstein was a total idiot because the electrical activity in his brain was negligible compared to that of a power station. Reductionism is the result of confusion between necessary and sufficient conditions. Thus, for example, being round is a necessary but not a sufficient condition for something to constitute a tennis ball. Reductionism of the whole to one of its parts is the basis of behaviorism in all its incarnations, whether in psychology, art or any other branch of endeavor. Clever psychologists blush when reminded that until about four decades ago behaviorism was their central concept, while at the same time, in art and in aesthetics, people have not even digested the fact that modernism is a reductionist or behaviorist art with all that this signifies. They do not understand that this pseudo art is built entirely on a complete misunderstanding of art and culture, and in particular on commercial and publicity manipulations. Indeed, color and form may be necessary conditions for works of visual art but they are certainly not sufficient. However, such niceties of thought have never disturbed modernist artists, and even less so the art dealers and directors of galleries and museums of modern art. As long as art functioned as a visual language in the framework of the figurative paradigm, the lack of distinction between art and design did not interfere with the function and existence of each of the two fields. However, from the moment that visual art ceased to function as a visual language, at the start of the 20th century, and became in fact trivial graphic design, or industrial design bereft of any functional value, the border between art and design was totally erased. In brief: Modernism performed a reduction of a symbol-system to objects or arbitrary compositions of form and color, and by so doing, it performed a reduction of art to trivial graphic design. Those most responsible for the destruction and confusion are the founders of modern art, in particular Kandinsky, Mondrian and Duchamp. Possibly Kandinsky was the first artist to abandon the outlook of the Impressionists and Expressionists, who used

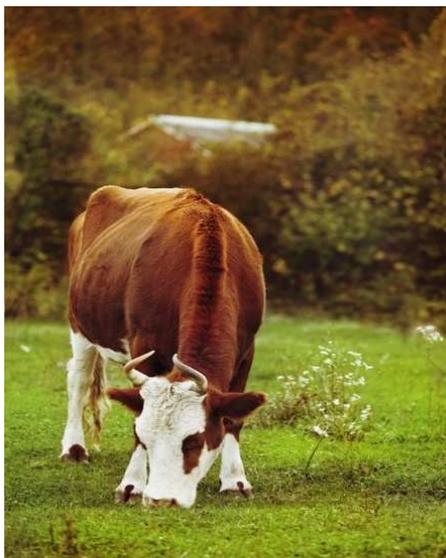
symbols that represented the outer, visible world in order to express their inner world ². He and Mondrian attempted to express the inner world without external content, but failed completely. The main reason for this failure was that no system of visual symbols exists capable of representing abstract content. That which is really abstract is not visible, and that which is visible is not abstract. They used color and form as a completely arbitrary *code* for the expression of abstract content, and gave this a theoretical justification lacking any scientific or philosophical basis. The result was a work of meaningless stains which anyone could interpret at will, similar to the stains used in a Rorschach test. Most of the other artists in the 20th century followed blindfolded in their footsteps, without taking any notice of the fact that in doing so, they had in fact left the field of art and passed on to the shallowest area of design. These artists had good intentions, but due to the lack of any theoretical understanding of art, to ignorance and to real or assumed innocence, they passed from the world of art to the world of graphic design and the world of objects, but continued to believe they were operating in the world of art.

Presumably the fathers of modernism did not at all understand the significance and the implications of erasure of a system of figurative symbols, and so it is worth reminding the reader of some of the characteristics of figurative art, which were lost in modernism by its reduction to design. The most basic principle of the figurative paradigm from its origin about forty thousand years ago and up to this day is construction of representations of things by means of representation of the graphic common denominator between those things. In other words, representation presents the symmetry-asymmetry that is common to some set of things whether real or fictitious. Thanks to this characteristic paintings, figurines and figurative sculptures are readable beyond space and time even tens of thousands of years after they were created. Similarly, because of this characteristic a figurative painting or statue *connects* certain things and *separates* them from other things. Therefore a figurative painting or sculpture is also a means of classification, similar to words in language. This is true of the prehistoric drawing of a bull presented by a contour characteristic of that type of bull, it is also true of Botticelli's Primavera, whether there was such a character or not, and it is true of every painting that describes a unicorn even though there is no such creature. A figurative picture that describes a fictitious entity is a kind of hypothesis that tells us that if a unicorn should be found, its visual characteristics will be similar to those that we see in the picture. A figurative picture is a *visual generalization* just as every image that we have in our minds is a visual generalization, and as every word is a linguistic generalization and every formula is a formal

generalization. That is, all branches of culture are valuable for the existence of humanity mainly because they all propose different ways to create groupings, classification and hierarchies of the things in our world, whether real, hypothetical or fictitious. We organize our world view with the help of a system of pictorial, linguistic, and formal symbols or their combinations just as is done in science. All symbol systems of all kinds are systems of generalizations, without which we would not be able to construct culture, nor an orderly world view. There is no culture without a symbol system, for it is symbols that enable us to pack the infinity of multiplicities in finite packages of information. Symbols of all kinds are what enable us to construct a bridge between the infinite multiplicity of things and between our finite noesis, our knowledge. The totality of symbols that we have creates a *second-order reality*, and that is what lends meaning and existence to the world of objects as we know it in the phenomenal reality, which is *first-order reality*. In short, there is no culture without symbols, and therefore it is impossible to exaggerate the decisive importance of a symbol system for the existence of human culture, and so it is clear that modernism has led to the destruction of art and the impoverishment of culture. Instead of a public and universal visual language, modernism has put forward a jumble of idiosyncrasies and whims lacking any artistic or cultural significance. They did not understand that culture does not deal with private matters unless they have great importance for all. In our day there is confusion between subjectivism and individualism. Genius is revealed when the point of view of a certain individual becomes the point of view of everyone, and this is the deepest significance of individualism. In contrast, subjectivism by its nature has no impact on culture. Thus, for example, ever since publication of Kant's *Critique of Pure Reason* in 1781, it is clear that there is no absolute reality, but rather the reality that we perceive is the fruit of our interpretation in light of certain organizational patterns of the mind. In this case, the viewpoint of the individual Emanuel Kant became the viewpoint of everyone, or at least of those who have some measure of education. After publication of Einstein's theory of relativity in its two stages (1905, 1915), the understanding of reality or of the fundamental concepts of physics – time, space, mass and energy – changed completely. After seeing the paintings of van Gogh, it is impossible to view nature in the same way that we have seen it before. Has humanity adopted the viewpoint of any modern artist? It is not surprising that there is no such artist, because for the last hundred years artists have not been born but rather *produced*. There is almost no person who cannot be turned into a famous "artist," and all that is necessary is massive investment in advertising over time and well-greased public relations. It is true that important people are at times also famous. But if a person is famous this does

not imply that he\she is of some importance. From this point of view, there is no modern “artist” who is really important, because they have no impact on culture. Not surprisingly, the only artist of the 20th century who has important impact on our perception is Magritte, but he is not an “abstract” artist, but a truly abstract artist: a figurative artist who sings a song of mourning for figurative art in a surrealist tune.

Actually, the relationship between figurative and modern art is analogous to the relationship between a cow and a hamburger (see figures 1.1-1.4). A figurative painting and a cow are both *systems*. A figurative painting is constructed of a system of pictorial symbols which has layering and an inherent connection between all its components. A cow is a biological system that is immeasurably more complex than any pictorial system. It has enormous layering, which includes a great many subsystems that function together to create the living cow. While the pictorial system is static, the biological system is dynamic for as long as the cow is alive. When a cow is slaughtered and ground up one has a hamburger. It contains the same materials that were in the cow, but its chaotic order is the result of breakage of all the systemic connections which were once the living cow. Similarly, "abstract" painting which has been created from a painting by Rembrandt (fig. 1.3 and 1.4) smearing the original painting with the help of Photoshop contains the same colors as the original but it is a pictorial "hamburger;" it is the result of breakage of all the systemic connections that were in Rembrandt's figurative painting. Therefore a hamburger is not a cow, and "abstract painting" is neither a painting nor a work of art.



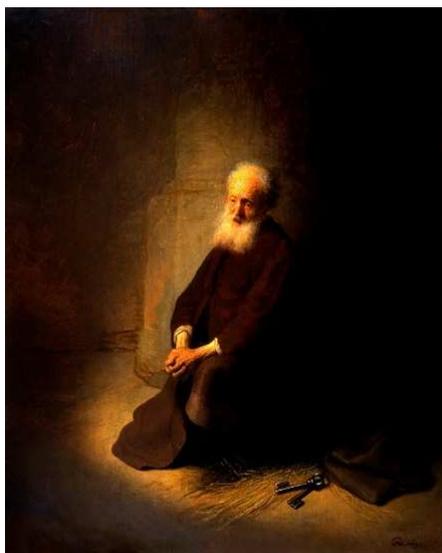
1.1. Top left. White with brown cow on autumn green meadow.

Copyright: Darya Petrenko.
© 123RF Stock Photo 16657346.

The relation between a cow and hamburger is analogous to the relation between a figurative painting and 'abstract art'. In both cases, the hamburger and the 'abstract painting' are the consequence of the destruction of the systemic structure of the cow and of Rembrandt's painting.



1.2. Bottom left. Fresh raw minced beef meat on red tray isolated over white background.
Copyright: Greg Gerber.
© 123RF Stock Photo 22513211.



1.3. Top right, Rembrandt van Rijn. St. Peter in Prison (St. Peter Kneeling), 1631. Oil on panel, 59 x 48 cm. Gift of Michael and Judy Steinhardt, New York to AFIM, The Israel Museum Collection B01.0148

Photo © The Israel Museum, Jerusalem by Avshalom Avital.



1.4. Rembrandt gone "abstract". Done by the author using Photoshop brush arbitrarily in order to transform Rembrandt's painting into an "abstract" or pictorial hamburger. One hardly needs any artistic or other talent to do that.

PAGES MISSING
FROM THIS FREE SAMPLE

List of illustrations per chapter

Illustrations in chapter one

- 1.1. Top left. White with brown cow on autumn green meadow. Copyright: Darya Petrenko. © 123RF Stock Photo 16657346.
- 1.2. Bottom left. Fresh raw minced beef meat on red tray isolated over white background. Copyright: Greg Gerber. © 123RF Stock Photo 22513211.
- 1.3. Top right, Rembrandt van Rijn. St. Peter in Prison (St. Peter Kneeling), 1631. Oil on panel, 59 x 48 cm. Gift of Michael and Judy Steinhardt, New York to AFIM, The Israel Museum Collection B01.0148. Photo © The Israel Museum, Jerusalem by Avshalom Avital.
- 1.4. Rembrandt gone "abstract". Done by the author using Photoshop brush arbitrarily in order to transform Rembrandt's painting into an "abstract" or pictorial hamburger. One hardly needs any artistic or other talent to do that.
- 1.5. Artist: Claude Monet (1840–1926) Title: Haystacks, (Sunset). 1891. Medium: Oil on canvas. Current location: Museum of Fine Arts, Boston. [wiki-data:Q49133](#). Accession number: 25.112. Inscriptions: Signature: bottom left - in red. Notes: Museum of Fine Arts, Boston, online database. Source: Photographer Unknown. Wikimedia, Public domain.
- 1.6. Title: Untitled - First Abstraction, 1910 (pen, ink & w/c on paper)
Creator: Kandinsky, Wassily (1866-1944)
Nationality: Russian
Location: Musee National d'Art Moderne, Centre Pompidou, Paris, France
Medium: pen, ink and watercolour on paper.
Date: 1910 (C20th)
Dimensions: 49x64 cms
Credit: Untitled - First Abstraction, 1910 (pen, ink & w/c on paper), Kandinsky, Wassily (1866-1944) / Musee National d'Art Moderne, Centre Pompidou, Paris, France / Bridgeman Images. Image number XIR156895.

- 1.7. Piet Mondrian (1872–1944) Title Blossoming Apple Tree, 1912. Oil on canvas. Dimensions Height: 78.5 cm (30.9 in). Width: 107.5 cm (42.3 in). Current location: Gemeentemuseum Den Haag. Accession number 55-1934 .Place of creation Paris. Object history: From circa 1913 until 1934: Conrad Kickert (1882-1965), Paris. 1934: Given to the Gemeentemuseum Den Haag, The Hague, by Conrad Kickert, Paris. References: Gemeentemuseum Den Haag online catalogue, as Bloeiende appelboom. Bildarchiv Foto Marburg, Bild-index der Kunst und Architektur, object 20360867, as Blühender Apfelbaum. Source/Photographer Unknown. Wikimedia, Public domain.
- 1.8. Piet Mondrian (1872–1944). Composition No.IV. 1914. Oil on canvas. Dimensions 88 × 61 cm (34.6 × 24 in). Accession number 0334319. Inscriptions Signature and date bottom left [MONDRIAN.1914 Source/Photographer: Gemeentemuseum Den Haag. Wikimedia, Public domain.
- 1.9. Kazimir Malevich (1878–1935). Black Square,1915. 79.5x79.5 cm. Oil on linen. Source: Tretyakov Gallery, Moscow. Wikimedia, Public domain.
- 1.10 Lavender Mist: Number 1, 1950. (oil, enamel & aluminium paint on canvas. 221x299.7 cms), Pollock, Jackson (1912-56) / National Gallery of Art, Washington DC, USA / Bridgeman Images.
- 1.11. It is true that eggs are normally oval and off-white. But if something is oval and off-white, it is not necessarily an egg. Actually of all the eggs in this basket only one is a natural egg and all the rest are made of stone. We are easily mistaken because we reduce the egg to only two of its numerous properties and disregard the rest.
Photographer: Avshalom Avital. © The author.
- 1.12. It is true that some Irish lasses have flowing red tresses; but if one has flowing red tresses it does not entail that one is an Irish lass. See image 1.16. Copyright: Veronika Petrova. © 123RF Stock Photo 32866649.
- 1.13. A flower disguised as a female insect. Wild orchid called Mirror Bee Orchid (*Ophrys speculum speculum* or *Ophrys ciliata*). Arrabida mountains, Sesimbra, Portugal. Photographer: Armando Frazao. © 123RF Stock Photo 19547565.
- 1.14. A fish disguised as floating seaweed. Leafy seadragon also known as Glauert's seadragon. Copyright: Krzysztof Wiktor. © 123RF Stock Photo.

- 1.15. A plant disguised as stone. Aizoaceae Lithops Aucampiae. Lithops, called also Flowering stones, pebble plants or living stones. Copyright: Philip Bird. © 123RF Stock Photo 22150390.
- 1.16. Right. Red Irish setter dog. Copyright: Veronika Petrova © 123RF Stock Photo 32866649
- 1.17. Top. A well camouflaged insect. Spotted praying mantis, on leaves in Tamil Nadu, South India. Copyright: petervick167. © 123RF Stock Photo 20855579.
- 1.18. Bottom. Red fish assimilated in red coral. Sea Whip Goby Bryaninops. Copyright: Christopher Brandl. © 123RF Stock Photo 25934318.
- 1.19. Side view of female kudu antelope with bird over back. Due to its coloring this antelope effectively blends into the background especially if observed from a distance. Copyright: Francisco De Casa Gonzalez. © 123RF Stock Photo 28026686.
- 1.20. Lion in Tanzania national park. Copyright: mhgallery © 123RF Stock Photo 26214108.
For both the antelope and the lion camouflage is crucial but for opposite reasons. For the antelope camouflage is a means of hiding from the carnivores. For the predators camouflage is necessary in order to take its prey by surprise; otherwise chances for a kill become slim and risky for the predator.
- 1.21. Top. One of these two leaves is a butterfly.
- 1.22. Bottom. The dark "leaf" unfolds into splendid wings. © Ofer Raviv. The two photos are reproduced here by kind permission of Ofer Raviv who was my student.
- 1.23. Top. Frog hiding in the autumn leaves perfectly camouflaged. Copyright: Iegor Khimchenko. © 123RF Stock Photo 23710425.
- 1.24. Bottom. Yemen chameleon isolated on black background. Copyright: Pavlo Baishev. © 123RF Stock Photo 23900250.

- 1.25. Cuttlefish changing color. These pictures of the same individual were taken only a few seconds apart. This broadclub cuttlefish (*Sepia latimanus*) can go from camouflage tans and browns (top) to yellow with dark highlights (bottom) in less than a second. Cuttlefish, especially *Sepia apama*, can change not only the colors, form and textures of their bodies, they can even change their bodies instantaneously to look like females of their kind so they can join the 'harem' of the alpha male and mate with the females when the big macho is not watching (Ebert, 2005). They are rightly called the chameleons of sea but they are far more sophisticated at disguise and camouflage than any chameleon. © Nick Hobgood, Wikipedia, Creative Commons.
- 1.26. Rembrandt Harmenszoon. van Rijn (1606-69). Rembrandt Self Portrait, as the Apostle Paul. (oil on canvas). Rijksmuseum, Amsterdam. The Netherlands. ©The Bridgman Art Library, DGA 4349811
- 1.27. Pierre Soulages, (b. 1919). "Peinture 162 x 114,5 cm, 30 Novembre 1956", 1956. © ADAGP, Paris 2013 Franz Marc Museum/AKG IMAGES.
- 1.28. Auguste Rodin (1840–1917), *The Thinker*, *Musée Rodin*.
Phtographer: Wilburn White. © 123RF Stock Photo. 3202613
- 1.29. Anthony Caro (b. 1924), *Back Cover Flat* (1974), Steel, rusted & varnished, 71 x 98 x 30" / 180.5 x 249 x 76cm. Copyright is Barford Sculptures Ltd. Photo credit is to Valerie Burton.
- 1.30. Michelangelo (1475-1564) on copper engraving from 1841. Italian Renaissance painter, sculptor, architect, poet and engineer. Engraved by G.P.Lorenzi from a drawing by A.Tricca after a self-portrait by Michelangelo. Copyright: Georgios Kollidas. © 123RF Stock Photo 9247234.
- 1.31. Details from the background of fig. 1.30.
- 1.32. (Bottom right) Abstract pencil scribbles background collection. Paper texture. Copyright: Liliia Rudchenko. © 123RF Stock Photo 27998052.
- 1.33. Details from the background of fig. 1.32.
This scribble is hardly distinguishable from some works of Twombly or millions of those done by students during boring lectures.
- 1.34. Examples of "monochrome:" This is a method of coloring cloth, furniture, walls and doors, not paintings. It lacks all the characteristics of painting except the trivial fact that it has one color. Similarly, if you have a sack of concrete that does not mean you have a house. Therefore all cases of monochrome are graphic design of the poorest sort and not art.

- 1.35. A Chinese tea set which is clearly not functional. Such dishes were made for the sake of amusement and irony.
Photographer: Avshalom Avital. © The Author.
I am grateful to Mr. Zhao Zheng Xu and his wife, who gave me this tea set in my visit to Xian in October, 2011.
- 1.36. Press citron design. Philippe Starck Juicer. Anti-functional design.
Photographer: isifoto . ©iStockphoto #4707882
- 1.37. Nude woman (*Venus of Willendorf*), from Willendorf, Austria, ca. 28,000-25,000 BCE. Limestone, 4 1/4" high. Naturhistorisches Museum, Vienna. De Agostini Picture Library / E. Lessing / The Bridgeman Art Library
- 1.38. Tools set forth in prehistoric cave windows Pinar (GRANADA). Copyright: Paco Ayala. © 123RF Stock Photo 4319182.
- 1.39. (Left) the number "2".
- 1.40. (right) Yellow lemons hanging on tree. Copyright: Inácio Pires. ©123RF Stock Photo. 12980837.
- 1.41. Magritte, René 1898-1967. The legend of the centuries), 1950. Oil on canvas, 55 x 46 cm. Private collection. Credit line: akg-images.
- 1.42. "Broken Chair" monument in the "Place des Nations Unies" square in Geneva, Switzerland. Broken Chair is a monumental sculpture in wood by the Swiss artist Daniel Berset, constructed by the carpenter Louis Genève. Copyright: Victor Pelaez Torres ©123RF Stock Photo. 10780936
- 1.43. Alice in wonderland looking into a dollhouse.
Copyright: anyka. ©123RF Stock Photo. 9492498.

Illustrations in Chapter two

- 2.1. Hand-tools are extensions of hands. Design originated in tool making for *instrumental* functions. A hand-tool is an extension of the hand and a specific case of body tools, all of which are extensions of some organ of our body. Photo ©: the author. Photographer: Avshalom Avital.
- 2.2. Levels of reality. I am indebted to my ex-student Yael Horowitz for making this beautiful illustration of levels.

- 2.3. Dissectors: Handaxe (Top), Spheroid (Left), Pick (Right), Chopper (Bottom) Ubeidiya, Lower Palaeolithic, 1,500,000 y.o. Photo. © The Israel Museum, Jerusalem.
- 2.4. Kitchen knives on the brown wooden table. Copyright: garloon. © 123RF Stock Photo 1754118.
- 2.5. Ax chopping wood on chopping block. Copyright: Deyan Georgiev. © 123RF Stock Photo 23158516.
- 2.6. A saw is sawing through the wooden board. Copyright: Atthidej Nimmanhaemin. © 123RF Stock Photo 13805911.
- 2.7. Funny young girl cutting her hair with scissors. Copyright: Igor Dutina, 123 ©RF Stock Photo 6617509.
- 2.8. An assortment of hand-tools. All hand-tools are various extensions of hand. Copyright: citalliance. © 123RF Stock Photo. 12352911
- 2.9. Close up of a pregnant woman's stomach, isolated on black background. Copyright: Gary Steele. © 123RF Stock Photo 8131369.
- 2.10. Until a few decades ago, Bedouins at the Negev of Israel used the camel's stomach as a container for water. The photo is reproduced here by kind permission of Dr. Victor Frostig. © Dr. Victor Frostig
- 2.11. Big bottle for cooler. Copyright: Polina Ryazantseva © 123RF Stock Photo. 13750511
- 2.12. Top. Young woman cook isolated on white. Copyright: Elnur Amikishiyev. © 123RF Stock Photo 27553532.
- 2.13. Bottom. Set of sequence sizing of green ceramic bowls. This set of bowls is concrete example of recursion, nesting and self-embedding or hierarchy. Copyright: Worakitti Saichol. © 123RF Stock Photo 19786901
- 2.14. Green plastic cutlery tray with checked cutlery and wooden spoons on wooden table. Copyright: belchonock. © 123RF Stock Photo 17578427.
- 2.15. Top. Grinding stone with fresh herbs
Copyright: jaggat. © 123RF Stock Photo 5695474
- 2.16. Bottom. Pureed strawberries in blender
Copyright: Michael Gray. © 123RF Stock Photo 12783368

- 2.17. Katsan, Namibia - April 26: Bushmen in hunt in the Katsan place on April 26, 2008, Namibia. All clothes are extensions of skin: Early version.
Copyright: Alexander Mitrofanov. © 123RF Stock Photo. 8945156
- 2.18. Collection of females dress isolated on white
Copyright: alexkalina. © 123RF Stock Photo. 4701969
- 2.19. Professional workers, businessman, cook, pilot, doctor, builders. Despite the vast differences of the semiotic loading of these costumes, eventually they are all body tools and therefor fashion design is design, not art.
Copyright: Andriy Popov. © 123RF Stock Photo. 17738995
- 2.20. Odessa, Ukraine - May 9 Parade Celebrating Victory Day in the Second World War 1941-1945 Veterans and soldiers May 9, 2012 in Odessa, Ukraine.
Copyright: agusyonok. © 123RF Stock Photo 26643979
- 2.21. Right. Detail of the head and upper torso portions of a silk burqa.
© Steve Evans from India and USA Creative Commons.
- 2.22. Bottom. Woman lying on the sand at the ocean coast. Copyright: Ivan Mikhailov © 123RF Stock Photo 11368219.
- 2.23. The village Zumaglia near Millan. © F. Ceragioli. Wikimedia Commons.
- 2.24. Top. Man standing in front of a cave entrance. Photographer- andreiu88:
© 123RF Stock Photo. 11386256
- 2.25. Stone Age hut of reeds at the lake. © Tt | Dreamstime.com
- 2.26. A beautiful and colorful African round Ndebele hut in South Africa. In the Ndebele tribe only the women decorate their houses.
Copyright: Anke Van Wyk. © 123RF Stock Photo. 933016
- 2.27. Top. Medieval dry stone hut in north of Catalonia Spain.
©123RF Stock Photo. 13472545.
- 2.28. Middle. Upscale single family house on Head Island, South Carolina. Photographer: Jim Pruitt. © 123RF Stock Photo 11379619
- 2.29. Right. Facade of Old Scandinavian Farm House.
Copyright: abstrand. © 123RF Stock Photo 2646706.
- 2.30. Right. Nasrid Palace-Alhambra ,Granada in Spain.
Copyright: Jacek Cudak. © 123RF Stock Photo.
- 2.31. Bottom. Interior architecture design of church, Italy.
Copyright: kubais. ©123RF Stock Photo. 10657747.

- 2.32. Brain-tools are all symbols systems; visual, verbal or formal. They are the *precondition* of body tools. In a larger sense, they are the indispensable condition of culture and all of its domains including design and technology.
- 2.33. Top. Piet Mondrian (1872-1944). *Composition with Red, Blue and Yellow*, 1930. Private: Collection /Giraudon / The Bridgeman Art Library.
- 2.34. Bottom. Stella, Frank (b.1936) *Gray Scramble (single)*, 1969 (acrylic on canvas), 175.3x175.3 cms. Private Collection. Mayor Gallery, London, The Bridgeman Art Library.
- 2..35 Illustration of hand ax.
Copyright: Denis Barbulat © 123RF Stock Photo 10397557

Illustrations in Chapter three

- 3.1. Front cover of *Edible Art: Forty-Eight Garnishes for the Professional* by David Paul Larousse. Published by John Wiley & Sons, INC. 1986.
This photo is reproduced here by kind permission of John Wiley & Sons, INC.
© John Wiley & Sons, INC.
- 3.2. Marcel Duchamp. *Urinal (Fountain)*. The Israel Museum, Jerusalem. 1917/1964 (Replica of 1917 original). The Vera, Silvia, and Arturo Schwartz Collection of Dada and Surrealist Art.
Photo: Avshalom Avital.
- 3.3. Replica of *The Spear Thrower of La Madeleine*.
© Photo and caption are reproduced here by kind permission of Occoquan Paleotechnics LLC,
- 3.4. Perforated baton with low relief horse, Late Magdalenian, about 12,500 years old, from the rockshelter of La Madeleine, Dordogne, France. Made from reindeer antler.
© Author: johnbod, Creative Commons.
- 3.5. Mortuary temple of Queen Hatshepsut at Dayr al-Bahri, Thebes, Egypt, near Valley of the Kings. Designed and built by Senenmut, the steward and architect of Queen Hatshepsut about 3500 years ago. This is one of the earliest cases in which we know the name of the architect who designed a monumental building.
Photographer: Martin Molcan. © 123RF Stock Photo. 17666387

- 3.6. Top. Spartan helmet. Image.
Copyright: Thomas Sztanek. © 123RF Stock Photo 6751295.
- 3.7. Bottom. 3000 year old pottery from the town of Ancient Thira on the island of Santorini Greece.
Copyright: Brenda Kean. © 123RF Stock Photo 13946398
- 3.8. Top. Engraved ochre from Blombos Cave Project, c. 75 - 80,000 year old.
© Chris Henshilwood. This image is reproduced here by kind permission of The Center for Development Studies, University of Bergen.
- 3.9. Prehistoric carved lion, Vogelherd Cave, Germany. The figurine is engraved with very similar geometric crosshatches found in Blombos and dated at 30,000-36,000 years. © Credit: Javier Trueba/MSF/SCIENCE PHOTO LIBRARY
- 3.10. Engravings made on a Pseudodon fossil whose origin is in Trinil (Java, Indonesia).
Photographer: Wim Lustenhouwer
Images 3.10 and 3.11 are reproduced here by kind permission of Josephine Joordens, VU University Amsterdam.
- 3.11. Bottom. Detail of 3.10
Photographer: Wim Lustenhouwer.
- 3.12. Illustration - Wild horse.
Copyright: Andreas Berheide. © 123RF Stock Photo 10825085
- 3.13. Any circle is a specific case of the formula $P=2\pi R$, hence it is a particular, not a universal. As such it is design, not art.
- 3.14. Op. by Slavik Jablan, 2000.
Both graphics 3.10 and 3.11 by Slavik Jablan were inspired by the possibility of using a very simple modular tile: a square with a set of diagonal strips or the same square designed as a Truchet tile. Such a module (called by the author "Op-tile") has been used in art from prehistoric times (Paleolithic, Mezin, Ukraine, 23 000 B.C.), as well as in Op-art. The graphic "Op" is an exercise on this theme, based on the use of complementary colors and transparency effect obtained in this way. "Turn" is a modular black-white puzzle based on Op-tile, processed in Paint Shop Pro using geometrical effects (Twirl).
© Slavik Jablan

3.15. Turn. by Slavik Jablan, 2010.

Slavik Jablan was a professor of mathematics at ICT College of Vocational Studies (Belgrade, Serbia) and the editor of the online journal Visual Mathematics, (VISMATH). Prof. Jablan was a dear friend and colleague and he granted me the permission to reproduce his two works in this book shortly before he passed away.

© Slavik Jablan

3.16. Colored figure from fractals.

Copyright: Artyom Rudenko. © 123RF Stock Photo 6428405.

3.17. Leonardo Design manufactures wrought iron furniture, lighting and accessories. The versatility of each design encourages endless placements including formal, informal and outdoor furniture. We always try to be innovative, creating new forms, using new materials and discovering new technologies.

<http://www.leonardodesign.co.za/contact.htm>

© The image is reproduced here by kind permission of Leonardo Design.

3.18. A pair of Clovis points found by Dick Daugherty measuring about nine inches long near East Wenatchee, and dated ca. 11.000 years BP. "They are the largest ever found, and not of the common chert but of translucent chalcidony – *true works of art*". (Mehring, 1988) (my italics.) Photographer: Warren Morgan. © National Geographic.

3.19. The Doors of Paradise in Battistero di San Giovanni, Duomo Cathedral, Florence, Italy. Photographer: Keith Levit,

©123rf Stock Photo 180665

3.20. Detail of the Doors of Paradise in Battistero di San Giovanni, Duomo Cathedral, Florence, Italy.

Photographer: Kiril Stanchev, ©123rf Stock Photo 13255059

3.21. Vatican Sistine Chapel by Michelangelo Buonarroti. Rome, Italy.

Copyright: fefo. © 123RF Stock Photo 7086439.

3.22. Pierre Armand, Avalanch (1990), Tel-Aviv University campus.

© Yair Talmor\Wikimedia Commons.

The image is reproduced here by kind permission of Tel-Aviv University Gallery.

- 3.23. Top. Roberto Sambonet, *Pesciera / Fish-kettle*, steel, 1957.
Sambonet SpA production.
Courtesy Roberto Sambonet Archive, Milan
Photo by Serge Libiszewski
- 3.24. Anish Kapoor. Chicago, IL (2004). Cloud Gate and Chicago skyline on October 6, 2011 in Chicago, Illinois. Cloud Gate is the artwork of Anish Kapoor as the famous landmark of Chicago in Millennium Park.
Photographer: Songquan Deng. © 123RF Stock Photo. 12559717
- 3.25. Description: Plastik „Balancing Tools” des Bildhauers Claes Oldenburg am Vitra Design Museum. Date 22 October 2006. Source Own work.
Author --Wladyslaw Disk
© Wikimedia Creative Commons.

Illustrations in Chapter four

- 4.1. Natural design in the author's garden
Photographed by the author.
- 4.2. Design by birds. Baya Weaver nests. *Ploceus philippinus* Weaver Bird/Finch, Tempua (Malay). Photographer: Yogesh More.
© 123RF Stock Photo. 13727154,
- 4.3. Design by insects. Termite hill in Kenya. Photographer: Keith Levit.
©123RF Stock Photo. 7187962
- 4.4. Design by bees: Bees work on honeycombs.
Photographer- Dmytro Smaglov: ©123RF Stock Photo. 14163857
- 4.5. Top, 4.6 Bottom. One of these two paintings was done by an animal and the other by a human "artist". Can you honestly tell which is which?
The solution is on the next page.
- 4.5. This work was done by Babe, an elephant at the Niabi Zoo, Illinois. This work is reproduced here by kind permission of the Niabi Zoo.
- 4.6. This work was done by a human. Abstract hand drawn background.
Copyright: Maria Dubova. © 123RF Stock Photo 12693503.

- 4.7. Female figurine from Berekhat Ram, Golan Heights, Volcanic material 3.5 x 2.5 x 2.1 cm., Lower Paleolithic 233,000 years ago, and one of the oldest figurines ever found so far. Discovered by Prof. Naama Goren-Inbar of The Hebrew University of Jerusalem. Israel Antiquities Authority Accession number: IAA 1993-492.
© The Israel Museum, Jerusalem
- 4.8. Top. Tulip Fields at Sassenheim, near Leiden, 1886 (oil on canvas), Monet, Claude (1840-1926) / Sterling & Francine Clark Art Institute, Williamstown, USA / The Bridgeman Art Library.
- 4.9. Right. Le Principe du Plaisir, 1937 (oil on canvas), Magritte, Rene (1898-1967) / Ex-Edward James Foundation, Sussex, UK / The Bridgeman Art Library.
- 4.10. Top. Old vintage wooden chair and table.
Photographer: Phaitoon Sutunyawatchai. © 123RF Stock Photo.: 14848655
- 4.11. Bottom. Suit jacket hanging on a hanger. Photographer: pitrs. © 123RF Stock Photo. 12853943
- 4.12. Mother and Child, c.1869 (oil on canvas), Merle, Hugues (1823-81)
© Sterling & Francine Clark Art Institute, Williamstown, Massachusetts, USA / The Bridgeman Art Library.
Art is *implicative*. Merle's painting is about compassion and nourishment.
- 4.13. Nice businesswoman in miniskirt isolated on white.
Copyright: kostudio. © 123RF Stock Photo 13711142.
- 4.14. Hong Kong residential buildings.
Copyright: Leung Cho Pan. © 123RF Stock Photo 22210576.
- 4.15. Vinci, Leonardo da (1452-1519). The Lady with an Ermine (Cecilia Gallerani), 1496 (oil on walnut panel).
© Czartoryski Museum, Cracow, Poland. / The Bridgeman Art Library.
- 4.16. Old man. Photographer: Laurin Rinder © 123RF Stock Photo. 11141777
- 4.17. Pair of old boots isolated on the white background.
Photographer: Roman Ivaschenko. © 123RF Stock -8805776
- 4.18. Old school car calls the 1917 the first production car built in Japan. Photographer: Ruzanna Arutyunyan. © 123RF Stock Photo. 7454131

- 4.19. Top. The Procureess, Dirck van Baburen, 1622. Oil on canvas.
Source/Photographer:<http://cgfa.sunsite.dk>
Wikimedia Commons, Public domain.
- 4.20. Bottom. Han van Meegeren's forgery of The Procureess by Dirck van Baburen.
Source: Courtauld Gallery. Wikimedia Commons, Public domain.
- 4.21. Unfinished automobiles in a car plant.
Photographer: Rainer Plendl. © 123RF Stock Photo 8406198
- 4.22. Adoration of the Golden Calf, 1546 (oil on canvas), Tintoretto, Jacopo Robusti (1518-94) / Church of the Madonna dell'Orto, Venice, Italy / Cameraphoto Arte Venezia. © The Bridgeman Art Library.
- 4.23. Bottle opener. Phtographer: Cristi Love © 123RF Stock Photo Ltd 14926621
- 4.24. Top. The project of residential house. 3D image.
Photographer: Valerijs Kostreckis. © 123RF Stock Photo Ltd 12638686.
- 4.25. Bottom. Sea landscape painting - acrylic paints on hardboard.
Photographer: makingfaces. © 123RF Stock Photo Ltd. 12903253
- 4.26. Graphical representation of self-embedding: In the cognitive world the depth of self-embedding or recursive inclusion relations depends only on our capacity of abstraction. This depth determines the stratification of our thinking and our perception of reality. CODIS- stand for the complementarity of connectivity-disconnectivity.
I am indebted to my former student Ziv Rotem-Bar who did for me this beautiful illustration.
- 4.27. Self-embedding of plastic bowls.
© StockFreeImages.com 6281389
- 4.28. Graphical illustration of metaphor by the author.
- 4.29. Ancient Assyrian wall carvings of lion-headed men. About 645-635 B.C.E From Nineveh. Copyright: kated6.
©123RF Stock Photo Ltd. 12341697.
- 4.30. Top. Magritte, Rene (1898-1967).
The Explanation, 1952 (oil on canvas).
Private Collection. The Bridgeman Art Library. © ADAGP, Paris 2012.
- 4.31. Bottom. A student's chair.
Photographer: Joel Rapoport

- 4.32. Girl with a Pearl Earring, c.1665-6 (oil on canvas), Vermeer, Jan (Johannes) (1632-75) / Mauritshuis, The Hague, The Netherlands / The Bridgeman Art Library.
- 4.33. Traffic street road signs clip. All-free-download.com
- 4.34. Flags. All-free-download.com
- 4.35. Abstract 3d illustration of network structure concept.
Copyright: Maxim Kazmi. ©123RF Stock Photo Ltd. 9351257.
- 4.36. Unicorn Horse - A unicorn buck prances in the magical forest full of beautiful flowers and trees. ©123RF Stock Photo Ltd. 21017760.
- 4.37. Collection of objects over white background.
Copyright: Coroiu Octavian. ©123RF Stock Photo Ltd. 19357541
- 4.38. What do you see? The flower of an artichoke, 3d abstract color flower or star; microbiological organic shape; virus macro, an ornament for old violet women's hat?
Copyright: katisa ©123RF Stock Photo Ltd. 19881379.
- 4.39. Without images and concept our reality would be totally chaotic and our cognitive world would be impossible. (Illustration by the author).
- 4.40. Our images, concepts and theories are means of classification and ordering of reality. (Illustration by the author).
- 4.41. Reality keeps changing throughout the history of culture because the concepts and theories with which we interpret and map reality keep changing. (Illustration by the author).
- 4.42. Top, right. What is the name of this book?
©The photo of the book is reproduced here by kind permission of Raymond Smullyan.
- 4.43. Bottom right. Brown Labrador puppy on yellow ground.
Copyright: Vladislav Ageshin. ©123RF Stock Photo Ltd. 8271210.
- 4.44. Bottom left. "an abstract painting" done by the author, not Jackson Pollock. It was done in less than one minute by splashing few colors on a piece of cardboard, using three syringes filled with my children's water colors. This great painting was signed – Mastul, meaning "stoned" in Arabic. Objects and all the so-called "abstract paintings" have no reference and no self-reference. Moreover we have to use words in order to refer to them such as "abstract expressionism" whatever it means.

- 4.45. Monotheism. (Illustration by the author)
- 4.46. All Gizah Pyramids. ©Ricardo Liberato\Creative Commons [Wikimedia]
- 4.47. Space landscape near active black hole star with accretion disc.
Copyright: PaulPaladin. ©123RF Stock Photo Ltd. 22543619.
- 4.48. Rose. There are at least 150 know species of roses and thousands of hybrids made from them. Photographed by the author.
- 4.49. Sculpture "Janus" in the Summer Gardens of St. Petersburg. Russia. In ancient Roman religion and myth, Janus is the god of beginnings and transitions, thence also of gates, doors, passages, endings and time.
Copyright: Alexander Trofimov ©123RF Stock Photo Ltd. 24578012
- 4.50. Top. A holon is a systemic entity. It includes all the subsystems\holons bellow it, but it is included by the subsystems or holons above it. Indeed, a system is a set of interconnected holons, or a stratified holon.
- 4.51. Bottom. In the systemic world, destruction or change of any holon in the system, affects the whole system, because every holon is connected, directly or indirectly, to all other holons in that system. This is true for organisms and figurative paintings as well because they are systemic. This is not true for most objects.
- 4.52. Urban blossom.
Photographer: Mark Stahl. © 123RF Stock Photo Ltd. 3284748.
- 4.53. Top. Colorful DNA strings under microscope.
Photographer: Ivan Cholakov. © 123RF Stock Photo Ltd.3351600.
- 4.54. Bottom. Paul Gauguin (1848–1903) Landscape from Pont-Aven, Brittany, Date 1888. Medium oil on canvas. 90.5 × 71 cm (35.6 × 28 in). Current location: Ny Carlsberg Glyptotek Copenhagen. Source/Photographer The Yorck Project: 10.000 Meisterwerke der Malerei. DVD-ROM, 2002. ISBN 3936122202. Distributed by Directmedia Publishing GmbH.
Wikimedia Commons, Public domain.
- 4.55. Top. Black kitchen utensils on silver hooks, on wooden background.
Photographer: sereznij. © 123RF Stock Photo Ltd. 17515134
- 4.56. Middle. Winter warm lady's clothes on a white background.
Photographer: Andrey Armyagov. © 123RF Stock Photo Ltd. 7905331.
- 4.57. Bottom. A beautiful Spanish apartment building with lovely glass windows. Photographer: Darryl Brooks. © 123RF Stock Photo Ltd. 5414503.

- 4.58. Top. Spiral Galaxy NGC6744. Systemic order.
Photographer: Wolfgang Kloehr. © 123RF Stock Photo Ltd. 4041720.
- 4.59. Middle. Model of atom.
Photographer: gl0ck33. © 123RF Stock Photo Ltd. 10253281
- 4.60. Bottom. Bacteria.
Photographer: Sony Sivanandan. © 123RF Stock Photo Ltd. 10629226
- 4.61. Top. Sequoia.
Photographer: Galyna Andrushko. © 123RF Stock Photo Ltd. 8232637
- 4.62. Middle. Mossy wall.
Photographer: Suchart Somboontakoeng. © 123RF Stock Photo Ltd. 15282102.
- 4.63. Bottom. Mom and baby Humpback whales swim through clear tropical waters. Photographer: Corey Ford. © 123RF Stock Photo Ltd. 4661925.
- 4.64. Top. A close-up of numerous types of worn river rock (stones)
Copyright: Vince Clements. © 123RF Stock Photo Ltd. 4967089.
- 4.65. Middle. Background of red brick wall pattern texture: serial order.
Photographer: Danil Roudenko. © 123RF Stock Photo Ltd .14048233
- 4.66. Bottom. Vintage, retro metal kitchen device for chopping meat- grinder. assembling the parts of this device is dictated by its mechanism design.
Photographer: Aleksandr Volkov. © 123RF Stock Photo Ltd. 12996537
- 4.67. Top. Men shoes. Photographer: evaletova. © 123RF Stock Photo Ltd. 11514414 Discrete entities.
- 4.68. Middle. Empty university class room. Discrete and serially ordered entities. Photographer: Truembie. © 123RF Stock Photo Ltd. 9842331
- 4.69. Bottom. Plates, glasses, cup and cutlery on wooden table: Discrete entities. Photographer: Olga Yastremska. © 123RF Stock Photo Ltd. 11954391
- 4.70. Heinrich Bünting (1545 – 1606). Stylized world map in the shape of a clover-leaf (the three classical continents of Europe, Asia, Africa), with Jerusalem at the center. Wikimedia Commons.
- 4.71. Babylonian map of the world, ca 500 BCE. The earth is a flat disk surrounded by cosmic ocean. Courtesy of the British Museum. Map showing Assyria, Babylonia and Armenia. Wikimedia Commons.
- 4.72. Evolution of the universe in the past 13.7 billion years.
Credit: NASA/WMAP Science Team. Wikimedia Commons.

- 4.73. Top. Holbein the Younger, Hans (1497/8-1543) Portrait of Erasmus, 1523 (oil and egg tempera on panel), / Private Collection / The Bridgeman Art Library
- 4.74. Bottom. Paintings depicting mammoth and cattle, from the Chapel of the Mammoths (cave painting), Paleolithic / Grotte de Pech Merle, Lot, France. The Bridgeman Art Library.
- 4.75. Top. Two very tall high rise buildings in Mississauga Ontario. Photographer: kurtvate. © 123RF Stock Photo Ltd. 11000614
- 4.76. Bottom. A row of terraced houses in Glasgow West End, Scotland. Photographer: Claudio Divizia. © 123RF Stock Photo Ltd. 8071003
- 4.77. Top. A row of summer clothes hanging on the rack. Copyright : satina. ©123RF Stock Photo Ltd. 12657903
- 4.78. Suburban culdesac homes aerial in the eastern United States: Discrete entities in serial order. Photogarpher: klotz. © 123RF Stock Photo Ltd. 13419096
- 4.79. Big aged tree in a park with red leaves during fall. © 123RF Stock Photo Ltd. 15329327
- 4.80. 3D Printer by Formlabs. From the designer's point of view, the photo on the screen is not a work of art but a virtual model of the actual model built by the machine according to an algorithm. Photographer: Andy Ryan. © Formlabs.
- 4.81. Workshop of Hans Holbein the Younger 1497/8 (German). Title Portrait of Henry VIII. Date 1537 – 1547. Oil on canvas. Height: 2,390 mm (94.09 in). Width: 1,345 mm (52.95 in). Walker Art Gallery. Source/Photographer eAHC0d0WiemXSA at Google Cultural Institute, zoom level maximum. Wikimedia Commons, Public domain.
- 4.82. Top. The Scream, 1893 (oil, tempera & pastel on cardboard), Munch, Edvard (1863-1944) / Nasjonalgalleriet, Oslo, Norway / The Bridgeman Art Library © The Munch Museum/ The Munch-Ellingsen Group/ BONO, Oslo 2013
- 4.83. Bottom. Illustration of a red armchair on a white background. photographer: Viktoriya Malova. © 123RF Stock Photo 13285876
- 4.84. Graphic illustration of analytic and synthetic tendencies in language and design.

Illustrations in chapter five

- 5.1. The Adoration of the Golden Calf - Picture from the Hortus deliciarum of Herrad of Landsberg (12th century). Date: circa 1180
Source: Hortus Deliciarum. Author: Herrad von Landsberg
Photographer: Dnalor_01. Wikipedia, Public domain.
- 5.2. Asa destroys the idols and forbids worship in local shrines.
Date: 1372. Source: Petrus Comestor's Bible Historiale (manuscript "Den Haag, MMW, 10 B 23"
Author: An illustrator of Petrus Comestor's Bible Historiale, France, 1372.
Wikimedia, Public domain.
- 5.3. Second Temple Model of the ancient Jerusalem (Israel).
Copyright: flik47. © 123RF Stock Photo 17163936.
- 5.4. Magdala is the name of ancient town located on the shore of the *Sea of Galilee*.
In the synagogue from the time of the second Temple, a rectangular stone was found with an engraving of the seven branched candelabra. Photograph: Hanay. Creative Commons.
- 5.5. "Mona Lisa of the Galilee". Ancient mosaic at The Synagogue. Floor in Tzipori (Sepphoris), Israel. © Tomisti, Creative Commons.
- 5.6. 14th century German illuminated Haggadah for Passover. Wikimedia Commons, Public Domain_{{PD-Art}}. (Author and source are not mentioned in this Wikimedia page. User: Bender235.
- 5.7. Hanukkah Lamp. Christian Gottlieb Muche, 1717-1772; Master 1746. Breslau (Wroclaw, Poland), 1761-72. Silver: repoussé, engraved, traced, punched, parcel-gilt, and cast. 5 15/16 × 11 1/16 × 1 7/8 in. (15.1 × 28.1 × 4.8 cm)
The Jewish Museum, New York. Public domain.
Purchase: Mr. and Mrs. Joseph Klingenstein Gift, JM 26-64.
- 5.8. Jewish ornament in interior of old synagogue in Jerusalem, Israel.
Copyright: Emanuel Kaplinsky © 123RF Stock Photo 17703181
- 5.9. Michelangelo's Pietà in St. Peter's Basilica in the Vatican. © Stanislav Traykov. Wikimedia Commons

5.10. The Duck-Rabbit Illusion.

Description: English: "Kaninchen und Ente" ("Rabbit and Duck"), the earliest known version of the duck-rabbit illusion, from the 23 October 1892 issue of *Fliegende Blätter*.

<http://diglit.ub.uniheidelberg.de/diglit/fb97/0147?sid=8af6d821538a1926abf44c9a95c40951&zoomlevel=2>).

It is captioned, "Welche Thiere gleichen einander am meisten?" ("Which animals are most like each other?")

Date: 23 October 1892. Source: Detail from scanned page of *Fliegende Blätter*, full page: *Fliegende-Blätter-1892.png*. Author: Unknown. © Wikimedia Commons, Public domain.

5.11. Top. Part of the terra-cotta army at Xian, an army of thousands of terra-cotta armed soldiers, chariots and horses also made of terra-cotta. They were built and buried near the grave of the first Emperor of China, Qin Shi Huang (260-210 BCE) because of the belief that this army would guard the Emperor in the next world. For the Emperor, his contemporaries and builders of this army, this was not a giant work of art but an army, the equivalent of a real army in this world. Photographer: The author.

5.12. Bottom. This Photo was taken by Robin Chen in summer 2005. It shows one of the terra cotta soldiers and his terra cotta horse. © Robin Chen. Wikimedia Commons, Public Domain.

5.13. Jizo statues at Zōjō-ji temple in Tokyo.

In the big garden of this temple there are many sad lines in which each statuette is a tragedy of some mother. Photograph: The author.

5.14. Jizo statues at Zōjō-ji temple in Tokyo.

When I photographed this figurine in the spring of 2011, the woolen clothing in which the figurine was dressed appeared fairly new and the flowers looked completely fresh. These two facts attest that for the temple workers and the mothers who maintain these figurines, take care that they will not feel cold and that they have fresh flowers beside them, these figurines are not works of art but a substitute for the lost baby. Photograph: The author.

5.15. Late 14th-early 15th century icon illustrating the "Triumph of Orthodoxy" under the Byzantine empress Theodora over iconoclasm. Patriarch Methodios I of Constantinople is on the top right, close to the Virgin.

Date: 1375-1425. Source: National Icon Collection (18), British Museum. Author Anonymous. Photographer: Alexandar.R. Wikipedia Public domain.

- 5.16. Destruction of icons in Zurich 1524. Source: "Panorama de la Renaissance" by Margaret Aston. Author: Anonymous. Public domain, Wikimedia Commons.
- 5.17. Top. A statue of Buddha. Credit: Drents Museum.
- 5.18. Bottom. A scan reveals the body of a nearly 1,000-year-old Buddhist monk inside the statue of Buddha. Credit: Drents Museum.
The two images 5.17 and 5.18 are reproduced here by the kind permission of Drents Museum, Holland.
- 5.19. Description: Bernese Collection of the Historisches Museum Bern. Fragments from Berna cathedral, Pietà of a bohemian manufacture (Prague), 1400-10 c.
Date: 22 May 2014, 13:01:40. Source: Own work. Author: Sailko. © Wikimedia Commons
- 5.20. Cathedral of Saint Martin, Utrecht - evidence of former Iconoclasm still in evidence. Date: 2003. Source: Own work. Author: Arktos. © Wikipedia Creative commons
- 5.21. Photo of Turkish tiles, found in Rustempasa Mosque, in Istanbul Turkey. © Stock Images (Dreamstime): Turkish Tiles by Sufi70. ID:4245444.
- 5.22. Tiled entrance into Jame (Friday) mosque in Yazd, Iran. Copyright: Ilia Torlin. © 123RF Stock Photo 6088036.
- 5.23. Nasrid Palace- Alhambra, Granada in Spain. Probably one of the most sophisticated, profound and beautiful works ever done in design. In this work all mindprints or meta-structures of mind are present and in the most spectacular way ever done in design. Copyright: Jacek Cudak. © 123RF Stock Photo 10938349
- 5.24. Top. Fine architectural detail at the Alhambra Palace in Southern Spain. Photographer: Yves Remedios. Source: Flickr. Creative Commons.
- 5.25. Bottom left. Folio from a Koran. Ink, opaque watercolor, and gold on paper. H: 41.1 W: 31.6 cm. Egypt. Date 14th century.
Source <http://www.asia.si.edu/collections/zoom/F1930.57.jpg>
Author: in Mamluk dynasty. Public Domain. {{PD-1923}} Wikimedia Commons.

- 5.26. Bottom right. Artist Unknown. The marriage procession of Dara Shikoh. Illustrated manuscript. Date 1740s. Dimensions Height: 585.8 mm (23.06 in). Width: 380 mm (14.96 in). Current location National Museum, Delhi. Source/Photographer bgHzb-tIM0fEkA at Google Cultural Institute, Wikimedia Commons, Public domain.
- 5.27. The destruction of idols at the Kaaba. Muhammad (top left and mounted at right) is represented as a flaming aureole. From *Hamla-i haydarî* ("Haydar's Battle"), Kashmir, 1808. Source: *Histoire Geographie 5ieme Nathan*. Author Unknown. Wikimedia, Public domain.
- 5.28. The Taller Buddha of Bamiyan before (left picture) and after destruction (right) by the Taliban in March 2001.
To distinguish the two statues, the taller and smaller Buddhas (55 m and 37 m) from each other: Look at the form of the statues niche. The niche of the taller Buddha is much more precise.
Date: 24 October 2009, 14:09 (UTC). Source: Buddha_Bamiyan_1963.jpg Buddhas_of_Bamiyan4.jpg.
Author: Buddha_Bamiyan_1963.jpg: UNESCO/A Lezine; Original uploader was Tsui at de.wikipedia.
Later version(s) were uploaded by Liberal Freemason at de.wikipedia.
Buddhas_of_Bamiyan4.jpg: Carl Montgomery
Derivative work: Zaccarias. Wikipedia, Creative Commons.

Bibliography

- Abas, S. J. (2001). Islamic geometrical patterns for the teaching of mathematics of symmetry [Special issue of Symmetry: Culture and Science]. *Symmetry in Ethnomathematics*, 12(1-2), 53-65. Budapest, Hungary: International Symmetry Foundation.
- Abas, S. J. and Salman, A. S (1995). *Symmetries of Islamic geometrical patterns*. Singapore. World Scientific Publishing Co. Pte. Ltd.
- Alloway, L.(1966). *Systemic Painting*. New York: The Solomon R. Guggenheim Foundation.
- Anthroposophy. (2014). Encyclopædia Britannica. *Encyclopædia Britannica Ultimate Reference Suite*. Chicago: Encyclopædia Britannica.
- Appleyard, B. (1984). *The Culture Club - Crisis in the Arts*. London: Faber and Faber.
- Avital, T. (1992). The Complementarity of Art and Design. In *Emerging Visions: Contemporary Approaches to the Aesthetic Process*, edited by Gerald C. Cupchik and Janos Laszlo. Cambridge, Cambridge University Press, pp. 64-83.
- Avital, T. (1996). Symmetry: The Connectivity Principle of Art. *Symmetry: Culture and Science*. (The Quarterly of the International Society for the Interdisciplinary Study of Symmetry). Vol. 7, No. 1, pp. 27-50.
- Avital, T. (1997a). Mindprints: The Structural Shadows of Mind-Reality? *Symmetry: Art and Science*. (The Quarterly of the International Society for the Interdisciplinary Study of Symmetry). Vol. 8. # 1. Published also electronically by *Visual Mathematics – VISMATH*, The electronic supplement of *Symmetry – International Symmetry Society*, Vol. 1, No, 2, 1999.
<http://members.tripod.com/vismath/> and
<http://www.mi.sanu.ac.yu/vismath/>

- Avital, T. (1997b). Figurative Art Versus Abstract Art: Levels of Connectivity. In *Emotion, Creativity, & Art*, edited by L. Dorfman, C. Martindale, D. Leontiev, G. Cupchik, V. Petrov, & P. Machotka. Perm: Perm Cultural Institute, pp. 134-152. This paper has been published also in the Russian version of this book, see item # 8. 134-152. This paper has been published also in the Russian version of this book.
- Avital, T. (1998a). Footprints Literacy: The Origins of Art and Prelude to Science. *Symmetry: Culture and Science*. (The Quarterly of the International Society for the Interdisciplinary Study of Symmetry). Vol. 9. No. 1. pp. 3-46. Published also electronically by *Visual Mathematics? VISMATH*, The electronic supplement of *Symmetry?* International Symmetry Society, Vol. 1, No. 2, 1999. <http://members.tripod.com/vismath/>
- Avital, T. (1998b). Mindprints: The Structural Shadows of Mind-Reality? *Symmetry: Culture and Science*. (The Quarterly of the International Society for the Interdisciplinary Study of Symmetry). Vol. 9, No. 1. pp. 47-76.
- Avital, T. (1998c). Narrative Thinking in a Structure Oriented Culture. *SPIEL - Siegener Periodicum zur Internationalen Empirischen Literaturwissenschaft*, Universitat - Gesamthochschule Siegen. 16 (1997), H. 1/2, 29-36.
- Avital, T. (2001). The Origins of Art: An Archaeological or a Philosophical Problem? *South African Journal of Art History*, Issue 16, 2001 (34-57).
- Avital, T. (2003). *Art versus Nonart: Art Out of Mind*. Cambridge: Cambridge University Press.
- Batler, M. (2002). Oldest Art: From a modern human's brow--or doodling? Published online by Science on 10 January (www.scienceexpress.org),
- Balter, M. (2009). Early start for human art? Ochre may revise timeline. *Science* 30 January 2009: Vol. 323 no. 5914 p. 569.
DOI: 10.1126/science.323.5914.569.
- Bateson, G. (1978). The Pattern Which Connects. *The CoEvolution Quarterly*, Summer: 4-15.
- Bateson, G. (1980). *Mind and Nature*. New York: Bantam Books.
- Bednarik, R.G. (2003). A figurine from the African Acheulian. *Current Anthropology* 44(3): 405-13.
- Belting, H. (1994). *Likeness and Presence. A History of the Image before the Era of Art*. Translated by Edmund Jephcott. Chicago and London: The University of Chicago Press.

- Besançon, A. (2000). *The forbidden image: An intellectual history of iconoclasm*. Translated by Jane Marie Todd. Chicago and London: The University of Chicago Press.
- Brookes, P. A. (1981). Mizuko kuyō and Japanese Buddhism.. *Japanese Journal of Religious Studies*, 8 (3-4), 119–47.
- Callaway, E. (2015). Oldest stone tools raise questions about their creators. *Nature*, 23 April 2015, Vol 520, p. 421.
- Carey, M. (2010). *The Illustrated Encyclopedia of Islamic Art and Architecture*. London - UAE: Lorenz Books\Anness Publishing Ltd.
- Chevalier, J. and Gheerbrant, A. Chevalier 1994). *The Penguin Dictionary of Symbols*. (First published in France, 1969. Blackwell edition in English 1994. Translated from the French by John Buchanan-Brown). Oxford: Blackwell.
- Christensen, C.C. (1977). Patterns of Iconoclasm in the Early Reformation: Strasbourg And Basel. In Gutmann, J. (Ed.). *The image and the word: Confrontations in Judaism, Christianity and Islam* (pp. 107-148). Missoula, Montana: Scholars Press.
- Cirlot, J. E. (1983). *A Dictionary of Symbols*. London: Routledge & Kegan Paul.
- Copi, I. M. (1961). *Introduction to Logic*. New York: The Macmillan Company.
- Cresswell, K.A.C. (1946). The lawfulness of painting in early Islam. *Ars Islamica*. Vol. 11/12 (1946). Pp. 159-166.
- Das, S. R. (2009). 10 Telescopes that changed our view of the universe. *Scientific American.com*, July 14 2009. DOI: 10.1126/science.323.5914.569.
- de Waal, F. (2001). *The Ape and the Sushi Master: Cultural Reflections by a Primateologist*. Basic Books.
- Deut. 12: 2-3
The Holly Bible. All citations from The Holly Bible are from the Hebrew - English Bible, According to the Masoretic Text and the JPS 1917 Edition.
© 2005 all rights reserved to Mechon Mamre for this HTML version
<http://www.mechon-mamre.org/p/pt/pt0.htm>
- Dewey, J. (1980, originally published in 1934). *Art as experience*. New York: Perigee Books.
- DeLoache, J. S. (2005). Mindful of symbols. *Scientific American*, August 2005, pp. 73-77.

- Ebert, J. (2005). Cuttlefish win mates with transvestite antics. *Nature*, Published online: 19 January 2005; | doi:10.1038/news050117-9.
- Ettinghausen, R. (1977). *Treasures of Asia: Arab Paintings*. New York: Rizzoli International Publications. Inc.
- Exodus 20, Exodus 31, 1-11.tions
The Holly Bible. All citations from The Holly Bible are from the Hebrew - English Bible, According to the Masoretic Text and the JPS 1917 Edition.
© 2005 all rights reserved to Mechon Mamre for this HTML version
<http://www.mechon-mamre.org/p/pt/pt0.htm>
- Fedorov, E. S. (1891a) The symmetry of regular systems of figures], *Proceedings of the Imperial St. Petersburg Mineralogical Society*, series 2, vol. 28, pages 1–146. English translation: David and Katherine Harker (trans.), *Symmetry of Crystals, American Crystallographic Association Monograph No. 7*, Buffalo, N.Y.: American Crystallographic Association.
- Fedorov, E. S. (1891b) "Simmetriya na ploskosti" [Symmetry in the plane, in Russian], *Zapiski Imperatorskogo Sant-Petersburgskogo Mineralogicheskogo Obshchestva* [Proceedings of the Imperial St. Petersburg Mineralogical Society], series 2, vol. 28, pages 245-291.
- Finney, P.C. (1997). Antecedents of Byzantine Iconoclasm: Christian Evidence before Constantine. In Gutmann, J. (Ed.). *The image and the word: Confrontations in Judaism, Christianity and Islam*. (27-48). Missoula, Montana: Scholars Press.
- Fischer, V. (Ed). (1990). *Design Now: Industry or Art?* (Translated by Hans Brill, Munich: Prestel) Distributed in the UK by Thames and Hudson.
- Forest, D. (Ed.). (2014). *The Art of Things: Product Design since 1945*. Slp Edition. Amazon.
- Fraser, J. T. (1975). *Of Time, Passion, and knowledge*. New York, Braziller.
- Frazer, J. G. (1996). *The Golden Bough*. Penguin Books. New York.
- Freedman, H. and Simon, M. (1939). *Midrash Rabbah*, translated into English. In ten volumes. London: The Soncino Press.
- Gelb, I. J. A (1952). *A Study of Writing*. Chicago: The University of Chicago Press.

- Gero, S. (1977). Byzantine iconoclasm and the failure of a medieval Reformation. In Gutmann, J. (Ed.). *The image and the word: Confrontations in Judaism, Christianity and Islam* (pp. 49-62). Missoula, Montana: Scholars Press.
- Gibbons, A. (2009). Of Tools and Tubers. *Science* 1 May 2009: Vol. 324. no. 5927, pp. 588 – 589. DOI: 10.1126/science.324_588b
- Goodman, N. (1968). *Languages of Art*. New York: The Bobbs-Merril Company, Inc.
- Goren-Inbar, N. (1986). A figurine from the Acheulian site of Berekhat Ram. *Mitekufat Haeven: Journal of the Israel Prehistoric Society* 1986. pp. 7-12. Israel Prehistoric Society.
- Gutmann, J. (Ed.). (1977). *The image and the word: confrontations in Judaism, Christianity and Islam*. Missoula, Montana: Scholars Press.
- Gutmann, J. (Ed.). (1977). Antecedents of Byzantine Iconoclasm: Christian Evidence before Constantine. In *The image and the word: Confrontations in Judaism, Christianity and Islam* (pp. 5-26). Missoula, Montana: Scholars Press.
- Halpern, D. F (2000). *Sex Differences in Cognitive Abilities*
Lawrence Erlbaum Associates, Publishers Mahwah, New Jersey.
- Hamill, P. (1995). *Tools as art: The Hechinger Collection*. New York: H. N. Abrams, Inc., Publishers.
- Hassanvand, M. K. (2004). A Survey of Prohibition of Painting in Islam. *J. Humanities* (2004). Vol. 11 (1): (31 - 43).
- Henshilwood, C. S. (2001). An early bone tool industry from the Middle Stone Age at Blombos Cave, South Africa: implications for the origins of modern human behaviour, symbolism and language. *Journal of Human Evolution*, (2001) 41, 631-678.
- Henshilwood, C. S., d'Errico, F., Yates, R., Jacobs, Z., Tribolo, C., Duller, G. A. T., Mercier, N., Sealy, J. C., Valladas, H., Watts, I., Wintle, A. G. (2002). Emergence of Modern Human Behavior: Middle Stone Age Engravings from South Africa. *Science*, Vol. 295, Issue 5558, 1278-1280, February 15, 2002.
- Henshilwood, C. S., d'Errico F., Watts, I. (2009). Engraved ochres from the Middle Stone Age levels at Blombos Cave, South Africa. *Journal of Human Evolution*, Volume 57, Issue 1, July 2009, Pages 27–47.
doi:10.1016/j.jhevol.2009.01.005

- Hochberg, J. and Brooks, V. (1962). Pictorial Recognition as an Unlearned Ability: A Study of One Child's Performance. *American Journal of Psychology*, 75, 624-628.
- Hofstadter, D. R. (1985). *Metamagical Themas: Questing for the Essence of Mind and Pattern*. New York: Basic Books, Inc., Publishers.
- Ihde, D. (1993). *Philosophy of Technology*. New York: Paragon House.
- Jones, W.R. (1977). Art and Christian piety: Iconoclasm in the medieval Europe. In: Gutmann, J. (Ed.). *The image and the word: Confrontations in Judaism, Christianity and Islam* (pp.75-105). Missoula, Montana: Scholars Press.
- Joordens, J.C. A. et al. (2014). Homo erectus at Trinil on Java used shells for tool production and engraving. *Nature*, published online 03 December 2014. doi:10.1038/nature13962.
- Kennedy, J. M. (1975). Drawing was discovered, not invented. *New Scientist*, 67, 523-525.
- Kennedy, J. M. and Ross, A. S. (1975). Outline Picture Perception by the Songe of Papua, *Perception*, 4, 391-406.
- Kittler, R., Kayser, M. Stoneking, M. (2003). Molecular evolution of *Pediculus humanus* and the origin of clothing. *Current Biology*, 13, 1414 – 1417.
- Koestler, A. (1967). *The Ghost in the Machine*. London: Pan Books LTD.
- Kooyman, B. P. (2000). *Understanding Stone Tools and Archaeological Sites*. Calgary: University of Calgary Press. Albuquerque: University of New Mexico Press.
- Kuhn, T. S. (1970). *The Structure of Scientific Revolutions*. Chicago: The University of Chicago Press.
- Lannin, P. and Ek, V. (2011). Ridiculed crystal work wins Nobel for Israeli. Reuters, Science News. Thu Oct 6, 2011 | 10:12am EDT. <http://www.reuters.com/article/us-nobel-chemistry-idUSTRE7941EP20111006>
- Levi-Strauss, C. (1963). *Totemism*. Boston, Beacon Press.
- Lippold, A. (2014). Theodosius I. In *Encyclopædia Britannica. Encyclopædia Britannica Ultimate Reference Suite*. Chicago: Encyclopædia Britannica.
- Lorenzi, R. (2015). Mummified Monk Sits Inside Ancient Buddha Statue. <http://news.discovery.com/history/archaeology/mummified-monk-sits-inside-ancient-buddha-statue-150223.htm>

- Lovett, R. (2010). Butchering dinner 3.4 million years ago. Published online 11 August 2010 | Nature | doi:10.1038/news.2010.399.
- Man, J. (2007). *The Terracotta Army: China's First Emperor and the Birth of a Nation*. London: Bantam Books.
- Mango, C. (1972). *The Art of the Byzantine Empire 312-1453*. Englewood Cliffs, NJ.
- Maré A. E. 2011. The Biblical account of Moses receiving the Tables of the Law and a pictorial interpretation of the event by Jacopo Tintoretto, *South African Journal of Art History* 26(1): 67-73.
- Maseko, A. N. (2008). *Church Schism and Corruption, Book 1*. Google books, <https://books.google.co.il/books?isbn=140928705X>
- McGrew, W. C. (1992). *Chimpanzee Material Culture: Implications for Human Evolution*. Cambridge: Cambridge University Press.
- Medieval Sourcebook: Iconoclastic Council, 754. Epitome of the definition of the iconoclastic conciliabulum, held in constantinople, a.d. 754. <http://legacy.fordham.edu/halsall/source/icono-cncl754.asp>
- Mehringer, P. J. Jr. (1988). Weapons of Ancient Americans. *National Geographic*, October 1988, p. 500-503.
- Michalski, S. (1993). *Reformation and the Visual Arts: The Protestant Image Question in Western and Eastern Europe*. New York: Routledge.
- Midrash Rabbah, Rabba Genesis. https://archive.org/stream/RabbaGenesis/midrashrabbahgen027557mbp_djvu.txt
- Mithen, S. (1996). *The prehistory of the mind*. London: Thames and Hudson.
- Mondrian, P. (1926). Purely Abstract Art. In Holtzman, H. and James, M.S. (1993) (Eds). *The New Art-The New Life. The Collected Writings of Piet Mondrian* (pp.198-201). New York: Da Capo Press.
- Mureika, J. Dyer, C.C. Cupchik, G.C. (2005). Multifractal structure in nonrepresentational art. *Physical Review e* 72, 046101, 2005. DOI: 10.1103/PhysRevE.72.046101.
- Munari, B. (2008). *Design as Art*. Penguin Global.
- Nagy, D. (2000). The relationships of mathematics and art: Symmetry and the Alhambra, In: *Alhambra 2000*, Granada, Spain: University of Granada.

- Nimrud. (2015. March. 6) In Wikipedia. Retrieved March 6, 2015, from http://en.wikipedia.org/wiki/Nimrud#Treasure_of_Nimrud
- Pamuk, O. (2001). *My name is red*. Translated by Erdağ. M. Göknar London: Faber and Faber.
- Peirce, C.S., 1998 [1933]. *The Essential Peirce: Selected Philosophical Writings*. Indiana University Press, Bloomington.
- Plato, *Republic*, in: *The Dialogues of Plato*, Translated into English by Jowett. B. (1937). New York: Random House.
- Quran, 7:148-150
- Pólya, G (1924) "Über die Analogie der Kristallsymmetrie in der Ebene," *Zeitschrift für Kristallographie*, vol. 60, pages 278–282.
- Rice, T. D (1986). *Islamic Art*. Artes Graficas Toledo, Thames and Hudson.
- Roochnik, D. (1996). *Of Art and Wisdom. Plato's Understanding of Techne*. Pennsylvania: The Pennsylvania State University Press.
- Russell, B. [1959] (1985) *My Philosophical Development*. Unwin Paperbacks, London.
- Scharf, A. (1981). *Suprematism*. In Stangos, N. (Ed.). *Concepts of Modern Art*. Revised and enlarged edition. London: Thames and Hudson.
- Semaw, S. (2000). The World's Oldest Stone Artefacts from Gona, Ethiopia: Their Implications for Understanding Stone Technology and Patterns of Human Evolution Between 2.6–1.5 Million Years Ago. *Journal of Archaeological Science*, Volume 27, Issue 12, December 2000, Pages 1197–1214. DOI: 10.1006/jasc.1999.0592.
- Spalding, J. (2003) *The Eclipse of Art: Tackling the Crisis in Art Today*. London: Prestel Publishing Ltd.
- Spinka, M. and Bartoš, F.M. (2014), Hus, Jan. In *Encyclopædia Britannica*. *Encyclopædia Britannica Ultimate Reference Suite*. Chicago: Encyclopædia Britannica.
- Stacey, J. (2014). Wycliffe, John. In *Encyclopædia Britannica*. *Encyclopædia Britannica Ultimate Reference Suite*. Chicago: Encyclopædia Britannica.
- Suprematism. (2014). *Encyclopædia Britannica*. *Encyclopædia Britannica Ultimate Reference Suite*. Chicago: Encyclopædia Britannica.

- Taylor, R.P. Spehar, B. Van Donkelaar, P. Hagerhall, C. M. (2011). Perceptual and Physiological Responses to Jackson Pollock's Fractals. *Front Hum Neurosci.* 2011; 5: 60. Published online 2011 Jun 22. doi: 10.3389/fnhum.2011.00060
PMCID: PMC3124832
- The Holly Bible. All citations from The Holly Bible are from the Hebrew - English Bible, According to the Masoretic Text and the JPS 1917 Edition. © 2005 all rights reserved to Mechon Mamre for this HTML version
<http://www.mechon-mamre.org/p/pt/pt0.htm>
- Thompson, H.(2014) Zigzags on a Shell From Java Are the Oldest Human Engravings. *Smithsonian.com*, December 3, 2014.
<http://www.smithsonianmag.com/science-nature/oldest-engraving-shell-tools-zigzags-art-java-indonesia-humans-180953522/?no-ist>
- Viegas, J. 2014. Oldest Art Was Carved Onto Shell 540,000 Years Ago. *Discovery News on line*, Dec 3, 2014.
- Walker, J. A. (1992, third edition). *Glossary of Art, Architecture and Design Since 1945*. London: library Association Publishing Ltd.
- Weinberg, J. Abstraction in the Formation of Concepts. in *Dictionary of the History of Ideas*. Charles Scribner's Sons, New York, 1973, Vol 1 pp. 1-9.
- Welch, A. (1977). Epigraphs as icons: the role of the written word in Islamic art. In Gutmann, J. (Ed). (1977). *The image and the word: confrontations in Judaism, Christianity and Islam*. Missoula, Montana: Scholars Press. pp. 63-75.
- Welch, S.C. (1972). *A King's Book of Kings. The Shah-Nameh of Shah Tahmasp*. New York: The Metropolitan Museum of Art New York
- Wheeler, J. A. (1982). Bohr, Einstein, and the Strange Lesson of the Quantum. In Elvee, R. Q. (Ed.) *Mind in Nature*. New York: Harper & Row, Publishers.
- Whitfield, J. (2002). Art history doubles. Published online 11 January 2002 | *Nature* | doi:10.1038/news020107-11
- Whitfield, J. (2003). Garments appeared 70,000 years ago, suggests parasite DNA. Published online 20 August 2003 | *Nature* | doi:10.1038/news030818-7.
- Witelson, S. F. (1976). Sex and the single hemisphere: Specialization of the right hemisphere for spatial processing. *Science*, 193, 425-427.

Wynn, T. (1995). Layers of thinking in tool behavior. In – Gibson, K. R. and Ingold, T. (Eds.). *Tools, Language and Cognition in Human Evolution*. Cambridge: Cambridge University Press. pp. 389-407.

Wynn, T. and Coolidge, L.. (2004). The expert Neanderthal mind. *Journal of Human Evolution* 46 (2004) 467-487.

Index

A

- a priori condition, 115
- Abas, S. J., 395
- Abraham, 312
- abstract expressionism, 32, 386
- abstract expressionist, 32, 201
- abstract geometry, 29
- abstraction, 7, 18, 19, 24, 25, 27, 29, 32, 35, 56, 57, 60, 65, 66, 70, 136, 154, 161, 171, 193, 194, 198, 211, 216, 227, 228, 247, 249, 263, 270, 285, 293, 294, 350, 352, 369, 385
- action painting, 32
- aesthetic experience, 186
- aesthetic value, 55, 246
- aesthetics, 12, 30, 34, 70, 129, 150, 151, 173, 186, 187
- Agobard of Lyons, 341
- Al-Aqsa, 349
- Albers, 108
- Alhambra, 347, 348, 351, 357, 379, 392, 401
- Alloway, L., 395
- alphabetic writing, 144
- ambiguity, 169, 222, 239, 290, 308, 341
- Amish, 325
- analytic, 18, 216, 217, 294, 296, 389
- analyzers, 83, 85
- Andrea Pisano, 178
- aniconic, 305, 324, 335, 361, 366
- animal art, 183, 193, 200, 201
- animals, 25, 37, 38, 39, 59, 60, 79, 97, 104, 108, 115, 119, 124, 134, 137, 145, 155, 161, 162, 185, 186, 193, 196, 198, 201, 202, 203, 210, 216, 225, 227, 247, 274, 350, 357, 366, 371, 391
- Anish Kapoor, 186, 188, 383
- anthropology, 122
- anthropomorphic, 121, 122, 136, 137
- Anthroposophy, 25
- Anti-functional design, 52, 377
- antinomy, 66, 244
- apes, 113, 199, 210
- aphaeresis, 18
- applicative, 27, 214
- arabesques, 347
- Arch of Titus in Rome, 317
- architecture, 24, 27, 54, 91, 96, 97, 102, 139, 172, 195, 206, 207, 211, 269, 276, 298, 307, 319, 348, 349, 366, 379
- Aristotelian, 198, 277
- Aristotle, 18, 111, 116, 276
- Armand, 181, 182
- art critics, 182, 185
- art dealers, 12
- Art Nouveau, 272
- art of the future, 21, 36, 279, 284
- Arthur Koestler, 252
- artificial intelligence, 106, 368
- artistic value, 87, 130, 132, 164, 182, 225, 236, 287
- Asa king of Judea, 313
- Avital, 1, 5, 3, 7, 11, 17, 18, 21, 27, 34, 36, 54, 70, 108, 112, 119, 122, 128, 149, 158, 187, 194, 199, 206, 280, 301, 352, 355, 367, 373, 374, 377, 380, 395, 396

B

Babylon, 316

Bartoš, E.M., 402
 basic research, 173
 Bateson, G., 396
 Batler, M., 396
 Bauhaus, 27, 130, 276
 beauty, 24, 25, 129, 142, 164, 186, 187,
 212, 329, 348, 351
 Bednarik, R.G., 396
 beginning of art, 151
 behaviorism, 12
 behaviorist art, 12
 behaviorists, 115
 Being, 111, 116, 122, 127, 129, 144, 339,
 353, 355
 Belting, H., 396
 Bertrand Russell, 66, 244
 Besançon, A., 304, 397
 Bezalel the son of Uri, 315
 Bible, 312, 313, 316, 318, 356, 390, 403
 Big Bang, 36
 bilateral symmetry, 119
 birth of design, 75
 Bishop Serenus of Marseilles, 336
 Blombos, 120, 151, 153, 156, 157, 158,
 161, 162, 381, 399
 body art, 135
 body decoration, 91, 121, 157, 158, 206
 body-tools, 69, 72, 87, 88, 90, 96, 97,
 102, 107, 108, 109, 112, 202, 307
 Boethius, 18
 Boko Haram, 357
 Botticelli, 13, 24, 58, 185, 212
 bowerbirds, 196
 brain-tools, 20, 55, 56, 69, 71, 72, 74,
 76, 87, 89, 96, 98, 102, 103, 104, 105,
 106, 107, 108, 109, 111, 113, 126, 130,
 132, 134, 135, 170, 175, 178, 182, 188,
 202, 204, 205, 232, 237, 241, 246, 306,
 307, 351, 356
 Brookes, P. A., 397
 Brooks, V., 400
 Buddhas of Bamyan, 364
 Buddhist, 332, 392

Byzantine, 330, 338, 349, 391, 398, 399,
 401
 Byzantine iconoclasm, 338
 Byzantium, 338

C

caliph Abd al-Malik, 352
 Callaway, E., 397
 calligraphy, 347, 351, 352
 camouflage, 5, 37, 39, 375, 376
 Canaanite idols, 312
 Carey, M., 350
 Carl Djerassi, 214
 Catholicism, 324
 Chaim Soutine, 187
 chaotic processes, 184
 Chevalier and Gheerbrant, 30
 Chevalier, J., 397
 chimpanzees, 84, 115, 119, 196, 199
 Chimps, 210
 choice, 113, 126, 128, 150, 172, 271,
 280, 356
 Christensen, C.C., 397
 Christianity, 226, 237, 304, 305, 306,
 307, 311, 324, 330, 332, 335, 336, 338,
 339, 341, 343, 347, 352, 364, 366, 371,
 372, 397, 398, 399, 400, 403
 Christo, 183, 307
 Church of the Nativity, 306
 Cirlot, 30, 397
 Claes Oldenburg, 186, 190, 383
 classification, 13, 14, 34, 55, 57, 89,
 114, 121, 134, 190, 202, 241, 309, 386
 classificatory function, 56
 class-name, 63, 65, 69, 88, 146, 154,
 164, 207, 226, 235, 239, 287, 351
 Claudius of Turin, 341
 Clive Christian, 236
 closed endedness, 226
 closed-ended, 126, 228, 251, 287, 292,
 296, 297, 330
 clothes, 87, 89, 165, 185, 228, 239, 241,
 315, 367, 379, 387, 389

- clothing, 52, 87, 88, 91, 94, 107, 173,
 206, 298, 316, 391, 400
 Cloud Gate, 188, 383
 code, 13, 90, 91, 94, 96, 97, 156, 198,
 236, 237, 241, 318
 Code of Jewish Law, 318
 coding-decoding system, 20, 199
 cognitive, 6, 18, 37, 52, 54, 57, 60, 61,
 65, 84, 105, 113, 115, 119, 123, 127,
 137, 142, 149, 150, 156, 158, 162, 198,
 202, 204, 210, 211, 216, 217, 225, 230,
 231, 234, 235, 236, 239, 246, 252, 263,
 272, 276, 278, 283, 284, 294, 296, 297,
 298, 307, 351, 385, 386
 commercialization of art, 39
 common denominator, 7, 18, 65, 84,
 89, 97, 102, 107, 121, 130, 136, 154,
 184, 191, 204, 210, 270, 275, 280, 351,
 368
 communication, 55, 74, 104, 105, 113,
 170, 195, 205, 207, 227, 301
 comparison, 5, 7, 123, 247, 269, 291,
 352
 Comparison-Imparison, 123, 356
 Complementarity - Mutual
 Exclusiveness, 111, 116, 353, 356
 complementary, 18, 106, 112, 116, 120,
 293, 294, 296, 297, 298, 301, 327, 328,
 351, 355, 366, 381
 completeness, 61, 251
 computerization, 282, 283, 284
 conceptual nodes, 88
 conceptual thinking, 21, 60, 309, 311,
 369
 concretization, 207, 284, 351
 connecting tools, 74, 83, 85, 114
 connectivity, 55, 114, 115, 116, 120,
 125, 202, 237, 241, 247, 249, 250, 263,
 294, 296, 298, 351, 356, 385
 connectivity-disconnectivity
 complementarity, 115
 connectors, 74, 79, 237
 consciousness, 79, 87, 88, 105, 106,
 183, 190, 211, 212, 220, 222, 225, 230,
 231, 232, 241, 297, 298, 299, 349
 Constantine, 335, 338, 398, 399
 Constantine V, 338
 Constantine VI, 338
 Consumer culture, 369
 consumption, 299
 containers, 74, 79, 80, 84, 96, 97, 114,
 123, 206, 230
 contingent order, 269
 contour, 13
 Coolidge, L, 404
 Copernicus, 277, 372
 Copi, I. M, 397
 Costume Institute, 89
 Council of Hieria, 338
 creativity, 60, 90, 105, 127, 139, 183,
 185, 186, 203, 297
 Creswell, K.A.C., 397
 crows, 196, 210
 Cubism, 278
 Cubists, 21
 Cultural reduction, 10
 cultural regression, 368
 culture, 6, 7, 8, 9, 10, 12, 14, 17, 18, 20,
 21, 25, 30, 32, 34, 36, 37, 55, 61, 72,
 75, 79, 84, 87, 89, 104, 105, 106, 107,
 111, 112, 119, 120, 127, 135, 136, 137,
 139, 140, 141, 147, 148, 149, 150, 151,
 158, 162, 165, 171, 172, 174, 183, 185,
 187, 190, 198, 199, 214, 217, 222, 249,
 274, 280, 281, 293, 296, 297, 299, 304,
 305, 311, 318, 319, 324, 325, 329, 349,
 351, 352, 357, 364, 366, 368, 369, 370,
 380, 386
 Cyril Mango, 308

D

- Dan Shechtman, 9
 Daniel Berset, 190, 377
 Daoism, 116, 117
 Das, S. R, 397

De Stijl, 24, 27, 29
 de Waal, F, 397
 deconstructive, 21
 deductive, 211
 degrees of freedom, 56, 125, 127, 225, 292
 DeLoache, J. S., 397
 demarcation lines, 11
 Democritus, 136, 263
 denominations, 306, 310, 324, 361
 d'Errico, F, 399
 Determinism - Indeterminism
 (Probability, Selection, Choice), 111, 126, 353
 Deuteronomy, 316
 devolution, 202
 Dewey, J, 397
 differentiation, 11, 88, 89, 142, 216, 217, 230, 241
 Discovery News, 403
 discrete, 105, 227, 252, 255, 257, 269
 disguise, 36, 37, 39, 52, 376
 disorder, 125, 184, 201
 disposability, 91, 281
 disposable, 214, 278, 281, 282, 299
 disposable culture, 299
 dissectors, 74, 76
 Dome of the Rock, 349
 Duality between symbol and symbolized, 65
 Duchamp, 12, 17, 21, 36, 39, 52, 87, 90, 132, 182, 203, 278, 380
 Duchamp's Syndrome, 36, 37, 39, 52, 87, 90
 Duck-Rabbit illusion, 327
 Duomo in Florence, 178

E

E. S. Fedorov, 348
 Ebert, J, 398
 Ebert, J., 398
 economic value, 6, 217, 220, 225, 235, 236, 367, 369

Edwin Hubble, 187, 263
 Eidos, 144, 148
 Einstein, 12, 14, 90, 187, 276, 277, 278, 357, 403
 Einstein's theory of relativity, 14
 elimination, 18, 24, 65, 69, 154, 161
 Emanuel Kant, 14
 emotions, 104, 288
 Emperor Charlemagne, 341
 Emperor of China, Qin Shi Huang, 331, 391
 empirical, 122, 149, 150, 202, 217, 263, 294, 296
 Empress Irene, 338
 energy, 14
 epigraphs, 352
 Epiphanius of Salamis, 335
 epistemology, 106, 129
 Erasmus, 19, 389
 eroticism, 24
 Ettinghausen, R., 398
 Eugene Rabkin, 90
 Eusebius of Caesarea, 335
 exemplification, 285
 Exodus, 303, 308, 312, 315, 316, 318
 experiential, 109, 307
 expression, 13, 24, 25, 27, 32, 60, 75, 88, 105, 120, 130, 136, 137, 156, 163, 171, 184, 198, 207, 231, 232, 280, 281, 287, 290, 308, 309, 351, 355, 365, 366
 Expressionists, 12
 expressiveness, 55
 extended intelligence, 106, 368
 extension of the skin, 87, 91
 extensity, 250
 externalization, 55, 108, 234, 279, 284
 externalizations of images, 234

F

faith, 25, 309, 327, 336, 339, 342, 351, 364, 366

fashion, 27, 36, 54, 55, 74, 87, 89, 90,
91, 97, 102, 108, 113, 195, 207, 211,
214, 269, 276, 277, 279, 298, 307, 379
fashion design, 89, 298
Fedorov, E. S., 398
feelings, 1, 5, 7, 8, 104, 106, 137, 332
fictitious, 14
figurine from Berekhath Ram, 159, 384
figurine from Tan-Tan, 159
Finney, P.C., 398
first-order reality, 14, 72, 88, 96, 98,
104, 106, 108
Fischer, V., 398
Fish-kettle, 188, 383
Florence Baptistery, 178
Forest, D., 190, 398
form, 3, 10, 11, 12, 17, 18, 20, 24, 30, 38,
39, 54, 55, 58, 65, 90, 104, 111, 113,
115, 120, 124, 125, 126, 132, 135, 136,
144, 158, 163, 171, 192, 196, 198, 202,
203, 204, 205, 206, 276, 280, 284, 293,
305, 331, 348, 351, 357, 361, 371, 376,
393
formula is a formal generalization, 14
Found Art, 17, 284
fractal geometry, 170
fractal structures, 163, 169
Francis Bacon, 187, 276
Fraser, J. T., 398
Frazer, J. G., 398

G

Galileo, 90, 122, 187, 276, 277, 372
Gauguin, 272, 387
Gelb, I. J. A., 398
generalization, 13, 17, 18, 19, 24, 25,
27, 29, 34, 55, 57, 61, 63, 65, 66, 69,
79, 105, 108, 122, 132, 134, 136, 145,
146, 154, 156, 161, 164, 171, 187, 198,
206, 211, 217, 227, 230, 247, 249, 250,
251, 263, 277, 285, 293, 327, 335, 350,
367

geometric ornamentation, 347, 352,
355
geometric patterns, 154, 347, 352
Gero, S., 399
Gerrit Rietveld, 27
Gheerbrant, A., 397
Gibbons, A., 399
God, 25, 141, 305, 309, 312, 313, 315,
316, 324, 327, 335, 341, 350, 355, 361,
365, 366, 372
Golden Calf, 222, 312, 385, 390
Goodman, N., 399
Goren-Inbar, N., 399
Goya, 21
Grand Ise Shrines, 306, 307
Grand Mosque in Mecca, 306
graphic common denominator, 13
graphic design, 12, 17, 27, 32, 36, 55,
102, 108, 109, 135, 152, 153, 158, 161,
162, 163, 165, 170, 186, 195, 199, 202,
203, 206, 207, 211, 234, 272, 277, 298,
301, 318, 347, 351, 357, 376
Great Schism of Christianity, 324
Greco-Roman gods, 330
Greek philosophy, 145, 355
grindstones, 83, 85
grouping, 55, 60, 84, 121, 134, 190, 198,
241
groupings, 14
Guggenheim Museum, 255
Gutmann, J., 399

H

H.G. Wells', 30
Hadith, 355
Hamill, P., 399
hand tools, 72, 204, 232
Hans Holbein, 19, 389
Harold Koda, 90
Hatra, 364
Hebrew University of Jerusalem, 8
Hechinger Collection, 182, 399
Hellenistic, 142, 318, 349

Hellenistic-Roman, 318
 Henry VIII, 19
 Henshilwood, C. S, 399
 Heraclitus, 116
 hierarchic structure, 35, 36
 hierarchy, 20, 35, 72, 84, 88, 94, 106,
 111, 124, 125, 144, 146, 155, 156, 159,
 166, 184, 199, 227, 237, 247, 275, 294,
 353, 356, 378
 Hierarchy - Randomness, 111, 124, 353
 Hochberg, J, 400
 Hofstadter, D. R, 400
 Holbein, 19, 389
 holiness and art are mutually
 exclusive, 305
 holon, 66, 69, 252, 255, 387
 holy, 303, 304, 305, 306, 315, 316, 319,
 325, 338, 351, 364
 hominids, 74, 104, 107, 113, 114, 115,
 119, 158, 206, 352
 Homo Erectus, 158
 Homo habilis, 113
 Homo sapience, 153
 homology, 121, 136
 hot pants, 214
 Huldrych Zwingli, 343
 humanism, 344
 hunters-gatherers, 79
 Hussitism, 343
 hypothesis, 13, 230, 234, 235, 255, 263
 hypothetical, 14

I

iconoclasm, 304, 305, 308, 309, 310,
 311, 312, 324, 325, 330, 338, 342, 347,
 361, 364, 365, 366, 391, 392, 397, 398,
 399, 400
 iconoclasts, 304, 335, 338, 341, 342,
 343, 364
 iconodulism, 324, 325, 330, 336, 341,
 342
 iconography, 310
 icons, 303, 304, 305, 308, 309, 310, 315,
 325, 327, 329, 330, 338, 339, 344, 352,
 361, 365, 366, 391, 392, 403
 idealization, 61, 65, 69, 250, 285, 329,
 350
 Ideas, 27, 136, 144, 403
 ideographs, 144
 idiosyncrasies, 14, 130, 287
 idol worship, 304, 305, 307, 313, 316,
 318, 342, 366
 idolatry, 305, 309, 312, 313, 324, 331,
 335, 336, 338, 341, 342, 344, 364, 365
 idols, 304, 307, 309, 312, 338, 341, 361,
 390, 393
 Ihde, D, 400
 image making, 59, 60, 202, 293, 355
 images, 13, 17, 29, 55, 59, 60, 61, 65, 69,
 74, 87, 104, 107, 108, 111, 113, 115,
 116, 119, 120, 123, 125, 126, 127, 135,
 137, 145, 146, 153, 154, 156, 158, 162,
 183, 202, 204, 206, 207, 211, 212, 217,
 228, 230, 232, 234, 235, 241, 249, 263,
 277, 279, 282, 283, 284, 285, 287, 291,
 292, 293, 294, 296, 297, 298, 305, 308,
 309, 310, 311, 313, 316, 318, 324, 325,
 330, 332, 335, 338, 339, 341, 342, 349,
 355, 361, 374, 377, 382, 385, 386, 392,
 397, 398, 399, 400, 403
 images are proto-symbols, 104
 imaging, 241, 285, 287, 290, 292, 301,
 343
 imitation, 27, 35, 141, 144, 146, 148,
 287
 impermanence, 281
 implicative, 27, 87, 212, 384
 implicit information, 263
 Impressionism, 184, 187, 211, 278, 344,
 367
 Impressionists, 12, 21, 183
 inclusion relations, 79, 116, 227, 228,
 230, 255, 269, 356, 385
 inclusion-exclusion, 79, 84, 206
 incommensurability, 277
 individualism, 14

inductive, 211
 industrial design, 1, 12, 54, 97, 102,
 105, 186, 190, 195, 207, 211, 269, 279,
 298, 299, 307
 Industrial Revolution, 367
 innate, 106, 112, 114, 115, 119, 121,
 127, 150, 206, 210, 270
 innate organizational principles, 210
 innate organizational structures, 106,
 121
 inner space, 30, 79, 116, 123, 206
 innovation, 184, 225, 277, 281
 inside-outside, 79
 installations, 281
 instrumental, 61, 74, 105, 115, 137,
 181, 186, 188, 202, 204, 206, 210, 211,
 225, 246, 250, 252, 272, 283, 294, 296,
 297, 298, 307, 377
 intelligence, 36, 112, 296
 interconnectedness, 227, 271
 interior design, 1, 102, 109, 195, 207,
 298
 International Arts & Artists (IA&A).,
 183
 interpretation, 7, 14, 20, 35, 106, 112,
 145, 149, 151, 153, 158, 161, 162, 207,
 241, 275, 290, 306, 308, 319, 327, 329,
 350, 355, 361, 364, 401
 interrelatedness, 255
 invariant, 125
 invention of printing, 21, 106, 311, 369
 Iraq, 305, 361, 364
 Isfahan Mosque, 347, 357
 ISIS, 305, 357, 361, 364, 372, 395, 396
 Islam, 226, 237, 304, 305, 307, 324, 344,
 347, 348, 349, 350, 355, 361, 365, 366,
 368, 372, 397, 398, 399, 400, 403
 Islamic art, 305, 347, 348, 350, 351, 361,
 372, 403
 Israel, 1, 3, 9, 90, 305, 312, 313, 318,
 319, 324, 330, 371, 373, 378, 380, 384,
 390, 399
 Iziko South African Museum, 151

J

James Joyce's *Ulysses*, 272
 Jan Hus, 342, 372
 Jasper Johns, 17
 Jewish art, 305, 319
 Jewish law, 319
 John Calvin, 343
 John Dewey, 186
 John Hechinger, 182
 John Wycliffe, 342
 Jones, W.R., 400
 Joordens, J.C. A., 400
 Joshua, 3, 312
 Judaism, 226, 237, 304, 305, 307, 312,
 313, 318, 324, 343, 348, 364, 366, 371,
 397, 398, 399, 400, 403

K

Ka'aba, 361
 Kandinsky, 12, 17, 18, 21, 30, 35, 70,
 278, 373
 Kant, 14, 90, 187, 357
 Kant's *Critique of Pure Reason*, 14
 Kantian philosophy, 206
 Kapoor, 188, 383
 Karel Appel, 184
 Kayser, M., 400
 Kennedy, J. M., 400
 Kepler, 187, 277
 kinetic sculpture, 103
 King David, 316
 King Herod, 316
 King Hezekiah of Judea, 313
 King Josiah, 313, 316
 King Solomon, 316
 Kittler, R., 400
 Koestler, A., 400
 Kooyman, B. P., 400
 korismos, 18
 Kuhn, T. S., 400

L

language, 12, 13, 17, 19, 21, 24, 55, 56,
57, 58, 66, 74, 79, 84, 90, 96, 104, 105,
107, 113, 121, 135, 141, 145, 146, 148,
153, 155, 156, 161, 164, 184, 188, 191,
198, 199, 202, 203, 206, 210, 217, 226,
227, 231, 232, 234, 235, 236, 237, 244,
246, 255, 269, 270, 271, 272, 279, 280,
281, 285, 294, 296, 329, 351, 352, 366,
389, 399

Lao-Tzu, 117, 128

L'Art Trouvé, 17

Lawrence Alloway, 255

layering, 15, 19, 35, 39, 88, 139, 183,
237

learning, 20, 104, 114, 115, 150, 199,
290

Leo III, 338

Leonardo da Vinci, 175

level of abstraction, 19, 24, 136, 211,
217, 270

levels of order, 35, 228, 230, 281

levels of organization, 35, 269

Levi-Strauss, C, 400

Libri Carolini, 341

Licinius, 335

lines of demarcation, 10

linguistic generalization, 13

linguistic symbols, 11

linguistics, 122

Linus Pauling, 9

Lippold, A, 400

literature, 6, 34, 107, 125, 192, 198, 263,
272, 273, 309, 319, 365, 372

Living Buddha, 339

logical types, 178

Lorenzi, R., 400

Lorenzo Ghiberti, 178

Louis Genève, 190, 377

Lovett, R., 401

Lucian Freud, 187

M

magic, 60, 137, 350

magical, 59, 60, 121, 137, 139, 204, 239,
304, 324, 339, 364, 386

Magritte, 15, 169, 183, 207, 211, 212,
231, 234, 351, 377, 384, 385

Maimonides, 318

maker of images, 284

Malevich, 21, 29, 30, 35, 108, 165, 374

Man, J., 401

Mango, 308, 401

Marc Chagall, 319

Maré A. E, 401

Martin Luther, 343

Mary, 214, 310, 325, 329

Mary Quant, 214

Maseko, A. N, 401

mass, 14

mass culture, 369

mathematics, 30, 107, 125, 154, 165,
170, 171, 186, 198, 244, 271, 327, 348,
382, 395, 401

McGrew, W. C, 401

meaning, 14, 18, 19, 25, 27, 30, 34, 56,
57, 63, 70, 91, 96, 97, 104, 106, 125,
141, 142, 144, 149, 154, 155, 161, 174,
192, 198, 199, 202, 226, 230, 237, 239,
241, 250, 251, 252, 263, 269, 271, 277,
278, 287, 290, 291, 306, 311, 327, 332,
347, 352, 369, 386

Mecca, 361

mechanistic, 88, 178, 252

Medieval Sourcebook: Iconoclastic
Council, 754, 401

Mehringer, P. J. Jr, 401

Mel Byars, 3, 273, 301

mental template, 126

metaphor, 230, 231, 232, 234, 298, 385

metaphorical, 228, 230

metaphorization, 60, 207, 232, 298

meta-symmetry, 204

Metropolitan Museum of Art in New
York, 89

Michaelangelo's Pieta, 325
 Michalski, S, 401
 Michelangelo, 58, 325, 327, 329, 376,
 382, 390
 Middle Ages, 142, 311, 341
 Midrash Rabbah, 312, 401
 mindprints, 36, 111, 112, 113, 114, 115,
 116, 119, 120, 125, 127, 135, 136, 210,
 270, 292, 294, 298, 351, 352, 353, 355,
 392, 395, 396
 mindprints theory, 355
 mind-reality, 72, 106, 111, 112, 166, 353
 mind-tools, 69, 72, 112
 minimalism, 24, 272
 Minimalist, 272
 minimalist streams, 32
 miniskirt, 214, 298, 384
 Mithen, S., 401
 Mizu-ko, 332
 Mizuko kuyō, 332, 397
 modern art, 8
 modernism, 8, 9, 11, 12, 13, 17, 20, 21,
 30, 34, 35, 52, 55, 57, 58, 60, 165, 192,
 272, 273, 275, 276, 278, 280, 281, 284,
 307, 344, 366, 367
 Modigliani, 272, 276
 Mohammed, 350
 Mondrian, 12, 17, 18, 21, 24, 25, 27, 35,
 108, 154, 165, 211, 212, 214, 278, 374,
 380, 401
 monotheism, 91, 304, 305, 307, 309,
 312, 318, 324, 336
 monotheistic, 88, 247, 304, 307, 309,
 310, 311, 312, 324, 361, 365, 366
 monotheistic religions, 88, 304, 307,
 309, 310, 311, 312, 324, 361, 365, 366
 mortar and pestle, 74, 83, 85, 114
 Moses, 305, 312, 315, 401
 Muhammad, 361, 372, 393
 Munch, 25, 212, 236, 287, 389
 Mureika, J, 401
 music, 195, 198, 273, 291
 mutual exclusiveness, 116, 309
 mythology, 121, 136, 325

N

Nagy, D, 401
 Narcissus, 59
 natural design, 196, 198, 202, 203
 naturalistic art, 27
 Nazism, 237, 357
 Nebuchadnezzar the Second, 316
 necessary and sufficient conditions, 12
 Neo-Classical, 344
 Neoplasticism, 25
 nesting, 84, 230, 271, 378
 Newman, 35
 Newton, 90, 187, 276, 277, 278
 Niabi Zoo, 201, 383
 Nicene Council, 341
 Niels Bohr, 117, 326
 Nimrud, 364, 402
 noetic, 63, 65, 104, 247, 249
 noetic time, 65, 247, 249
 nonart, 10
 non-representational art, 54
 notation, 204
 notator, 204
 novelty, 183, 185

O

objectification, 292
 Oholiab the son of Ahisamach, 315
 Old Testament, 324
 ontology, 106, 129
 Op Art, 108
 Open endedness - Closed endedness,
 111, 126, 353
 open-ended, 126
 open-endedness, 55, 60, 203, 225, 226,
 231, 232, 250, 296, 297, 369
 order, 1, 3, 7, 8, 10, 13, 14, 15, 20, 30,
 63, 65, 69, 72, 74, 80, 87, 89, 96, 98,
 102, 103, 104, 106, 108, 111, 113, 115,
 116, 119, 122, 123, 124, 125, 130, 132,
 134, 135, 136, 148, 155, 159, 162, 165,
 173, 174, 178, 181, 182, 183, 188, 193,

196, 201, 204, 217, 227, 231, 244, 269,
271, 272, 288, 291, 292, 296, 298, 301,
306, 309, 310, 311, 316, 318, 327, 330,
331, 335, 339, 341, 344, 348, 356, 365,
370, 371, 373, 375, 386, 388, 389
organismic, 88, 178, 252, 257
organismic-systemic, 88
organized ambiguity, 222, 290
ornamentation, 341, 347, 348, 349, 351,
355
Orthodox Church, 336
over complexity, 32
over simplicity, 32

P

pagan cultures, 304
Painting, 127, 148, 182, 191, 285, 290,
399
Pamuk, O, 402
paradigm, 9, 12, 13, 21, 30, 91, 149, 173,
185, 187, 272, 274, 275, 276, 277, 278,
279, 280, 281, 282, 284, 290, 292, 344,
367, 368, 369
paradigmatic, 274, 278
Parmenides, 116
Particular versus class-name, 63
particulars, 17, 88, 165, 235
pattern, 56, 153, 157, 161, 163, 204,
351, 355, 388
Peirce, C.S., 402
people of Israel, 305, 312, 313, 315, 318
perception, 15, 87, 90, 98, 123, 139,
146, 152, 169, 171, 183, 185, 187, 211,
212, 222, 225, 227, 250, 279, 282, 305,
329, 330, 331, 385
permanence, 90, 91, 190, 280, 281, 282
permanence-transience, 90, 91
Persian culture, 349
Pesciera, 188, 383
petitio principia, 355
Petitio Principii, 156
Pharaoh Akhenaten, 309
phenomenal reality, 14, 72, 98, 106,
108, 190
philosophy, 6, 7, 20, 25, 27, 30, 34, 60,
70, 107, 122, 129, 136, 142, 145, 148,
154, 183, 186, 194, 198, 206, 225, 325,
327, 355, 365, 368
Phoenicians, 145
phonetization of writing, 144
photography, 56, 104, 105, 107, 190,
244, 279, 350
physical time, 247, 249
physics, 14
Picasso, 278
pictorial connector, 56
pictorial text, 19, 108
pictorial universal, 56
Pierre Armand, 17, 382
Pissarro, 272
Planck, 276
plastic arts, 280, 365
Plato, 24, 27, 116, 129, 136, 141, 142,
144, 145, 146, 147, 148, 187, 402
Platonic, 142, 144, 198
Platonic metaphysics, 142
plurality, 113, 121, 211, 309
poetry, 6, 34, 107, 186, 198, 234, 263,
272, 273, 365
Pollock, 35, 169, 170, 236, 374, 386, 403
Pólya, 348, 402
polytheism, 307, 310
polytheistic, 309, 310
Pope Gregory, 336, 341, 343
poverty of the sculptural lexicon, 59
prehistoric, 11
Pre-Socratic philosophy, 122, 325
Pre-Socratics, 276
primatologists, 199
principle of contradiction, 116, 117
principle of the excluded middle, 116
probabilistic, 126
processors, 74, 83, 85, 86
Protestant Reformation, 338, 341
proto-art, 59, 308
proto-brain-tools, 74

pseudo-mysticism, 30
 pseudo-philosophy, 30
 psychology, 12
 Ptolemaeus, 277

Q

quantum mechanics, 187, 272, 276
 Quran, 318, 352, 355, 365, 402

R

Rabba Genesis, 312, 401
 Rabbi Yosef Karo, 318
 radial symmetry, 119
 random, 32, 111, 124, 126, 170, 184,
 192, 255, 269, 356
 randomness, 125, 166, 287, 294
 rationalistic, 122
 Rauschenberg, 17
 ready-mades, 17
 reality, 14
 Receptacles, 79
 recursion, 84, 125, 163, 166, 269, 378
 recursive, 104, 125, 163, 230, 237, 263,
 356, 385
 recursive connectivity, 125
 Recursiveness (Recurrence) -
 Singularity, 125
 reduction, 10, 12, 13, 17, 20, 21, 24, 25,
 37, 38, 57, 113, 123, 124, 126, 165,
 199, 214, 225, 273, 344
 reductionism, 12, 24, 52, 368
 reductionist, 12
 redundancy, 195, 270, 271, 272
 reference, 32, 66, 69, 104, 153, 156, 159,
 184, 190, 237, 244, 246, 272, 278, 287,
 301, 348, 386
 reflexive, 66, 104
 Reformation, 311, 324, 338, 342, 343,
 344, 347, 367, 397, 399, 401
 regression, 57, 171, 203, 368, 369
 relativistic, 24, 327
 relics, 306, 336, 361

religious, 55, 88, 91, 96, 128, 237, 239,
 303, 304, 305, 306, 308, 309, 310, 311,
 312, 315, 316, 318, 319, 324, 325, 327,
 330, 332, 335, 338, 342, 343, 344, 350,
 352, 361, 364, 365, 366
 religious art, 305, 310, 325, 365
 religious context, 304, 305, 308, 309,
 325, 338, 365, 366
 religious iconography, 310, 325
 religious images, 310, 324, 330, 338
 Rembrandt, 15
 Renaissance, 184, 187, 311, 344, 367,
 376, 392
 René Magritte, 187
 repetition, 269, 272, 356
 representation, 13, 24, 27, 29, 59, 60,
 61, 69, 113, 121, 132, 134, 144, 145,
 146, 147, 148, 157, 163, 164, 182, 194,
 210, 212, 275, 277, 279, 282, 284, 287,
 316, 318, 324, 325, 343, 349, 350, 352,
 366, 385
 representational art, 54, 141, 142, 350
 Retro style, 279
 reversible, 279
 Rice, T. D, 402
 Roberto Sambonet, 188, 383
 Rococo, 272
 Rodin, 58, 376
 Roman Catholic church, 344
 Roman church, 342
 Roman Empire, 324, 330, 335, 371
 Romans, 313, 324
 Rome, 317, 324, 382
 Roochnik, D, 402
 Rorschach test, 13
 Rothko, 108, 165
 Rudolf Steiner, 25
 Russell, 244, 402

S

sacred art, 310, 365
 safety factor', 271
 Saint Augustine, 34

- Sangir site, 88
 Sasanian dynasty, 349
 savage capitalism, 368
 science, 5, 6, 7, 9, 14, 20, 30, 34, 60, 107,
 122, 126, 136, 149, 150, 154, 158, 162,
 170, 171, 173, 183, 186, 198, 206, 207,
 225, 255, 263, 275, 278, 279, 280, 301,
 325, 326, 327, 348, 352, 365, 368, 372,
 396, 397, 399, 403
 sculpture, 5, 8, 13, 17, 21, 36, 54, 56, 57,
 58, 59, 60, 65, 66, 74, 103, 105, 107,
 145, 146, 159, 164, 186, 187, 190, 195,
 198, 277, 293, 305, 308, 309, 310, 325,
 343, 365, 377
 Second Council of Nicaea, 338
 Second Temple, 319, 324, 390
 second-order reality, 14, 88, 104, 106,
 108
 secular, 89, 305, 319, 338, 343, 344, 350,
 366
 secular art, 305, 319, 343, 344, 350
 secular iconoclasm, 366
 self-embedding, 79, 84, 159, 163, 227,
 237, 263, 269, 280, 356, 378, 385
 self-mummification, 339
 self-reference, 66, 104, 159, 190, 244,
 246, 386
 self-similarity, 163, 169
 semantic and syntactic density, 222
 semantics, 20, 39, 159, 237, 255, 269,
 366
 Semaw, S., 402
 semiotic, 88, 96, 239, 379
 semiotic layer of clothing, 88
 Sensations, 104
 separating tools, 72, 74, 114
 series, 32, 255, 398
 Shinto, 310
 simplification, 18, 24, 27, 57, 154, 156,
 171, 298
 simulation, 285, 301
 singularity, 125, 166
 social learning, 104, 200
 Socrates, 116, 144
 space, 14
 Spalding, J., 402
 special case, 7, 10, 29, 34, 56, 61, 63, 70,
 88, 164, 186, 239, 347
 specialization, 74, 217, 294
 specification, 54, 111, 217, 251, 285
 Spehar, B., 403
 Spinka, M., 402
 St. Peter's Basilica, 307, 325, 390
 Stacey, J., 402
 Star of David, 226, 237, 306
 states of affairs, 207
 states of mind, 104, 105, 207, 298
 Stoneking, M., 400
 stratification, 19, 57, 202, 227, 263, 269,
 285, 385
 Streamlining, 272
 structural, 7, 35, 111, 112, 121, 136,
 184, 198, 210, 270, 277, 279, 280, 294,
 350, 353, 355, 366, 367, 368
 structural art, 36
 structural determinism, 112
 structuralist, 136, 150, 292
 style, 91, 109, 172, 184, 185, 196, 216,
 236, 239, 271, 272, 274, 275, 276, 277,
 278, 279, 280, 281, 282, 288, 290, 298,
 318, 344, 349
 subjectivism, 14, 327
 substitute, 27, 59, 60, 61, 139, 145, 146,
 148, 155, 204, 227, 272, 287, 290, 291,
 304, 308, 310, 315, 325, 329, 331, 332,
 335, 336, 339, 342, 343, 365, 391
 substitution, 59
 sub-symbols, 19, 66, 146, 199, 256
 subsystems, 15
 suggestion is not symbolization, 32
 Sumerians, 211
 Sunni, 361
 super-symbols, 199
 Suprematism, 29, 30, 70, 402
 Suprematist, 30
 surface structure, 35
 Surma, 24
 Surrealism, 184, 211

- surrealist paintings, 263
 sustainability, 210, 281
 sustainable culture, 299
 sustainable design, 299
 syllabographic-phonetic writing, 144
 symbol system, 12, 14, 19, 34, 54, 55,
 57, 58, 60, 63, 66, 69, 87, 105, 107,
 111, 134, 181, 185, 199, 216, 228, 234,
 236, 237, 239, 255, 263, 271, 285, 291,
 292, 294, 296, 306, 308, 311, 328
 symbolic significance, 151, 153, 161
 symbolism, 30, 399
 symbolization, 52, 59, 65, 108, 109,
 132, 151, 156, 198, 207, 285, 287
 symmetric geometric patterns, 347
 symmetric Islamic patterns, 347
 symmetry, 13, 27, 119, 120, 136, 166,
 204, 275, 294, 298, 348, 351, 355, 395,
 398
 symmetry-asymmetry, 13, 119
 synagogues, 237, 335, 351
 Synod of Elvira, 330, 335
 syntactic complexity, 169, 269
 syntax, 20, 39, 159, 210, 237, 255, 269,
 366
 synthesis, 10
 synthesizers, 83, 85
 synthetic, 18, 216, 217, 294, 296, 389
 Syria, 305, 361, 364
 system, 13, 15, 19, 32, 34, 54, 56, 58, 60,
 66, 87, 96, 105, 108, 130, 148, 156,
 159, 165, 172, 183, 185, 202, 203, 217,
 227, 234, 236, 252, 255, 263, 270, 273,
 280, 291, 294, 296, 297, 300, 326, 347,
 365, 368, 387
 systemic connections, 15
 Systemic Painting, 255, 395
 systemic structure, 35, 184, 255
 systems of generalizations, 14
- T**
- Tabernacle, 315, 316
 Taj Mahal, 351
 Taliban, 357, 361, 364, 393
 Tan-Tan, 159
 Taylor, R.P, 403
 tèchne, 141, 142, 147
 Temple Mount, 306
 Terra-Cotta Army, 331
 textile design, 211
 The Bean, 188
 the Bible, 305, 308, 315, 316, 318, 365
 the Black Stone at Kaaba, 306
 The Country of the Blind, 30
 The Critique of Pure Reason, 106, 187
 The Cross, 324
 The Ecclesiastical Dogma, 343
 The Edict Of Milan, 335
 the emperor's new clothes, 30
 the fallacy of affirming the
 consequence, 37, 58
 The Gates of Paradise, 178
 The Holly Bible, 403
 The Incompleteness Principle of
 Representation, 61, 250
 The Lollards movement, 342
 The principle of complementary, 116
 The Republic, 144
 the return to visual thinking, 369
 The Second Commandment, 316
 The Terra-Cotta Soldiers, 331
 The Zōjō-ji Temple, 332
 Theodosius I, 335, 400
 theory of everything, 368
 Theosophy, 25
 Thomas Wynn, 239
 Thompson, H, 403
 tiling, 348, 353
 time, 14
 Tintoretto, 222, 301, 385, 401
 Titus, 317, 324
 tools, 2, 10, 11, 20, 39, 59, 60, 61, 69, 71,
 72, 74, 76, 78, 79, 80, 83, 84, 85, 86,
 87, 88, 89, 96, 97, 102, 103, 104, 105,
 106, 107, 111, 113, 115, 116, 119, 120,
 122, 123, 124, 125, 126, 127, 128, 132,
 135, 136, 137, 142, 148, 150, 157, 158,

162, 170, 175, 178, 181, 182, 183, 185,
188, 190, 196, 202, 203, 204, 206, 210,
211, 214, 217, 228, 232, 234, 236, 237,
246, 250, 274, 284, 292, 293, 294, 296,
297, 300, 307, 329, 351, 352, 356, 368,
377, 378, 379, 380, 397, 403
top-down hierarchical process, 124
totemistic culture, 121
transcendental structuralism, 36, 112
transformation, 18, 65, 66, 69, 111, 119,
120, 125, 132, 154, 166, 206, 234, 249,
294, 353, 356, 366
Transformation-Invariance, 125
transience, 91, 190, 281
transient, 281
Trinil, 120, 158, 162, 381, 400
Turner, 21
twentieth century art, 32

U

uncertainty, 1, 112, 225, 290
unisex, 214, 298
unity, 113, 121, 144, 211, 297, 309
universal, 14, 17, 20, 24, 39, 56, 69, 88,
144, 145, 146, 148, 159, 164, 204, 226,
235, 280, 287, 288, 329, 351, 381
universal paradigm, 39

V

Van Donkelaar, P., 403
Van Gogh, 14, 211, 212, 236
Vasarely, 108
Venus of Willendorf, 60, 377
verbal symbols, 19, 109, 157, 270, 301
Vermeer, 35, 169, 301, 386
Viegas, J., 403
Virgin Mary, 310

virtual design, 134, 282, 283, 284, 285,
287, 290, 291, 292
virtual object, 107, 134, 164, 287, 290,
292
virtual particular, 287
visual communication, 1, 55
visual generalization, 13
visual language, 12
visual thinking, 21, 27, 59, 60, 113, 148,
309, 311, 366, 369
vocabulary, 60

W

W.C. Jackson, 232, 234
Walker, J. A., 403
Weinberg, J., 403
Welch, A., 403
Welch, S.C., 403
Western Wall, 306
Wheeler, J. A., 403
Whitfield, J., 403
Witelson, S. F., 403
writing, 2, 3, 5, 59, 60, 105, 106, 122,
136, 137, 139, 140, 144, 146, 148, 192,
202, 206, 232, 308, 311, 330, 332, 349,
352, 364, 370
writing system, 348
Wynn, T., 404

X

Xian, 331, 377, 391

Y

Yates, R., 399
yearning for the transcendental, 369
Yin-Yang, 18, 116, 117
Yves St. Laurent, 27