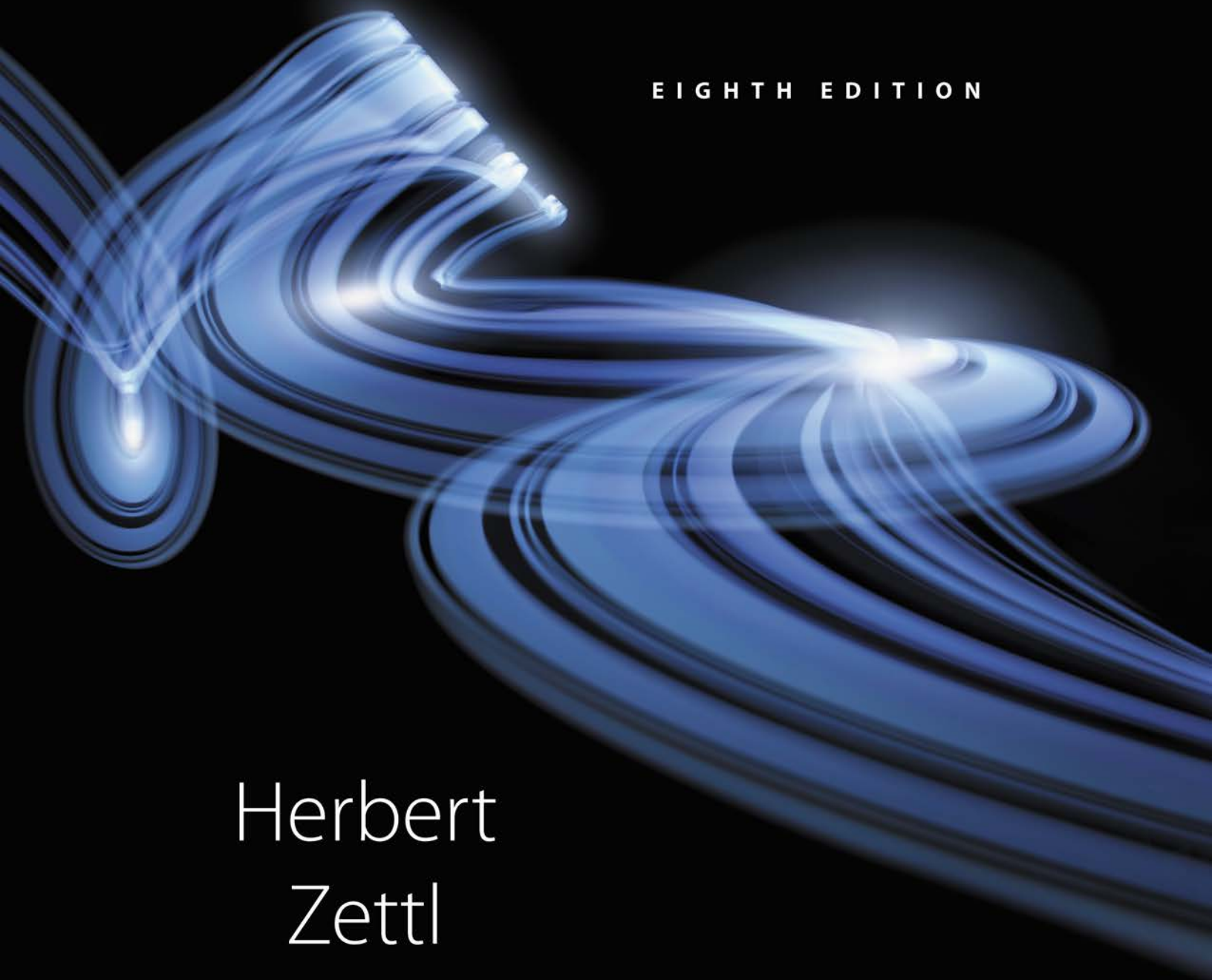
Sight Sound Motion

Applied Media Aesthetics

EIGHTH EDITION



Herbert Zettl

Sight Sound Motion

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Herbert Zettl

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To all who see virtue
in optimizing the aesthetics
of visual communication

Brief Contents

Contents

10

14

Structuring the Four-Dimensional Field: Timing and Principal Motions 286

15

The Five-Dimensional Field: Sound 310

About the Author

Herbert Zettl, PhD, taught for 40 years in the Broadcast and Electronic Communication Arts Department at San Francisco State University. His research emphases were, and still are, media aesthetics and video production. While at San Francisco State, he headed the Institute of International Media Communication (IIMC). The IIMC facilitated international visitors through the auspices of the US State Department's International Information Programs and the San Francisco International Diplomacy Council, sponsoring international visiting scholars. Dr. Zettl is one of the founders of the Annual Visual Communication Conference, a national conference for visual communication scholars. He received the California State Legislature Distinguished Teaching Award in 1966, and in 2004 he received the Distinguished Education Service Award of the Broadcast Education Association.

Prior to joining the San Francisco State University faculty, Dr. Zettl worked at several professional television stations, including KPIX, the CBS-owned and -operated station in San Francisco, where he was a producer-director. He participated in numerous CBS and NBC network television productions, such as Edward R. Murrow's *Person to Person* and several network specials. He is a member of the prestigious Gold Circle of the National Academy of Television Arts and Sciences (NATAS), Northern California Chapter, for his outstanding contributions to the television profession. He is also a member of NATAS Broadcast Legends.

Dr. Zettl has been a visiting professor at Concordia University in Montreal, Canada; Heidelberg University in Heidelberg, Germany; the Institute for Television and Film (now the Hochschule für Fersehern und Film) in Munich, Germany; and the University of South Africa, Pretoria. For one year he served as resident director in Germany for California State University students at Heidelberg and Tübingen Universities. For several years he consulted as an academic specialist with broadcast institutions in various countries, frequently under the auspices of the State Department's International Information Programs. He also acted as consultant to a number of universities and professional broadcast institutions in North and South America, Europe, the Middle East, Africa, Asia, and Southeast Asia.

In his seminar on experimental production, Dr. Zettl spearheaded various experimental television productions, such as dramas for simultaneous multiscreen presentation, binaural audio for aural depth perception, and inductive visual presentation techniques.

Edward Aiona

Herbert Zettl, PhD

He has presented many papers on media aesthetics and video production for a variety of academic and professional media conventions both in the United States and abroad. He has also published numerous articles, many of which have been translated into foreign languages and published abroad. His other books on television production and aesthetics, all published by Cengage Learning, include: *Television Production Handbook,* 12th ed. (2015); *Television Production Workbook,* 12th ed. (2015); *Video Basics 7* (2013); and *Video Basics 7 Workbook* (2013). *Television Production Handbook, Sight Sound Motion,* and *Video Basics* have been translated into several foreign languages (including Spanish, Portuguese, Greek, Chinese, and Korean) and are used in key television production centers and universities around the world.

His interactive DVD-ROM, *Zettl's VideoLab 4.0,* published by Cengage Learning in 2011, contains basic information about video production and interactive simulated production exercises in camera, lighting, audio, switching, and editing modules. His previous versions have netted several awards.

Preface

FOR THE STUDENT

The new video technology, which lets you produce high-quality standard two-dimensional (2D) and even three-dimensional (3D) images and sound with relatively inexpensive equipment, puts more pressure on you to match this technical quality with equally high aesthetic standards. This means that, when framing a shot or adding music to your video track, you must have the knowledge and skill to select those aesthetic elements that not only result in optimally effective communication but also reflect your artistic sensitivity and capabilities.

Today the many screen sizes and aspect ratios of large digital movie screens, high-definition home video screens, various computer monitors, and small mobile media displays require not only new framing and compositional principles but new sound considerations as well. When dealing with stereo 3D and virtual reality (VR), you are, in effect, confronted with new media. In this context applied media aesthetics has gained new prominence and urgency. If you find that this book is not exactly bedtime reading and that it sometimes seems too theoretical, you are encouraged to find examples of television shows, motion pictures, or Internet footage that illustrate the discussion and make the concepts more concrete. Your learning will be greatly enhanced by realizing that every aesthetic concept discussed in this text has a practical application.

You will also discover that these concepts will help you go way beyond an "I like it" or "I don't like it" evaluation and provide you with solid criteria for critical analyses of video programs and films. In this endeavor you must learn to recognize and evaluate not only the established production standards but also the new ways in which aesthetic elements are used. For example, the jump cut, extreme high-contrast lighting, and color and sound distortion can be either purposeful aesthetic effects to intensify the message or gross production mistakes. By knowing the aesthetic tools you have on hand and how to use them in the context of the screen event, you will have little trouble deciding whether the effects were done intentionally or out of ignorance. If you have already been applying most of these principles in your work, you now have proof that you were on the right track all along.

FOR THE INSTRUCTOR

Sight Sound Motion describes the four fundamental and contextual image elements—light and color, space, time/motion, and sound—and how they are used in electronic media. These fundamental image elements are discussed in the context of the five principal aesthetic fields: light and color, two-dimensional space, three-dimensional space, time/motion, and sound. This organization allows the examination of each individual aesthetic element while maintaining an overview of how these elements interact contextually.

FEATURES

Although the basic aesthetic principles of the five aesthetic fields do not necessarily change with the advancement of technology, their applications do. I have therefore expanded certain areas that have become especially important in such fields as digital video, 2D and 3D digital cinema, and virtual reality.

Color All illustrations are now in color except those that emphasize the aesthetics and power of black-and-white images. There are still instances in which color interferes with, rather than facilitates, empathy and the expression of intense emotions. This topic is explored in the context of the desaturation theory.

Screen size In today's digital video world, you will have to be an expert miniature painter as well as one for huge outdoor advertising panels. This book contains valuable information about how to compose effective shots for the tiny mobile media display as well as the large screens in motion picture theaters.

Aspect ratio Most illustrations in this text are shown in the familiar 16 × 9 aspect ratio because it represents the wide-screen aspect ratios of high-definition television (HDTV) and, with some modification, standard motion picture screens. The 4 × 3 aspect ratio is still discussed not only because it is the ratio of all traditional movies and standard television but also because it approximates the ratio of most still camera viewfinders. The variable aspect ratios of smartphones are also discussed in this context.

Inductive sequencing The inductive approach to the visual narrative, by showing a series of close-ups rather than moving from a master shot to close-ups, has become a fundamental prerequisite for telling a story effectively on the small screen. In combination with surround sound, the inductive visual approach has also become an effective technique for creating high-energy sequences on the large movie screen.

Stereoscopic 3D and VR Although some proponents of 3D claim that there is no difference in the acquisition of 2D and 3D images, the aesthetics of the two production modes differ to a great extent. The principal features of 3D are explained throughout the book and examined more extensively in the chapters on the three-dimensional field. In this context the major aesthetic differences between 3D and virtual reality are highlighted.

Visual narrative The chapters on the five-dimensional field of sound precede the last two chapters on editing because sound structures figure prominently in the narratives and syntax of continuity and complexity editing.

PEDAGOGY

As in the previous edition, this eighth edition of *Sight Sound Motion* incorporates several pedagogical devices for optimal learning, such as chapter summaries, source references, relevant photos and diagrams, and an extensive glossary.

Chapter summaries The chapter summaries recapitulate the main ideas in each chapter for quick review, but students should not take them as a shortcut to reading the text.

References Although the numerous notes at the end of each chapter are not essential for understanding the text, they identify the significant research and can serve as a useful guide for further study of media aesthetics. The text includes frequent references to how a specific aesthetic principle in one field operates contextually in another or several other fields. Throughout the book the examples are chosen for how well they illustrate or support a specific media aesthetic concept rather than whether they are current or popular.

Instructors are encouraged to contribute their own material whenever it is deemed more appropriate and effective than the examples in the text. Note that each concept in *Sight Sound Motion* can be applied. Instructors are also encouraged to find as many applications as possible to help make the text optimally relevant to students.

Glossary All the fundamental media aesthetic terms are defined in the glossary and appear in ***bold italic*** in the chapter text in the context in which they are defined. Like the vocabulary of a foreign language, knowledge of these terms is an essential prerequisite to communication about media aesthetics. Realize that some of the less familiar terms, such as *vector,* are used in this book not to test the reader's patience but because they are more precise than the ones commonly used. Perusing the glossary before reading the text may facilitate understanding of the various concepts.

ANCILLARIES

The following ancillaries have been designed to aid in the teaching and understanding of *Sight Sound Motion.*

MindTap MindTap Radio/TV/Film is now available with *Sight, Sound, Motion: Applied Media Aesthetics,* Eighth Edition. Fully integrated into a seamless experience, MindTap combines readings, multimedia, activities, and assessments into a single learning path—guiding students through the course, maximizing their study time, and helping them master course concepts. Instructors can personalize the learning path by customizing Cengage Learning resources and adding their own content via apps that integrate into the MindTap framework with any learning management system. To learn more ask your Cengage Learning representative to demo MindTap for you—or visit *www.cengage.com/mindtap.*

Online Instructor's Manual The fully revised and updated Online Instructor's Manual contains suggestions for classroom demonstrations, exercises, and discussions and a battery of multiple-choice questions for each chapter. The manual is intended as a guide, not a dictum. The demonstrations can be done with a smartphone camera or a small camcorder together with a playback device—but they can also be staged somewhat more effectively in a multicamera studio setup. Ideally, the Online Instructor's Manual should stimulate you to come up with maximally

effective ways to make the connection between media aesthetic principles and their applications. The Online Instructor's Manual is available for download at:

login.cengage.com

If you require assistance, please contact your Cengage Learning representative.

Zettl's VideoLab 4.0 This interactive DVD-ROM combines basic television production techniques with some fundamental principles of media aesthetics. It is truly interactive: the student can zoom in and out, turn on lighting instruments and move them around, mix sounds, and edit together certain shots and see the results immediately. An extensive quiz feature and instant access to the glossary reinforce learning. The DVD-ROM can be used as a convenient way to help students acquire or reinforce basic video and film production techniques and to illustrate aesthetic concepts that need to be shown in motion. The Online Instructor's Manual refers to the relevant sections of *Zettl's VideoLab 4.0* for each chapter of *Sight Sound Motion.*

Music examples To actually listen to all the major music examples in chapter 16, go to the MindTap for *Sight Sound Motion.* The examples are listed by the figure number referenced in the chapter. Each example appears in musical notation so that while you listen to it you can follow the notes or, if you don't read music, the vector directions. These audio files are also available as part of the book's online instructor resources.

ACKNOWLEDGMENTS

I am greatly indebted to the editors of Cengage Learning, all the people who work under the auspices of Ideas to Images, my colleagues and students at San Francisco State University and other learning institutions, and reviewers of the previous edition.

Specifically, I would like to thank the Cengage team of Kelli Strieby, product manager; Erin Bosco, associate content developer; and Rachel Schowalter, associate content developer, for their help and support throughout the writing and publishing process. Erin and Rachel deserve special credit for treating me as though I were their only author. What amazes me especially are their quick and helpful responses to my many questions and requests. For me this is a true index of their professionalism.

I have been working with Gary Palmatier of Ideas and Images for the past six editions, and each time I am impressed anew by the quality of his work. As art director, designer, and project manager, he has the rare gift of being highly creative yet a stickler for details. He also knows how to pick an effective team. Elizabeth von Radics, copy editor for the past six editions, has once again lent her talent to make the text easily readable and its more difficult concepts transparent—not an easy job by any means! Ed Aiona, photographer, provided several new and highly effective illustrations. I marvel at the patience and skills of proofreader Mike Mollett. They all merit my deep gratitude.

I am greatly indebted to my grandson, Christopher Child, who made it possible for me to experience the future right now. He introduced me to Arthur van Hoff, founder and chief technology officer of Jaunt, a virtual reality company in Palo Alto, California. With his staff, Arthur treated me to an impressive demonstration of Jaunt's latest VR content and hardware developments. My thanks and good wishes for success go to all of them. I would also like to acknowledge Franz Troppenhagen, product manager of multimedia devices at Carl Zeiss, Germany,

for letting us use the photos of his impressive VR head-mounted display. Finally, my colleagues Dr. Hamid Khani and Dr. Vinay Shrivastava have been sharing with me on a regular basis their longtime teaching experience of the *Sight Sound Motion* course at San Francisco State University. Their comments have been most helpful in clarifying various sections of the book. Dr. Khani arranged for my use of the TV studios of the Broadcast and Electronic Communication Arts Department and assisted in recruiting student volunteers as models. I thank them for this courtesy.

I want to thank the reviewers of the previous edition for their valuable suggestions for improving the current one: JC Barone, Western Connecticut State University; Josh Ellis, Miami Dade College–North; Michael Ogden, Central Washington University; Dann Pierce, University of Portland; David Rembiesa, Mott Community College; and Bill Yousman, Eastern Connecticut State University. Hsianghsiong Liao, who translated the first and the two most recent editions of *Sight Sound Motion,* deserves my special thanks, as does Dr. JC Barone of Western Connecticut State University for his excellent work on this book's MindTap.

The names below are of the people who made it possible to visualize various media aesthetic principles in this and previous editions. My sincere thanks to all of them: Noah Aiona, Stephen Angeles, Gloria Ariche, Karen Austin, Mathew Baker, Victoria Barrios, Hoda Baydoun, Kent Beichley, Tiemo Biemueller, Brian Biro, Avery Blackburn, Eric Blackburn, Tim Blair, Anna Brady, Kyle Bray, Kelly Briley, Megan Bumagat, George Caldas, William Carpenter, Neela Chakravartula, Brandon Child, Laura Child, Rebecca Child, Lori Clark, Janine Clarke, Joseph Consins, Jon Corralejo, Carletta Currie, Jason Domingo, Lauren Dunn, Jon Dutro, Askia Egashira, Chaim Eyal, Tammy Feng, Derek Fernandez, Jeovany Flores, Brian Frost, Karyna Fuentes, David Garcia, Ian Garcia, Michael Angello Garcia, Kelly Gavin, Ian Grimes, Alex Hamburger, Matthew Hamre, Tumone Harris, Rebecca Hayden, Joshua Hecht, Julianne Heppepa, Dwayne Hibbert, Janellen Higgins, Nicolina Higgins, Sherae Honeycutt, Poleng Hong, Chin Yu Hsu, Juwon Jung, Abroo Kahn, Akiko Kajiwara, Hamid Khani, Philip Kipper, Kimberly Kong, Surya Kramer, Jason Kuczenski, Rinkhen Lama, Antonio Leigh, Andrew Lopez, Joshua Lopez, Orcun Malkoclar, Brittney McCahill, Joseph Mengali, Renée Mengali, Teri Mitchell, Maki Mizutani, Meg Mizutani, Jasmine Mola, Johnny Moreno, Michael Morla, Morgan Mureno, Ben Nam, Leslie Ngo, Einat Nov, Jennyvi Olaes, Gary Palmatier, Dimitry Panov, David Park, Ildiko Polony, Ace Prado, Logan Presnell, Adriana Quintero, Rachel Rabin, Ivan Rios, Jon Rodriquez, Hensen Roque, Maya Ross, Robert Salcido, Eric Sanchagrin, Reyna Sandoval, Vinay Shrivastava, Philip Siu, Kate Slater, Taneka Smothers, Irfan Soetomo, Renee Stevenson, Coleen Sullivan, Jeremy Valencia, Jairo Vargas, Selene Veltri, Jason Villaroman, Amy Vylecka, Eboni Warnking, Athena Wheaton, Carey Wheaton, Gabriel Wheaton, Jim Wheaton, Jacalyn White, Erina Yamamoto, Gloria Yamoto, and Daniel Dunping Zheng.

Finally, I want to again thank my wife, Erika, for her unflappable support during this writing marathon.

Herbert Zettl

Prologue

This book gives you the tools to clarify, intensify, and interpret events for television, Internet, and cinema presentation. In effect, it teaches you how to apply the major media aesthetic elements to manipulate how people see screen images. Because media consumers are largely unaware of the power of media aesthetics, they must and do trust your professional judgment and especially your good intentions.

Irrespective of the scope of your communication—a brief news story, an advertisement, a documentary, or a major dramatic production—your overriding aim should be to help people attain a higher degree of emotional literacy, the ability to see the world with heightened awareness and joy. All of your aesthetic decisions must ultimately be made within an ethical context—a moral framework that holds supreme the dignity and the well-being of humankind.

Edward Aiona

1

Applied Media Aesthetics

Consciously or not, you make many aesthetic choices every day. When you decide what to wear, arrange stuff on your desk, or choose what flowers to put on the dinner table, or even when you judge the speed or distance of your car relative to other cars while driving, you are engaging in basic perceptual and aesthetic activities. Even the everyday expression "I know what I like" requires aesthetic judgment.

When you select a certain picture to put on your wall, choose a specific color for your car, or look through the viewfinder of a camera, you are probably more conscious of making an aesthetic decision. This kind of decision-making, as any other, requires that you know what choices are available and how to make optimal decisions with a minimum of wasted effort. Painting your bathroom first red, then pink, then orange only to discover that off-white is in fact the best color would be not only expensive and time-consuming but also cumbersome and frustrating.

As a responsible media communicator, you must go beyond everyday reflexes and approach creative problems with educated judgment. You must also develop a heightened sense of vision to recognize the universal needs and desires of human beings and learn how to give such vision significant form so that you can share it with all of us.[1] Applied media aesthetics helps you in this formidable task. If not communicated effectively, even significant vision subsides into an insignificant dream. Despite the enormous changes that the digital revolution has brought about in video and film production hardware, software, and production methods, the basic media aesthetic principles still stand. In fact, because of the vastly increased choices in digital audio and video manipulation, media aesthetics has become an indispensable tool for structuring content.

To provide you with some overview of applied media aesthetics, we need to start by briefly explaining what we mean by *media* and *media aesthetics.* Then we expand our discussion to these six areas: applied aesthetics and art; applied aesthetics and contextual perception; the power of context; the medium as structural agent; applied media aesthetics: method; and fundamental image elements and personal responsibility.

DEFINITION: MEDIA

Throughout this book you will find media references to video, television, computer displays, film, and filming. To avoid any confusion about what is meant by these terms, we briefly define them here.

Video *Video* is the more inclusive term for all kinds of video productions, including television. *Television* is sometimes singled out, however, especially when discussed as broadcast television in connection with a specific transmission mode (such as live versus recorded), reception situation, or program genre.

Because computer images are displayed on a video screen, we incorporate them in the video category.

Film The term *film* refers to traditional motion pictures that are screened and watched in movie theaters. Although the photochemical film medium is a thing of the past and has been replaced by digital electronics, *film* is still a more established and convenient term than *digital cinema.*

The term *filming* is often used to refer to a great variety of digital video capture, regardless of whether it is for a brief television news story or a blockbuster movie. "Making a film" can imply the use of a detailed script and careful preproduction, a shot-by-shot capture with mostly a single camera, and an extended postproduction period, but it can also refer to the video-recording of someone's weekend trip to the beach.

Despite the technical convergence of video and film, they still differ substantially in how they are watched. Films are watched primarily in a darkened movie theater on a very large screen with high-quality surround-sound audio. Video productions, even the rather ambitious ones, are normally watched at home on a television or computer screen or even outdoors on a tiny smartphone display. The remaining and crucial difference between the two media is how the various media aesthetic principles are applied.

DEFINITION: APPLIED MEDIA AESTHETICS

Applied media aesthetics differs from the traditional concept of aesthetics in three major ways. First, we no longer limit aesthetics to the traditional philosophical concept that deals primarily with the understanding and appreciation of beauty and our ability to judge it with some consistency. Nor do we consider aesthetics only to mean the theory of art and art's quest for truth. Applied media aesthetics considers art and life as mutually dependent and essentially interconnected.

The major functions of media aesthetics are based on the original meaning of the Greek verb *aisthanomai* ("I perceive") and the noun *aisthetike* ("sense perception").[2] ***Applied media aesthetics*** is not an abstract concept but a process in which we examine a number of media elements, such as lighting and sound, how they interact, and our perceptual reactions to them. Second, the media—in our case primarily video, film, and to a lesser extent web images—are no longer considered neutral means of simple message distribution but essential elements in the aesthetic communication system. Third, whereas traditional aesthetics is basically restricted to the analysis of existing works of art, applied media aesthetics serves not only the analyses of the various forms of videos and movies but also their synthesis—their creation.

In contrast to traditional aesthetic theories, almost all media aesthetic principles and concepts discussed in this book can be applied to a variety of media production tasks. A thorough understanding of media aesthetic principles will also help you adjust relatively easily to the new and always-changing production requirements of various digital media. Finally, the criteria of applied media

aesthetics let you employ formative evaluation, which means that you can evaluate the relative communication effectiveness of the aesthetic production factors step-by-step while your production is still in progress.

APPLIED AESTHETICS AND ART

Applied aesthetics emphasizes that art is not an isolated object hidden away in a museum and that aesthetic experiences are very much a part of everyday life. Whatever medium you choose for your expression and communication, art is a process that draws on life for its creation and, in turn, seems necessary, if not essential, for living life with quality and dignity. We need art to educate our emotions. Even if you are not in the process of creating great works of art, you are nevertheless constantly engaged in myriad aesthetic activities that require perceptual sensitivity and judgment. But if ordinary life experiences are included in the process of art, how are you to distinguish between aesthetic processes that we call "art" and those that are not art? Is every aspect of life, every perceptual experience we have, art? No. Ordinary daily experiences may be full of wonder, but they are not art—not yet, in any case. But they do have the potential of serving as raw material for the process of aesthetic communication that we call art.

Art and Experience

What then is the deciding element that elevates an ordinary life experience to the realm of art? The critical factor is you—the artist—or a group of artists, such as the members of a video or film production team, who perceive, order, clarify, intensify, and interpret a certain aspect of the human condition for themselves or, in the case of media communication, for a specific audience.

Philosopher Irwin Edman pioneered a new aesthetic concept almost a century ago that stresses the close connection between art and life. He wrote: "So far from having to do merely with statues, pictures, symphonies, art is the name for that whole process of intelligence by which life, understanding its own conditions, turns these into the most interesting or exquisite account."[3] This process presupposes that life is given "line and composition" and that the experience is clarified, intensified, and interpreted. "To effect such an intensification and clarification of experience," Edman says, "is the province of art."[4] From this perspective, events that some may consider ugly or utilitarian have as much chance of becoming an aesthetic experience as a beautiful sunset. SEE 1.1

Irwin Edman (1896–1954) was a philosopher and a professor of philosophy at Columbia University. His main theme in his teaching and writing was to connect, rather than isolate, art with the ordinary aspects of life.

This process of clarification, intensification, and interpretation is also the province of applied media aesthetics. Whenever you look through the viewfinder of a camera to compose a shot, arrange some visual elements on a computer screen, or edit a film or video sequence, you are engaged in the creative act of clarifying, intensifying, and interpreting some event for a particular audience.

APPLIED AESTHETICS AND CONTEXTUAL PERCEPTION

We perceive our world not in terms of absolutes but rather as changing contextual relationships. When we look at an event, we are constantly engaged in judging one aspect of it against another aspect or another event. A car is going fast because another one is going slowly or because it moves past a relatively stationary object. An object is big because another one is smaller. The beam from the same flashlight looks pitifully dim in the midday sun but bright and powerful in a dark room.

When you drive a car, your perceptual activities work overtime. You are constantly evaluating the position of your car relative to the surroundings as well as the changes in the surroundings relative to your car. No wonder you feel tired after even a short drive through the city during rush hour. When you sit perfectly

1.1 Art and Life

Within the contextualistic framework, we can draw aesthetic experience from all aspects of life. By giving "line and composition" to even a relatively ordinary scene, like the renovation of a college dormitory, an artist can help us perceive its inherent beauty.

Herbert Zettl

still and stare at a stationary object, such as a table, your eyes nevertheless move constantly to scan the object. You then fuse the many, slightly different views together into a single image of the table, much as a well-edited sequence of various camera angles becomes a cohesive unit.

How then can we ever make sense of our multiple views of a changing world with its onslaught of sensations? Our mental operating system encourages a considerable perceptual laziness that shields us from input overload. We all develop habitual ways of seeing and hearing that make us focus on and notice only a small portion of what is actually there. We screen out most of the sensations that reach our eyes and ears, and we stabilize and simplify as much as possible what we do perceive.[5]

Stabilizing the Environment

Our perceptual mechanisms are designed to simplify and stabilize our surroundings as much as possible so that they become manageable. We tend to cluster certain event details into patterns and simple configurations, perceive the size of an object as constant regardless of how far away we are from it, and see the same color regardless of the actual color variations when part of the object is in the shade. Another of our automatic, "hardwired" perceptual stabilizers is the ***figure/ground principle***, whereby we order our surroundings into foreground figures that lie in front of, or move against, a more stable background.[6]

Selective Seeing and Selective Perception

Most of us tend to notice especially those events, or event details, that we want to see or are used to seeing. In our habitual ways of seeing, we generally select information that agrees with how we want to see the world. This type of ***selective seeing***—frequently but not too accurately called ***selective perception***—is like selective exposure to information. Once we have made up our minds about something, we seem to expose ourselves mostly to messages that are in agreement with our existing views and attitudes, ignoring those messages that would upset our deeply held beliefs.[7] We also choose to look at things we like to see and are especially interested in, and we ignore those that mean little to us. SEE 1.2

Although such cue reductions can clarify and intensify an event for us, they can also create problems. For example, we often see and hear only those details of an experience that fit our prejudicial image of what the event should be and ignore the ones that interfere with that image. The don't-confuse-me-with-evidence joke


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1.2 Selective Seeing

We tend to see events or event details that fit our perceptual expectations or that interest us highly. Each of us sees an event from his or her own point of view and according to a specific experiential context.

aptly mirrors this attitude. We then justify our questionable selection process by pointing out that the event details selected were, indeed, part of the actual occurrence. For example, if you have come to believe (perhaps through advertising or a recommendation) that the Shoreline Café has a nice atmosphere and serves excellent food, a friendly waiter may be enough evidence to verify your positive image, even if the restaurant's food is actually quite awful. By looking only at what we want to see rather than at all there is to see, we inevitably gain a somewhat distorted view of the world.

Selective perception, on the other hand, is much more automatic; in most cases, we have no control over it. For example, if you are talking to a friend in a streetcar, you are probably not aware of most of the other sounds surrounding you, unless they start interfering with your conversation or are especially penetrating, such as a police siren or a car crash. When you see somebody wearing a white shirt, you will perceive the same white regardless of whether the person is standing in bright sunlight or in the shade. Your book pages will not look bluish when you read under a fluorescent light instead of the normal incandescent indoor lighting. Although a video camera would make such distinctions quite readily, you would have trouble seeing them, especially if you were not looking for them. Your selective perception shields you from seeing too many varieties of shades and colors so that you can keep your environment relatively stable.

THE POWER OF CONTEXT

Many of our perceptions are guided if not dictated by the event ***context***. When context is imposed by the event itself, such as a snowstorm in May, you have little control over it. Such a context is sometimes called a "bottom-up" context. If you now decide to pitch your tent rather than abandon your backpacking trip, you are establishing a new event context—the setting up of the tent. This new context is called "top-down" because it is based on the intentionality of your actions, the pitching of the tent.

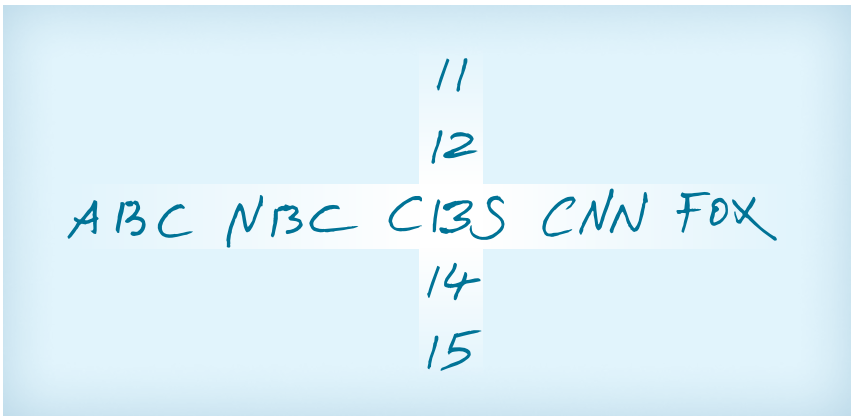
Sometimes we interpret an event by a virtual context that we form through our experience and knowledge of how the world works or ought to work, and even through our prejudices.[8] At other times we react to contextual cues more viscerally, on a gut level, without much thought about it. Because we engage our cognitive faculties in the first situation, we call this the associative context. The second context is based more on an immediate, nonrational emotional reaction and is therefore called the aesthetic context.[9]

Associative Context

One of the more important top-down contexts is the associative context. It consciously establishes and applies a code that dictates, at least to some extent, how you should feel about and interpret what you see. Here is a simple example of an associative context. Assume that you are to write down quickly the names of major US television networks:

Now we change the context to helping a child learn to write numbers from 11 to 15.

Take another look at the network names and the numbers. You may have noticed that the *B* in *CBS* and the *13* in the number series are very similar. In fact, they are identical.[10] Obviously, the associative context has had a powerful influence



1.3 Associative Context

In the context of the horizontal row, the symbol at the center of this intersection is read as the letter *B*. In the context of the vertical row, the identical symbol is read as the number *13*.

Herbert Zettl

1.4 Eggs for Sale

If convenient, would you respond to this sign and buy some eggs? Justify your action.

Herbert Zettl

1.5 Cheap Flying Lessons

Would you respond to this advertisement and take some flying lessons from the Affordable Flights Company? Justify your decision.

on the radically different perceptions of an identical sensation. The power of the context is so strong that you will probably find it difficult to see a *13* in the network context and a *B* in the numbers. Going against the established context is almost as hard as nodding your head affirmatively while uttering "no" or shaking your head sideways while saying "yes." **SEE 1.3**

Another example of associative context shows how we may react to the immediate world we have constructed around us and how this world is definitely culture-bound. **SEE 1.4 AND 1.5**

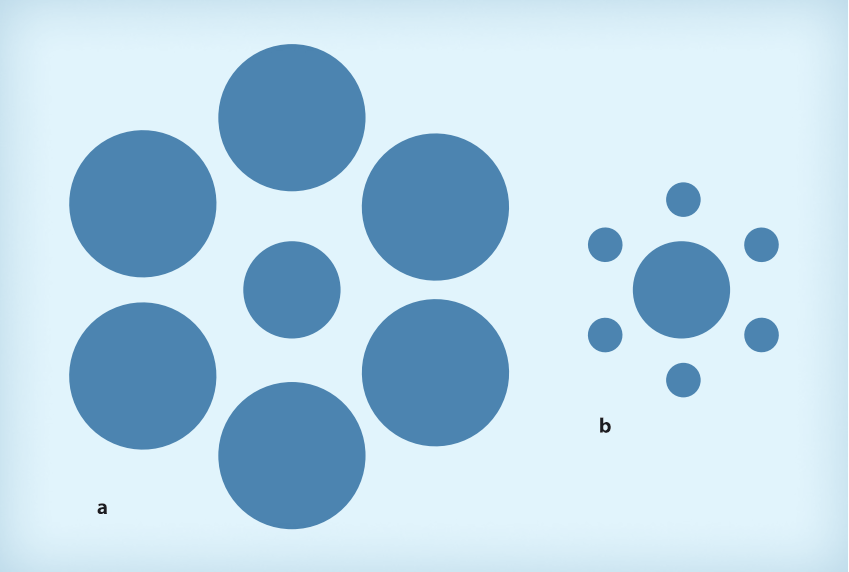
What is your initial reaction to the two advertisements? Whereas you might respond positively to the eggs-for-sale sign and even buy some eggs if convenient, you would probably not be eager to sign up for your first flying lesson with the Affordable Flights Company. Why? Because our experience tells us that awkward hand lettering may be appropriate in the context of a small, family-run, charmingly inefficient operation that occasionally sells surplus eggs; but in the context of aviation, the sloppy hand-lettered sign is not a good indicator of reliability, efficiency, and safety. You are now comparing, however unintentionally or even subconsciously, what you see with your previous experiences and prejudices.

Aesthetic Context

When confronted with an aesthetic context, our perceptual processes are so immediate and forceful that we respond to certain stimuli in predictable ways even when we know that we are being perceptually manipulated. The many well-known optical illusions are good examples.[11] **SEE 1.6**

1.6 Optical Illusion

Although we may know that the center circles in this Ebbinghaus figure are identical, we still perceive the center circle in (a) as smaller than the one in (b). The large surrounding circles in (a) make the center circle look relatively small, and the small surrounding circles in (b) make the center circle appear relatively large.



Even if you try vigorously to resist the idea of aesthetic manipulation, you cannot help but perceive the center circle in figure 1.6a as smaller than the one in figure 1.6b although in reality they are exactly the same size. The contextual circles make you perceive the central circles as being different sizes whether you like it or not. When surrounded by small circles, the central circle appears larger than it does when surrounded by larger circles.

Sufficient consistency exists in human perceptual processes so that we can predict with reasonable accuracy how people will respond to specific aesthetic stimuli and contextual patterns regardless of where they grew up. To test this, the next time you invite a friend to visit, move some of your pictures a little so that they hang slightly crooked, then watch your friend. Most likely, he or she will adjust the pictures so that they hang straight again. Your friend's action is a predictable response to a powerful aesthetic stimulus: the disturbance of strong horizontals and verticals, of standing upright on level ground. You apply the same principle when you cant the camera to make a scene look more dynamic. SEE 1.7

As you know, certain lighting, colors, and especially types of music can have an immediate emotional effect on you. They all sidestep our rational faculties and therefore play a big role in establishing an aesthetic context.

1.7 Tilted Horizon

We automatically perceive a tilted horizon line as a relatively unstable event. This car seems to travel precariously fast around the turn.

But if we seek only information that reinforces our personal projection of reality and are so readily manipulated by context, how can we ever attain a relatively unbiased view of the world? The fine arts have tried for centuries to break this vicious circle. Although we may still be tied to our automatic perceptual processes and stabilizing cue reductions, all art leads, at least to some extent, to counter this automatization, to see events from various points of view and shift from glance to insight. While we may perceive a shirt as uniformly white, in a painting the artist may not only see but exaggerate the various colors reflected off the white shirt—all this so that we too can share the beauty of this world.

Significant video productions and films, regardless of genre, can and should do the same. Depending on where you put a camera or microphone, and what field of view or camera angle you select, your viewers have no choice but to share your point of view. You can prod them to see an event from different perspectives and advance them from "looking at" to "looking into." In essence, you can help viewers educate their way of seeing, if not their perceptions. **SEE 1.8**

Before you can expect to help viewers become more sensitive to their surroundings and unlearn, at least to some degree, their habitual ways of seeing, you will have to acquire a degree of aesthetic literacy that allows you to perceive the complexities, subtleties, and paradoxes of life and to clarify, intensify, and interpret them effectively for an audience.[12]

Tracey Whitefoot/Alamy

1.8 Looking into an Event

As in the classic Japanese film *Rashomon,* which shows one event from the perspectives of several different people, some paintings permit a variation of viewpoints and "looking into" the event. In this work by Picasso, we see the girl from straight on; we also see her profile and her reflection, representing her other self. Thus we perceive several layers of her existence.

Pablo Picasso (1881–1973) *Girl Before a Mirror,* Boisgeloup (March 1932), oil on canvas, 64" × 51¼". Gift of Mrs. Simon Guggenheim. Location: The Museum of Modern Art, New York, NY, USA.

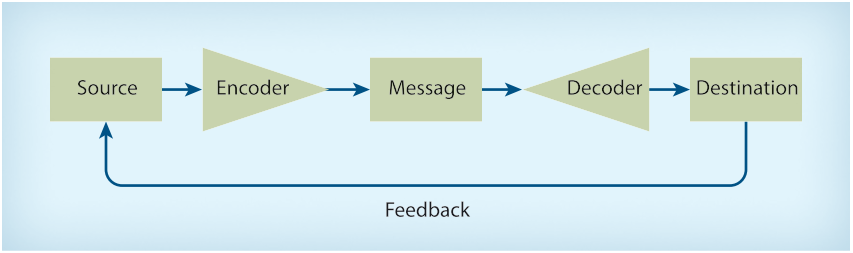
THE MEDIUM AS STRUCTURAL AGENT

Even when your primary function in talking to someone is to communicate certain information, your behavior exerts considerable influence on how a specific message is received. It certainly makes a difference to the message recipient whether you smile or frown when extending the familiar how-do-you-do greeting. The smile will show that you are, indeed, glad to see the other person or that your message is a pleasant one; a scowl would signal the opposite. You, as the communication medium, have now become part of the structuring of the message. Well-known communication scholar Marshall McLuhan proclaimed a half century ago that "the medium is the message."[13] With this insightful overstatement, he meant that the medium, such as television or film, occupies an important position not only in distributing the message but also in shaping it.

Despite overwhelming evidence of how important the medium is in shaping the message, many prominent communication researchers remain more interested in analyzing the content of the literal message than in the combined effect of the message and the medium as a structural agent.[14] In their effort to keep anything from contaminating their examination of mass-communicated content, they consider the various media as merely neutral channels through which the all-important messages are squeezed. Their analysis would reveal only your how-do-you-do greeting but ignore your smile or scowl. Gerhard Maletzke was one of the first significant mass communication scholars in Europe to advocate that it may not be only cultural or aesthetic preference that influences the shaping of the message but especially the *Zwang des Mediums*—the force of the medium. This concept was convincingly reinforced almost four decades later by Lev Manovich for new media, specifically various computer interfaces.[15] Although this concept is obvious to the people who actually do the productions, it is, unfortunately,

1.9 Early Communication Model

This model suggests that the communication process goes from idea to message and from message to recipient. It ignores the medium as a factor in the communication process.



still neglected by many media scholars. This apparent lack of medium awareness stems from the very beginnings of systematic mass communication studies, where the influence of the medium on the message was almost totally ignored.[16] SEE 1.9

If you have ever tried to make oil paints or clay do what you wanted them to do, you will readily admit that the medium is not neutral by any means. In fact, it has a decisive influence on the final outcome of your creative efforts. Even if you intend to communicate the same message, you will have to go about it in different ways depending on whether, for example, you design the message for wide-screen digital cinema, standard video, or a small mobile media display.

The encoding (production) as well as the decoding (reception) of the message are, to a considerable extent, a function of the technical and aesthetic potentials and requirements of the medium. Exactly how media (video, film, the computer screen, and especially the tiny smartphone display) shape or must shape the message for a specific viewer response is the subject of applied media aesthetics.

APPLIED MEDIA AESTHETICS: METHOD

The method of presenting applied media aesthetics is loosely based on Leonardo da Vinci's *Notebooks,* in which he describes the "Ten Attributes of Sight Which All Find Expression in Painting." Rather than deductively analyze a specific painting, da Vinci describes inductively the perceptual attributes that all paintings have to deal with: darkness and brightness, substance and color, form and place, and so forth.[17] More specifically, applied media aesthetics is modeled after the theories and the practices of Russian painter and teacher Wassily Kandinsky. For Kandinsky abstraction did not mean reducing a realistic scene down to its essential formal elements. SEE 1.10 Rather, it meant an inductive process of building a scene by combining the "graphic elements"—the fundamental building blocks of painting, such as points, lines, planes, color, texture, and so forth—in a certain way.[18] SEE 1.11

Following this approach, he was not limited by what was there in the world around him; instead he could extend his vision to what he felt *ought* to be there—the construction of a new world.

As you can see, the final outcome of the deductive and inductive abstraction processes is the same, but the deductive world was reduced to its basic aesthetic elements, the inductive one built by them.

Wassily Kandinsky (1866–1944) was a painter and a teacher at the Bauhaus. The Bauhaus (literally, "building house" or, more appropriate, "house for building") was founded by the well-known architect and artist Walter Gropius in Weimar, Germany, in 1919. Besides Kandinsky, members of the Bauhaus included such eminent artists as Paul Klee, Johannes Itten, Oskar Schlemmer, and László Moholy-Nagy. The Bauhaus developed a unique style for everyday objects, such as furniture, dishes, and tools, by following to its limits the basic credo *form follows function.* Its approach to educational theories was a thorough examination of such basic elements as light, space, movement, and texture. The Bauhaus was forced to close in 1933 as part of Adolf Hitler's drive to rid German culture of all "degenerate art." Later, Moholy-Nagy transferred the Bauhaus to Chicago, where it became the School of Design and, later, the Institute of Design, but it never reached the prominence of its forerunner, the Bauhaus.[19]

FUNDAMENTAL IMAGE ELEMENTS

In a similar inductive way, I have identified and isolated four fundamental and contextual ***image elements*** of video and film: light and color, space, time/motion, and sound.[20] This book examines the aesthetic characteristics and potentials of these image elements and how we can structure and apply them within their respective aesthetic fields (light and color, two-dimensional space, three-dimensional space, time/motion, and sound). This analysis is an essential prerequisite to understanding their contextual and expressive functions.

Once you know the aesthetic characteristics and potentials of these fundamental image elements, you can study how they operate in the context of a larger aesthetic field and combine them knowledgeably into patterns that clarify, intensify, and effectively communicate a significant experience. A thorough grasp of the four image elements will help you establish an aesthetic vocabulary and language unique to the medium of your choice—a language that will enable you to speak with optimum clarity, impact, and personal style.

Analysis and Synthesis

As an analysis tool, the use of the image elements differs considerably from the traditional methods of media analysis, such as semiotics and rhetorical media criticism. Rather than analyze video and film as mostly narrative "texts" to discover how their signs function and ultimately create higher meaning, media aesthetics investigates how their fundamental image elements—light and color, space, time/motion, and sound—function within specific contexts and how they contribute to how we feel. As pointed out previously, the great advantage of applied media aesthetics over other media analysis techniques is that all of its theories can be directly applied not only to media analysis but also, if not especially, to media synthesis, or the creation of media events—the production process.

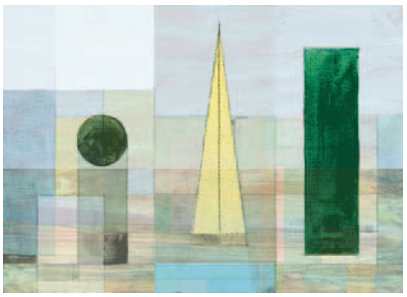
Content

You may wonder at this point what happened to the story content in all this discussion of fundamental aesthetic elements. Is not content—some form of human experience—the most fundamental of all aesthetic elements? Do we not first need an event, or some basic story idea, before we can shape it to fit the various medium and audience requirements? The answer to both of these questions is, of course, yes; but it is valuable to realize that a good idea by itself does not necessarily make for effective media communication. You must learn how to develop and mold an idea so that it fits the medium's technical as well as aesthetic production and reception requirements. This molding process, called ***encoding***, presupposes a thorough knowledge of such production tools as cameras, lenses, lighting, audio, and so forth as well as applied aesthetics, such as selective focus, the proper framing of a shot, the use of color, the selection of music, and the sequencing of various parts of a scene.


John Veltri


Gary Palmatier


Gary Palmatier


Gary Palmatier


Gary Palmatier


Gary Palmatier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Gary Palmatier

1.10 Deductive Abstraction
In the deductive approach to abstraction, we move from photographic realism to the essential qualities of the event.

1.11 Inductive Abstraction
In the inductive approach to abstraction, we study the formal elements of painting, or of video and film, and then arrange those elements to express the essential quality of an event. In this case, we combine lines, circles, and areas to build up (inductively) the essence of a cityscape.

This so-called formalistic approach to applied media aesthetics is similar to the study of production techniques. In both cases, we learn the tools and techniques before putting them to work in different contexts for a variety of communication purposes. Concern about significant literal content is not unimportant; it is merely premature. The study of vocabulary and the parts of speech does not preclude a respect for literature, but it is an essential prerequisite for writing the great American novel.

Once you have a strong grasp of applied media aesthetics, you can select those elements and techniques that are most appropriate and maximally effective for shaping specific ideas. More importantly, you will gain the opportunity to combine aesthetic elements in nontraditional ways so that your viewers can perceive the world with fresh eyes and ears and from a new and unique perspective. Conversely, the requirements and the potentials of applied media aesthetics could also generate new ideas—content that might otherwise have remained dormant. Your familiarity with the formal elements of applied media aesthetics and their respective fields will enable you to exercise your creativity to its fullest.

RESPONSIBILITY

As you now know, the basic purpose of applied media aesthetics is to clarify, intensify, and interpret events for a specific audience. Although such processes are designed to help the audience see the world from a new perspective and experience it in heightened ways, they also imply a direct and calculated manipulation of the audience's perceptions. Even when producing a simple commercial, you are purposely exploiting the feelings, the emotions, and ultimately the behaviors of your viewers. Worse, although the recipients of your aesthetically clarified and intensified messages may realize that they are being manipulated, they are usually not quite sure how. For example, alert viewers will usually recognize blatantly biased editing, but they may remain largely unsuspecting when manipulated through subtle means such as color, lens distortions, lighting effects, or contextual background sounds.

An anesthetized patient on the operating table and the aesthetically illiterate video or film viewer have much in common. Both have little control over what is happening to them, and both must trust the skills, judgment, and, above all, good intentions of someone else. Thus the surgeon and the media producer bear a heavy responsibility. One penetrates human beings with a scalpel whereas the other uses highly charged, keenly calculated aesthetic energy. This is why you, as a media communicator, must make all of your decisions within the context of established ethics—within a basically moral frame of reference.[21]

As a mass communicator who daily influences millions of unsuspecting people, or as a video artist with an audience of a few friends, acceptance of such responsibility is a major job prerequisite. Skill alone is not enough. First and foremost you must bring to the job a genuine concern and respect for your audience. And you must be prepared to bear responsibility for your actions.

As consumers of media communication, we cannot escape similar responsibilities. If we want to guard against irresponsible persuasion and take an active part in making media communication more beneficial to our fellow human beings, even as consumers we must learn as much as we can about the methods of media aesthetics.

Once we learn how lighting or sound can influence our perceptions and emotions, we are less susceptible to blind persuasion. We will be able to identify aesthetic techniques and the reasons for their use, enabling us to analyze the message for its true communication value, judge the mediated event's relative bias,

and ultimately preserve our freedom of choice. Such media literacy will help us experience with heightened awareness and joy the mediated world on the screen as well as the real world in which we live.

When applied media aesthetics has become the common province of both the communication producer and the consumer, the imprudent use of media will become less of a problem. Both will find it easier to trust the other and to treat each other with the respect and dignity worthy of our global community.

SUMMARY

Applied media aesthetics differs from traditional aesthetics in three major ways: rather than being concerned primarily with beauty and the philosophy of art, applied aesthetics deals with a number of aesthetic phenomena, including light and color, space, time/motion, and sound, and our perceptual reactions to them.

The media (video, film, and computers) themselves play an important part in shaping the message. Whereas traditional aesthetics is used primarily for analysis, media aesthetics can be applied to both analysis and synthesis—production.

In the framework of applied media aesthetics, every aspect of life has the potential to become art and to serve as raw material for aesthetic processes, so long as it is clarified, intensified, and interpreted for an audience by the artist.

Common to all perceptions is our innate urge to stabilize our environment and the practice of selective seeing and perception.

To cope with the onslaught of changing stimuli and to make our environment more manageable, our mental operating system establishes perceptual filters and has us perceive stable patterns rather than unrelated event detail.

We tend to select information that agrees with how we want to see the world and to screen out other data that might interfere with our constructs. Such habitual cue reductions tend to make us perceptually lazy and can even lead to prejudiced perceptions.

We perceive an event relative to the context in which it occurs. The bottom-up context is a given over which we have little control. As media people we have no choice but to work within it. The top-down context is intentional and in our control throughout the production process. In media aesthetics we stress the associative context, which calls up a cognitive framework in which we judge what we see by our experiences and prejudices. It is definitely culture-bound. The aesthetic context, on the other hand, is independent of a cultural frame of reference. We seem to perceive certain contextual stimuli in much the same way, irrespective of cultural upbringing or experience.

Applied media aesthetics places great importance on the influence of the medium on the message. The medium itself acts as an integral structural agent.

The method of presenting applied media aesthetics is an inductive one: rather than analyze existing video program fare and films, we isolate the four fundamental image elements of video and film, examine their aesthetic characteristics and potentials, and structure them in their respective aesthetic fields. The image elements are light and color, space, time/motion, and sound. The five principal aesthetic fields are light and color, two-dimensional space, three-dimensional space, time/motion, and sound. We thus do not take the traditional literal content (ideas to be encoded) as an essential pre- or co-requisite to the discussion of the fundamental image elements. Rather we consider the study of the image elements to be the essential prerequisite to the proper shaping of ideas and events into messages.

Because the process of clarification, intensification, and interpretation of events is based on the selection and the specific use of aesthetic elements, the recipient's perceptions are indirectly and, more often, directly manipulated. Such aesthetic manipulation must always occur and be evaluated within a framework of basic ethics. To facilitate effective communication, the consumers as well as the producers of media communication have the responsibility to learn as much as possible about applied media aesthetics and its communicative power.

NOTES

1. See Stuart W. Hyde, *Idea to Script: Storytelling for Today's Media* (Boston: Allyn and Bacon, 2003), pp. 6–7, 18–33. See also László Moholy-Nagy, *Vision in Motion* (Chicago: Paul Theobald, 1947, 1965), pp. 42–45; and Ellen Langer, *Mindfulness* (Reading, NY: Addison-Wesley, 1989).
2. The word *anesthetic* suggests that we are bereft of all aesthetics, that our perceptions are dulled or totally shut off so that we no longer receive any stimuli, even physical ones.
3. Irwin Edman, *Arts and the Man* (New York: W. W. Norton, 1967), p. 12. First published in 1928.
4. Edman, *Arts and the Man,* p. 12.
5. Robert Ornstein, *Multimind: A Way of Looking at Human Behavior* (Cambridge, MA: Malor Books, 2003), pp. 25–29.
6. Bruce E. Goldstein, *Sensation and Perception,* 9th ed. (Boston: Cengage Learning, 2014), pp. 104–5.
7. The idea of selective exposure is broadly based on the theory of cognitive dissonance, advanced by Leon Festinger in his *A Theory of Cognitive Dissonance* (Evanston, IL: Row, Peterson, 1957). Basically, the theory states that we try to reduce dissonance by seeking out comments and other information that support—are consonant with—the decisions we have made.
8. Malcolm Gladwell describes in detail how a specific top-down context (dangerous neighborhood) can lead to the most tragic events (an innocent person's being shot). See the chapter "Seven Seconds in the Bronx: The Delicate Art of Mind Reading" in his *Blink* (New York: Little, Brown, 2005), pp. 189–97.
9. Herbert Zettl, "Contextual Media Aesthetics as the Basis for a Media-Literacy Model," *Journal of Communication* 48, no. 1 (1998): 86–89. You may also encounter the term *contextualism* to describe the associative and aesthetic contexts, but contextualism can also refer to a specific branch of philosophy. Basically, as a philosophical term, *contextualism* means that we should evaluate art within its historical epoch and according to what the artist felt while creating it. All events, or "incidents of life," are relative and must be understood within their cultural contexts. Very much in the sense of a television docudrama, such incidents of life are interconnected and alive and spontaneous in their present, regardless of when they happened. See Stephen C. Pepper, *Aesthetic Quality: A Contextualistic Theory of Beauty* (New York: Charles Scribner's Sons, 1938). Also see Stephen C. Pepper, *The Basis of Criticism in the Arts* (Cambridge, MA: Harvard University Press, 1945); Stephen C. Pepper, *World Hypotheses* (Berkeley: University of California Press, 1942, 1970); and Lewis Edwin Hahn, *A Contextualistic Theory of Perception,* University of California Publications in Philosophy, vol. 22 (Berkeley: University of California Press, 1939).

   A more modern representative of contextualistic aesthetics is Hans-Georg Gadamer. Although he calls the basis for his aesthetic theory *hermeneutical epistemology,* he nevertheless represents the contextualistic point of view. See his *Truth and Method* (New York: Seabury Press, 1975). His basic credo is that understanding (*Verstehen*) can occur only within the context of everyday living and that we interpret art not outside of our actual experiential context but very much within it.

See also Keith DeRose, *The Case for Contextualism: Knowledge, Skepticism, and Context,* vol. 1 (New York: Oxford University Press, 2010). Duncan McCorquodale (ed.) demonstrates in his book *Education and Contextualism: Architects Design Partnership* (London: Black Dog, 2008) how contextualism can be applied to various architectural projects.

In this book I use *contextualism* to mean that all events we perceive are greatly influenced by their context. It also stresses the interconnection of the five principal aesthetic fields of applied media aesthetics: light and color, two-dimensional space, three-dimensional space, time/motion, and sound. Finally, it helps organize the discussion of the great variety of aesthetic elements in each field and their influence and dependence on one another.

10. This perceptual set is based on the B/13 experiment by Jerome S. Bruner and A. L. Minturn in their "Perceptual Identification and Perceptual Organization," *Journal of General Psychology* 53 (1955): 21–28.

11. This figure is based on the classic Ebbinghaus illusions as published in various books on visual illusion. See Richard D. Zakia, *Perception and Imaging,* 3d ed. (Boston: Focal Press, 2007), p. 190.

12. Being literate, or the term *literacy* in this context, does not mean the ability to read and write but rather having achieved proficiency and polish in some area of knowledge. *Media literacy* refers to a basic knowledge of how, for example, video structures pictures and sound for specific purposes. See Paul Messaris, *Visual Literacy: Image, Mind, and Reality* (Boulder, CO: Westview Press, 1994).

13. Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964), p. 314. Also see Eric McLuhan and Frank Zingrone (eds.), *Essential McLuhan* (New York: Basic Books, 1995), pp. 151–61.

14. Compare the convincing argument that it is the information systems in general and the media specifically that shape media content rather than the other way around. Some of the classic arguments are published in Joshua Meyrowitz, *No Sense of Place* (New York: Oxford University Press, 1985), pp. 13–16.

15. See Gerhard Maletzke, *Psychologie der Massenkommunikation* [Psychology of mass communication] (Hamburg: Verlag Hans-Bredow-Institut, 1978), pp. 98–100. Also see Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2002), pp. 94–115.

16. Wilbur Schramm, one of the pioneers of mass communication research, and others adapted this communication model from the basic model of information theory published by Claude Shannon and Warren Weaver in 1949. See Wilbur Schramm and Donald F. Roberts (eds.), *The Process and Effects of Mass Communication,* rev. ed. (Urbana: University of Illinois Press, 1971), pp. 22–26.

17. Edward McCurdy (ed.), *The Notebooks of Leonardo da Vinci* (Old Saybrook, CT: Konecky and Konecky, 2003), p. 874.

18. Wassily Kandinsky, *Point and Line to Plane,* trans. by Howard Dearstyne and Hilla Rebay (New York: Dover, 1979). This work was originally published as *Punkt und Linie zu Fläche* in 1926 as the ninth in a series of 14 Bauhaus books edited by Walter Gropius and László Moholy-Nagy.

19. One of the most comprehensive books on the Bauhaus is Hans M. Wingler, *The Bauhaus,* trans. by Wolfgang Jabs and Basil Gilbert (Cambridge, MA: MIT Press, 1979).

20. Herbert Zettl, "Essentials of Applied Media Aesthetics," in *Media Computing: Computational Media Aesthetics,* ed. by Chitra Dorai and Svetha Venkatesh (Boston: Kluwer Academic, 2002), pp. 11–38.

21. Louis Alvin Day, *Ethics in Media Communications,* 5th ed. (Boston: Cengage Learning, 2005). See also Herbert Zettl, "Back to Plato's Cave: Virtual Reality," in *Communication and Cyberspace,* 2nd ed., ed. by Lance Strate, Ron Jacobson, and Stephanie Gibson (Cresskill, NJ: Hampton Press, 2003), pp. 99–111; and Philippe Perebinossoff, *Real-World Media Ethics: Inside the Broadcast and Entertainment Industries* (Burlington, MA: Focal Press, 2008).

Edward Ariona

2

The First Aesthetic Field: Light

Light is essential to life. It is necessary for most things to grow. It is the key element of visual perception, and it orients us in space and time. It also affects our emotions. Light is the agent that makes things visible. When we look at our surroundings, we receive a multitude and variety of light reflections. Each reflection has a certain degree of light intensity and complexity. The intensity variations appear to us as light or dark areas—as light and shadow—and the complexity as color.

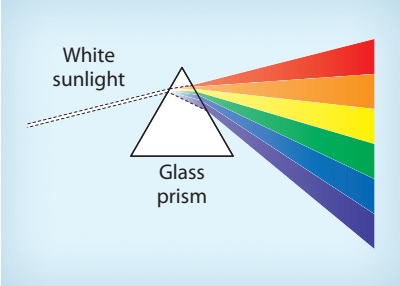
Of course, we perceive light reflections as actual things. Most likely, we do not say, "I see the light variations that are reflected off these different surfaces." Rather we say, "This is an automobile." Often we conceive light to be the property of the objects themselves.[1] We speak of light and dark hair, a red ball, a green frog, and a bright sky.

Video and film, as well as computer images, are pure light shows. In contrast to the theater, for example, where light is used simply to make things visible onstage and to set a mood, the final images on the movie screen and on electronic screens consist of light. The *materia* of the theater—the stuff that makes theater—is people and objects in the real space and time of the stage. The *materia* of television and film, however, is light. The control of light is therefore paramount to the aesthetics of television and film. ***Lighting***, then, is the deliberate manipulation of light and shadows for a specific communication purpose.

Before you try to manipulate light and shadows and use them creatively, you need to familiarize yourself with the nature of light, lighting purposes and functions, the nature of shadows, and the outer and inner orientation functions of lighting.

THE NATURE OF LIGHT

Light is a form of radiant energy. It consists of separate bits of energy—energy particles—that behave commonly as electromagnetic waves. It makes up a part of the total electromagnetic spectrum, which includes such other magnetic energy waves as radio waves, X-rays, satellite transmissions, and the waves in your microwave oven that heat up your coffee.



2.1 The Visible Spectrum
When we shine a beam of sunlight through a prism (such as diamonds or water drops), we see spectral colors ranging from red to violet.

Herbert Zettl

2.2 Visibility of Light
We see light only at its source and when it is reflected.

So-called white sunlight consists of a combination of light waves that are visible as various colors. When white sunlight is bent by a prism, it separates into a spectrum of clearly discernible hues: red, orange, yellow, green, blue, and violet. SEE 2.1

Because we can see the colors, that is, the various electromagnetic waves, *light* is usually defined as "visible radiant energy." Actually, light is invisible: we can see it only at its source or when it is reflected. SEE 2.2 For example, a beam of light that shoots across a clean room or studio remains invisible to our eyes and to the camera unless the light hits a reflecting agent, such as dust, smoke, an object, or a person.

If there were not a reflecting atmosphere, the sky would appear always dark, and you could see the stars even during the day. In deep space the astronauts see a black sky even in sunlight. If our surroundings did not reflect light, we would live in total darkness, much as if there were no light at all.

LIGHTING PURPOSES AND FUNCTIONS

Lighting is the deliberate control of light and shadows. The basic purpose of lighting is to manipulate and articulate our perception of the environment. It can also establish an aesthetic context for our experiences, a framework that tells us how we should feel about a certain event. Lighting helps us, or makes us, see and feel in a specific way.

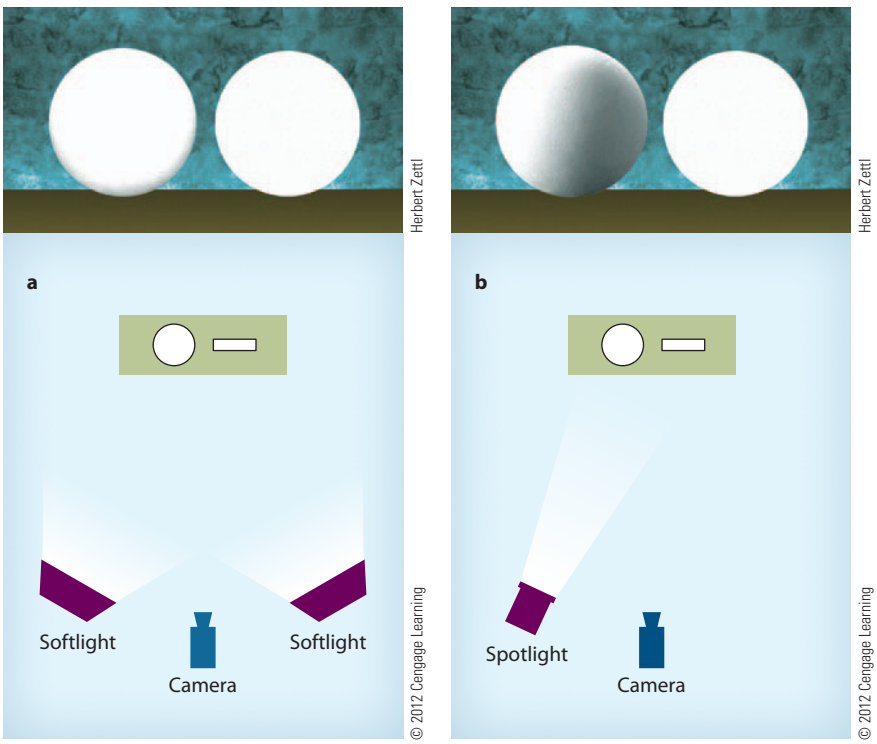
Through lighting we can articulate our outer space/time environment and our inner environment—our emotions. Lighting reveals what objects look like, where they are located, and what surface textures they have. It also influences how we feel about a person or an event. Very much like music, lighting can bypass our usual cognitive perceptual screens—our rational faculty with its critical judgment—and affect us directly and immediately. Because lighting helps articulate our outer and inner environments, it has outer and inner orientation functions. Both functions depend to a great extent on the proper control of shadows. Let's take a closer look at shadows before discussing the specific orientation functions of lighting.

THE NATURE OF SHADOWS

Ordinarily, we are not aware of shadows; we take them for granted. We readily accept the harsh and distinct shadows on a sunny day, the soft shadows on an overcast day, and the virtual absence of shadows under fluorescent lights. Only occasionally do we become more conscious of shadows. For example, we seek the shade when the sun gets too hot during an outdoor picnic, we adjust the reading lamp so that the shadow of our head or hand does not fall directly on the page, or we might chuckle when our shadow shows us an especially distorted image of ourselves.

When you are engaged in clarifying and intensifying an event through lighting, however, you become very aware of shadows and learn to use them for specific orientation tasks. It is not the basic illumination that defines the texture of people and things—it is the shadows. You will find that in critical lighting situations, you often need more lighting instruments for controlling the shadows than for making things visible.

Let's look at an example. SEE 2.3A Both objects look like simple white discs; both are lighted with highly diffused light (by using floodlights), rendering them practically shadowless and revealing little more than their basic contour. As soon as you use a more directional light source, such as a Fresnel spotlight, and place it somewhat to the side of the object, you have no trouble distinguishing between the two. SEE 2.3B Because the directional light produces dense shadows, you can now see that the left object is a white ball and not a disc. But the object on the right remains evenly lighted, without any shadows. It looks like, and indeed is, a disc.



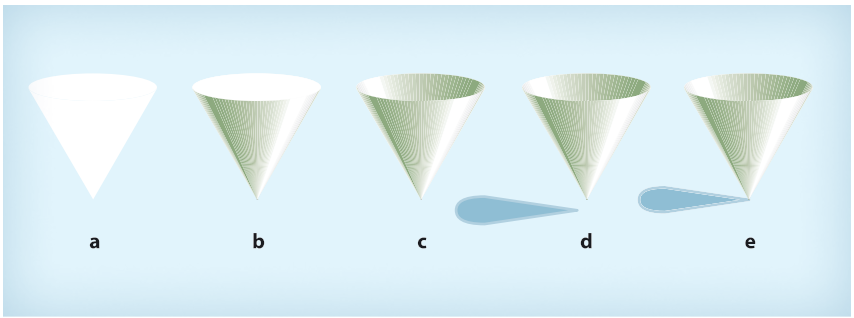
2.3 Shadows Define Space

a When objects are lighted "flat" with a highly diffused light source, such as a scoop or softlight, we see nothing more than two flat discs.

b With a more directional light source, such as a Fresnel or ellipsoidal spotlight, placed somewhat to the side of the object, we see that the object on the left is a sphere and the one on the right a flat disc.

2.4 Shadows Define Shape and Location

The attached shadows give us additional information about the true shape of the object (the hollow cone). The cast shadow tells us where the object is relative to its surroundings.



Now look at the next figure. SEE 2.4 Without seeing any shadows (figure 2.4a), we perceive only the basic contour of the object—an inverted triangle with a curved top—but the true spatial nature of the object and its location relative to its environment remain ambiguous. As soon as we attach a shadow (2.4b), pretending that the main light source is coming from the right, we perceive the object as rounded and three-dimensional. An additional shadow on the top of the object (2.4c) reveals that the object is a cone and that it is hollow. The cone's shadow that is cast on another surface tells us where the cone is in relation to the horizontal surface (a table) directly underneath it (2.4d); according to this shadow, the cone obviously floats above the table. The shadow in figure 2.4e is connected to the tip of the cone; we now see the cone as touching the table. Thus the initial spatial ambiguity has been drastically reduced by the various shadows.

Leonardo da Vinci (1452–1519), considered the most gifted genius of the Italian Renaissance, was equally versed as a painter, an architect, a designer, and an inventor.

Attached and Cast Shadows

If you take another look at figure 2.4, you will probably notice that some shadows are attached to the cone and others are relatively independent of it. An equally astute observer, Leonardo da Vinci, called these two types of shadows *attached* and *cast*.

Attached shadows An ***attached shadow*** is inevitably fixed to its object. No amount of wiggling or turning will remove the shadow from the object, assuming you keep it under the same lighting conditions. The attached shadow helps reveal the basic form of an object, but it can also fool you into perceiving what you normally expect to see. SEE 2.5 Figure 2.5a shows an ornament that protrudes; figure 2.5b shows one that is indented. The major clues for such perceptions are the attached shadows. Now turn your book upside down and take another look.

Herbert Zettl

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2.5 Attached Shadow Reversal

a In this ornament the attached shadow is at the top of the circles. Because we naturally expect light to be coming from above, we see this ornament first to indent, then to protrude, then to indent and protrude again.

b This is the same ornament as in (a) except it is turned upside down. Now you will probably perceive the exact opposite: a protrusion first, then an indentation, another protrusion, then another indentation. By turning the book upside down, the ornaments will reverse once more.

Figure 2.5a now shows an indented ornament, and figure 2.5b shows a protruding one. Why? Because through lifelong experience, we assume that light comes from above rather than from below, so we expect the attached shadows to appear in the upper part of an indentation and the lower part of a protrusion. This perceptual habit is so strong that we will readily accept a change in the actual appearance of the object rather than the assumed direction of illumination.

If the proper perception of protrusions and indentations is crucial, you must light the object steeply from above to place strong attached shadows where we expect them to be. This type of space articulation is especially important for painters and graphic artists, who must suggest protrusions and indentations on a flat surface by painting in prominent attached shadows. Attached shadows help us primarily with interpreting an object's basic shape and texture.

Herbert Zettl

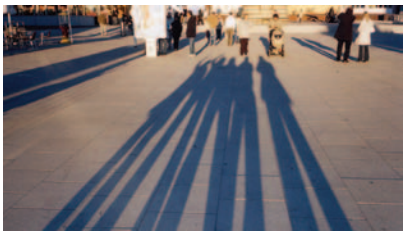
2.6 Cast Shadow: Object-Connected
This shadow of the fence is no longer part of the fence but cast by the strong spotlight of the sun onto the road.

Cast shadows Whereas the attached shadow is always part of the actual object and is virtually glued to the side that is turned away from the light, the ***cast shadow*** always falls on something, in this case the road. SEE 2.6 Other examples of cast shadows are the shadow of a power pole that stretches across the street, the shadow of a tree that falls on the grass beneath it and provides a cool spot for a picnic, or an airplane's shadow moving across the landscape. Most cast shadows show a distorted shape of an object. SEE 2.7 As you can see in figure 2.7, we can take a photograph of cast shadows without showing the people who cause them.

Another example of the independence of cast shadows is making shadow pictures on a brightly lighted wall. You can admire the cast shadows of your creations without ever looking at your hand. Although the shadows are projected onto the wall, they are not part of the wall and disappear as soon as you drop your hand.

Cast shadows help us locate an object relative to its surroundings. SEE 2.8 The cast shadow indicates whether the object rests on the table or is suspended above it. Notice how the cast shadow becomes independent of the object and gets fuzzier at the edges as the object moves farther away from the table. SEE 2.9

Contrary to the attached shadow, which is inevitably fixed to its object, a cast shadow may be connected to the object that causes it or be totally free of it. SEE 2.10 A cast shadow that is still connected to its object is called object-connected; one that is seen independent of its object is called object-disconnected. Note that object-connected cast shadows are not the same as attached shadows. In contrast to attached shadows, cast shadows become disconnected from the object as soon as you move it away from the surface on which it is resting. Figure 2.9 shows a good example: when the ball is lifted from the table, the cast shadow becomes object-disconnected; the attached shadow, however, remains on the ball.



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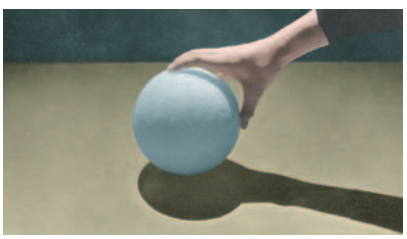
2.7 Cast Shadows: Object-Disconnected
These cast shadows no longer connect to the people causing them.



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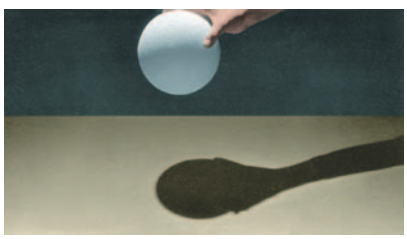
2.8 Cast Shadow: Object-Connected
Cast shadows can reveal whether objects rest on another surface (in this case, a table) or are separate from it. Notice here that the shadow is still object-connected. The white ball rests on the table (and on its own shadow).



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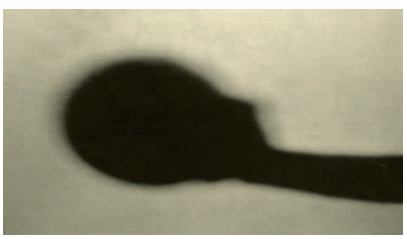
2.9 Cast Shadow: Object-Disconnected
Now that the object no longer rests on the table, the cast shadow has become object-disconnected. In contrast to the attached shadow, which remains on the object, the cast shadow is now independent of it.



Herbert Zettl

2.10 Cast Shadow: Independent
The farther away the ball moves from the table, the fuzzier its cast shadow appears. Such interpretations of cast shadows are crucial for computer-generated images.

Edward Aiona

2.11 Cast Shadows Suggest Locale

Cast shadows are sometimes used to suggest a certain location, such as a jail cell, which is not actually shown.

John Veltri

2.12 Cast Shadows Add Drama

We can use cast shadows to create or emphasize a dramatic event.

Although we are normally unaware of or unconcerned about cast shadows, we continually make spatial judgments by perceiving their general shape, intensity, and direction and are readily influenced by their dramatic implications and impact. Cast shadows can help break up large, monotonous surfaces and give an area more visual variety and interest. They can suggest a specific locale, add drama to an event, and even help tell time. SEE 2.11 AND 2.12 The discussion of outer and inner orientation functions later in this chapter includes more specific information about the two types of shadows.

Not all cast shadows are desirable. The infamous microphone boom or camera shadow on someone's face or on the living room wall is an ever-present menace during large studio productions. So are the multiple cast shadows in a scene that simulates illumination by sunlight or a single table lamp. When you see the lone lost and thirsty hero cast three long shadows onto the hot desert sand while desperately trying to make contact with his cell phone, you needn't worry about him: he will have plenty of time to get a glass of water while the studio crew is resetting the lights to simulate the illumination coming from a single sun.

The distinction between attached and cast shadows is important not only in critical video and film lighting but also in creating scenes with a graphics generator or in working out computer-generated designs. Although ultimately linked logically, attached and cast shadows require separate and careful attention during the design phase. For example, you need to have attached shadows change positions on the object when the object moves relative to the (usually virtual) light source or when the light source moves relative to the object.

Figures 2.8 to 2.10 show that a cast shadow must also get larger and less dense when the object moves away from the surface on which the shadow is cast (or smaller and denser as the object moves toward such a surface). The constantly changing cast shadows are an important indicator of position change when you move through a virtual-reality environment. Just make sure that when simulating a light source, your three-dimensional (3D) software has both types of shadows move accordingly.

Falloff

We use the term ***falloff*** to mean two different yet related light/shadow relationships: the brightness contrast between the light and shadow sides of an object, and the rate of change from light to shadow.[2]

Contrast If the brightness contrast between the lighted side of an object and the attached shadow is high, the falloff is *fast.* This means that the illuminated

Edward Aiona

2.13 Fast Falloff

Spotlights, which have a highly directional beam, produce fast falloff. Note that the light side and the dark attached-shadow side differ greatly in brightness. This results in high-contrast lighting.

Edward Aiona

2.14 Slow Falloff

A highly diffused floodlight produces slow falloff. There is little brightness contrast between the illuminated side and the shadow side. The attached shadow has become transparent.

Edward Aiona

2.15 Elimination of Falloff

When both sides are equally bright, there is no falloff: there is no longer a discernible shadow side, and the picture looks flat.

side is relatively bright, and the attached shadow is dense and dark. **SEE 2.13** If the brightness contrast is low, the resulting falloff is *slow.* **SEE 2.14** In figure 2.14 the brightness difference between the illuminated side and the attached-shadow side is relatively small. In extremely flat lighting, no contrast at all shows between the so-called illuminated and shadow sides. In this case, falloff no longer exists. **SEE 2.15** Because most flash photography illuminates the subject directly from the front, both sides are often equally bright. Such elimination of the light/shadow contrast—and with it the falloff—results in the typically flat image of such snapshots.

Change Calling falloff "fast" or "slow" makes more sense when applied to the rate of change between light and dark. **SEE 2.16** Look, for example, at the tops of the steps in figure 2.16: they are exposed to the sun and are very bright, but they suddenly turn into dense attached shadows at the risers. Such an abrupt change from light to shadow represents extremely fast falloff. Conversely, you automatically interpret such fast falloff on a surface as an edge.

Now imagine yourself moving, like Spider-Man, across the rounded surface of a domed building. You will move from bright sunlight to a hint of a shadow until you reach a dense area of attached shadow at the far side of the rounded building. Because such a change from light to dense shadow is much more gradual than on the steps, the falloff on a curved surface is slow. **SEE 2.17** If the falloff on a curved surface is exceptionally fast, we have a tendency to perceive the rounded surface as an edge. To emphasize the rounded surface, you need to slow the falloff.

Controlling falloff You can control falloff by using highly directional or diffused light for the basic illumination and by manipulating the amount of fill light.[3]

Gary Palmatier

2.16 Fast Falloff: Edge

The lighting on these steps shows fast falloff. The change from light to dark is sudden, signifying a sharp edge or corner.

John Veltri

2.17 Slow Falloff: Curved Surface

The light on the surface falls off gradually into its attached shadow. The surface of this building is obviously curved.