Back to the Bauhaus

Ellen Lupton

The idea of searching out a shared framework in which to invent and organize visual content dates back to the origins of modern graphic design. In the 1920s, institutions such as the Bauhaus in Germany explored design as a universal, perceptually based "language of vision," a concept that continues to shape design education today around the world.

This book reflects on that vital tradition in light of profound shifts in technology and global social life. Whereas the Bauhaus promoted rational solutions through planning and standardization, designers and artists today are drawn to idiosyncrasy, customization, and sublime accidents as well as to standards and norms. The modernist preference for reduced, simplified forms now coexists with a desire to build systems that yield unexpected results. Today, the impure, the contaminated, and the hybrid hold as much allure as forms that are sleek and perfected. Visual thinkers often seek to spin out intricate results from simple rules or concepts rather than reduce an image or idea to its simplest parts.

The Bauhaus Legacy In the 1920s, faculty at the Bauhaus and other schools analyzed form in terms of basic geometric elements. They believed this language would be understandable to everyone, grounded in the universal instrument of the eye.

Bauhaus faculty pursued this idea from different points of view. Wassily Kandinsky called for the creation of a "dictionary of elements" and a universal visual "grammar" in his Bauhaus textbook *Point and Line to Plane*. His colleague László Moholy-Nagy sought to uncover a rational vocabulary ratified by a shared society and a common humanity. Courses taught by Josef Albers emphasized systematic thinking over personal intuition, objectivity over emotion.

Albers and Moholy-Nagy forged the use of new media and new materials. They saw that art and design were being transformed by technology—photography, film, and mass production. And yet their ideas remained profoundly humanistic, always asserting the role of the individual over the absolute authority of any system or method. Design, they argued, is never reducible to its function or to a technical description.

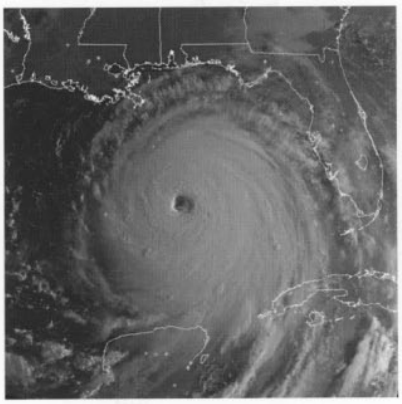
Since the 1940s, numerous educators have refined and expanded on the Bauhaus approach, from Moholy-Nagy and Gyorgy Kepes at the New Bauhaus in Chicago; to Johannes Itten, Max Bill, and Gui Bonsiepe at the Ulm School in Germany; to Emil Ruder and Armin Hofmann in Switzerland; to the "new typographies" of Wolfgang Weingart, Dan Friedman, and Katherine McCoy in Switzerland and the United States. Each of these revolutionary educators articulated structural approaches to design from distinct and original perspectives.

Some of them also engaged in the postmodern rejection of universal communication. According to postmodernism, which emerged in the 1960s, it is futile to look for inherent meaning in an image or object because people will bring their own cultural biases and personal experiences to the process of interpretation. As postmodernism itself became a dominant ideology in the 1980s and '90s, in both the academy and in the marketplace, the design process got mired in the act of referencing cultural styles or tailoring messages to narrowly defined communities.

The New Basics Designers at the Bauhaus believed not only in a universal way of *describing* visual form, but also in its universal *significance.* Reacting against that belief, postmodernism discredited formal experiment as a primary component of thinking and making in the visual arts. Formal study was considered to be tainted by its link to universalistic ideologies. This book recognizes a difference between description and interpretation, between a potentially universal language of making and the universality of meaning.

Today, software designers have realized the Bauhaus goal of describing (but not interpreting) the language of vision in a universal way. Software organizes visual material into menus of properties, parameters, filters, and so on, creating tools that are universal in their social ubiquity, cross-disciplinarity, and descriptive power. Photoshop, for example, is a systematic study of the features of an image (its contrast, size, color model, and so on). InDesign and QuarkXpress are structural explorations of typography: they are software machines for controlling leading, alignment, spacing, and column structures as well as image placement and page layout.

In the aftermath of the Bauhaus, textbooks of basic design have returned again and again to elements such as point, line, plane, texture, and color, organized by principles of scale, contrast, movement, rhythm, and balance. This book revisits those concepts as well as looking at some of the new universals emerging today.



Transparency and Layers The Google Earth interface allows users to manipulate the transparency of overlays placed over satellite photographs of Earth. Here, Hurricane Katrina hovers over the Gulf Coast of the U.S. Storm: University of Wisconsin, Madison Cooperative Institute for Meteorological Satellite Studies, 2005. Composite: Jack Gondela.

What are these emerging universals? What is new in basic design? Consider, for example, transparency—a concept explored in this book. Transparency is a condition in which two or more surfaces or substances are visible through each other. We constantly experience transparency in the physical environment: from water, glass, and smoke to venetian blinds, slatted fences, and perforated screens. Graphic designers across the modern period have worked with transparency, but never more so than today, when transparency can be instantly manipulated with commonly used tools.

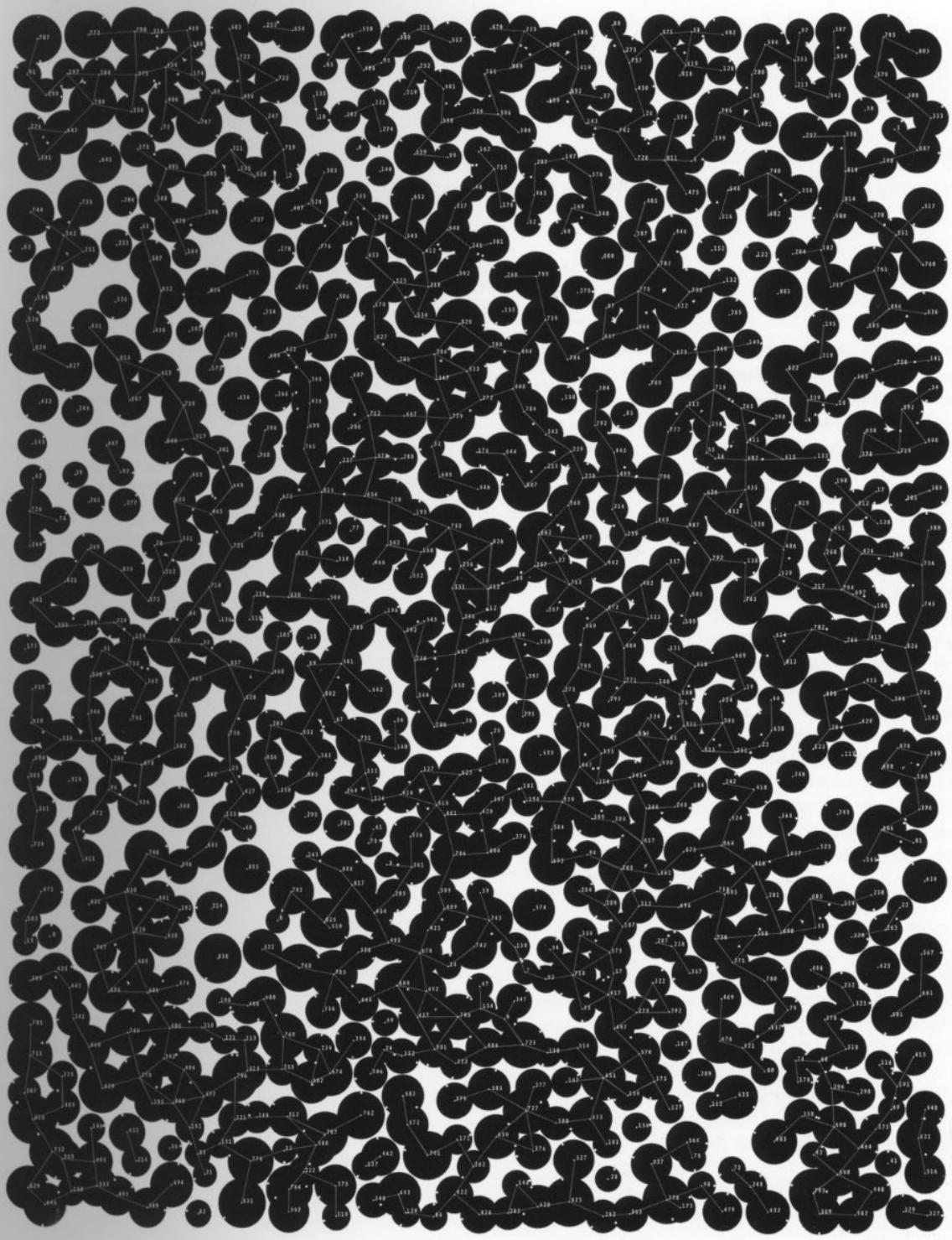
What does transparency *mean*? Transparency can be used to construct thematic relationships. For example, compressing two pictures into a single space can suggest a conflict or synthesis of ideas (East/West, male/female, old/new). Designers also employ transparency as a compositional (rather than thematic) device, using it to soften edges, establish emphasis, separate competing elements, and so on.

Transparency is crucial to the vocabulary of film and motion-based media. In place of a straight cut, an animator or editor diminishes the opacity of an image over time (fade to black) or mixes two semitransparent images (cross dissolve). Such transitions affect a film's rhythm and style. They also modulate, in subtle ways, the message or content of the work. Although viewers rarely stop to interpret these transitions, a video editor or animator understands them as part of the basic language of moving images.

Layering is another universal concept with rising importance. Physical printing processes use layers (ink on paper), and so do software interfaces (from layered Photoshop files to sound or motion timelines).

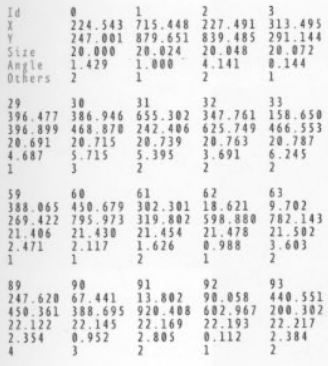
Transparency and layering have always been at play in the graphic arts. In today's context, what makes them new again is their omnipresent accessibility through software. Powerful digital tools are commonly available to professional artists and designers but also to children, amateurs, and tinkerers of every stripe. Their language has become universal.

Software tools provide models of visual media, but they don't tell us what to make or what to say. It is the designer's task to produce works that are relevant to living situations (audience, context, program, brief, site) and to deliver meaningful messages and rich, embodied experiences. Each producer animates design's core structures from his or her own place in the world.



Point, Line, Plane

A line is the track made by the moving point... It is created by movement—specifically through the destruction of the intense, self-contained repose of the point. Wassily Kandinsky



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Angle	1.429	1.000	4.141	0.144
Others	2	1	2	1

29	30	31	32	33
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396.899	468.870	242.406	625.749	466.553
20.691	20.715	20.739	20.763	20.787
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1	3	2	2	2

59	60	61	62	63
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269.422	795.973	319.802	598.880	782.143
21.406	21.430	21.454	21.478	21.502
2.471	2.117	1.626	0.988	3.603
1	1	2	1	2

89	90	91	92	93
247.620	67.441	13.802	90.058	440.551
450.361	388.695	920.408	602.967	200.302
22.122	22.145	22.169	22.193	22.217
2.354	0.952	2.805	0.112	2.384
4	3	2	1	2

Point to Line Processing is a programming language created by C. E. B. Reas and Benjamin Fry. In this digital drawing by Reas, the lines express a relationship among the points, derived from numerical data. C. E. B. Reas. *Process 4 (Form/Data 1)*, 2005 (detail).

Point, line, and plane are the building blocks of design. From these elements, designers create images, icons, textures, patterns, diagrams, animations, and typographic systems. Indeed, every complex design shown in this book results at some level from the interaction of points, lines, and planes.

Diagrams build relationships among elements using points, lines, and planes to map and connect data. Textures and patterns are constructed from large groups of points and lines that repeat, rotate, and otherwise interact to form distinctive and engaging surfaces. Typography consists of individual letters (points) that form into lines and fields of text.

For hundreds of years, printing processes have employed dots and lines to depict light, shadow, and volume. Different printing technologies support distinct kinds of mark making. To produce a woodcut, for example, the artist carves out material from a flat surface. In contrast to this subtractive process, lithography allows the artist to make positive, additive marks across a surface. In these processes, dots and lines accumulate to build larger planes and convey the illusion of volume.

Photography, invented in the early 1800s, captures reflected light automatically. The subtle tonal variations of photography eliminated the intermediary mesh of point and line.

Yet reproducing the tones of a photographic image requires translating it into pure graphic marks, because nearly every mechanical printing method—from lithography to laser printing—works with solid inks. The halftone process, invented in the 1880s and still used today, converts a photograph into a pattern of larger and smaller dots, simulating tonal variation with pure spots of black or flat color. The same principle is used in digital reproduction.

Today, designers use software to capture the gestures of the hand as data that can be endlessly manipulated and refined. Software describes images in terms of point, line, plane, shape, and volume as well as color, transparency, and other features. There are numerous ways to experiment with these basic elements of two-dimensional design: observing the environment around you, making marks with physical and digital tools, using software to create and manipulate images, or writing code to generate form with rules and variables.

•

x = 4.5521 in
y = 0.997 in

Point

A point marks a position in space. In pure geometric terms, a point is a pair of x, y coordinates. It has no mass at all. Graphically, however, a point takes form as a dot, a visible mark. A point can be an insignificant fleck of matter or a concentrated locus of power. It can penetrate like a bullet, pierce like a nail, or pucker like a kiss. Through its scale, position, and relationship to its surroundings, a point can express its own identity or melt into the crowd.

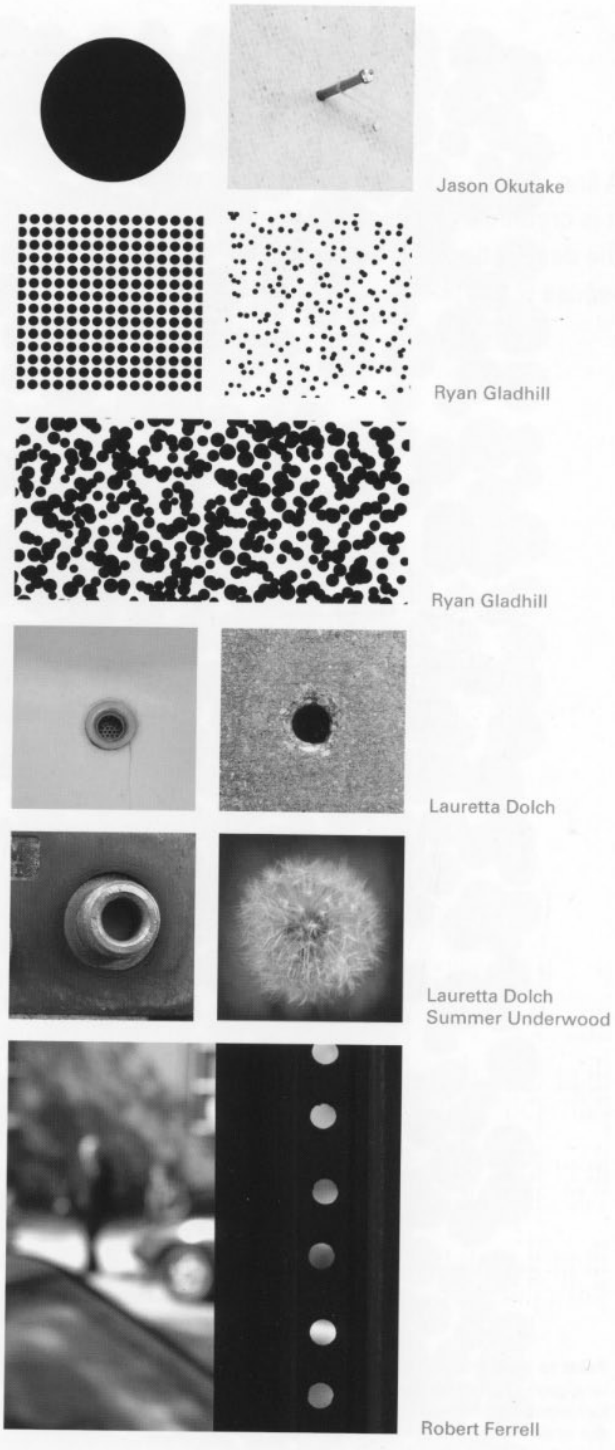
A series of points forms a line. A mass of points becomes texture, shape, or plane. Tiny points of varying size create shades of gray.

The tip of an arrow points the way, just as the crossing of an X marks a spot.

In typography, the point is a period—the definitive end of a line. Each character in a field of text is a singular element, and thus a kind of point, a finite element in a series.

end of a line.

In typography, each character in a field of text is a point, a finite element represented by a single key stroke. The letter occupies a position in a larger line or plane of text. At the end of the line is a period. The point is a sign of closure, of finality. It marks the end.



Jason Okutake

Ryan Gladhill

Ryan Gladhill

Lauretta Dolch

Lauretta Dolch
Summer Underwood

Robert Ferrell

Digital Imaging. Al Maskeroni, faculty.

Destructive Points Never underestimate the power of a point. This damaged facade was photographed in the war-torn city of Mostar, on the Balkan Peninsula in Bosnia and Herzegovina. Nancy Froehlich.

length = .9792 in

Line

A line is an infinite series of points. Understood geometrically, a line has length, but no breadth. A line is the connection between two points, or it is the path of a moving point.

A line can be a positive mark or a negative gap. Lines appear at the edges of objects and where two planes meet.

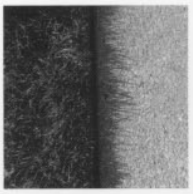
Graphically, lines exist in many weights; the thickness and texture as well as the path of the mark determine its visual presence. Lines are drawn with a pen, pencil, brush, mouse, or digital code. They can be straight or curved, continuous or broken. When a line reaches a certain thickness, it becomes a plane. Lines multiply to describe volumes, planes, and textures.

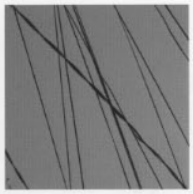
A graph is a rising and falling line that describes change over time, as in a waveform charting a heart beat or an audio signal.

In typographic layouts, lines are implied as well as literally drawn. Characters group into lines of text, while columns are positioned in blocks that are flush left, flush right, and justified. Imaginary lines appear along the edges of each column, expressing the order of the page.

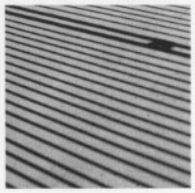
Jeremy Botts

Lines express emotions.





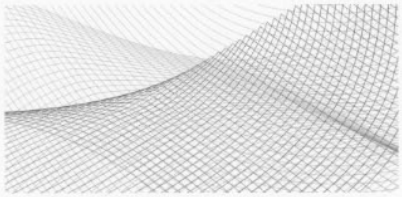
Josh Sims
Bryan McDonough



Alex Ebright
Justin Lloyd

Digital Imaging.
Nancy Froehlich,
faculty.

Lines describe structure and edges.



Allen Harrison

Lines turn and multiply to describe planes.

Type sits on a baseline.

Typographic alignment refers to the organization of text into columns with a hard or soft edge. A justified column is even along both the left and right sides.

The crisp edge of a column is implied by the even starting or ending points of successive lines of type. The eye connects the points to make a line. Such typographic lines are implied, not drawn.

width = 0.9792 in
height = 0.9792 in

Plane
A plane is a flat surface extending in height and width. A plane is the path of a moving line; it is a line with breadth. A line closes to become a shape, a bounded plane. Shapes are planes with edges. In vector-based software, every shape consists of line and fill. A plane can be parallel to the picture surface, or it can skew and recede into space. Ceilings, walls, floors, and windows are physical planes. A plane can be solid or perforated, opaque or transparent, textured or smooth.

A field of text is a plane built from points and lines of type. A typographic plane can be dense or open, hard or soft. Designers experiment with line spacing, font size, and alignment to create different typographic shapes.

In typography, letters gather into lines, and lines build up into planes. The quality of the plane—its density or opacity, its heaviness or lightness on the page—is determined by the size of the letters, the spacing between lines, words, and characters, and the visual character of a given typeface.

Hard, closed shape

In typography, letters gather into lines, and lines build up into planes. The quality of the plane—its density, its opacity, its weight on the page—is determined by the size of the letters, the spacing between lines, words, and characters, and the visual character of a given typeface.

Soft, open shape

Plane Letters A plane can be described with lines or with fields of color. These letterforms use ribbons of color to describe spatial planes. Kelly Horigan, Experimental Typography. Ken Barber, faculty.

Parallel Lines Converge Summer Underwood

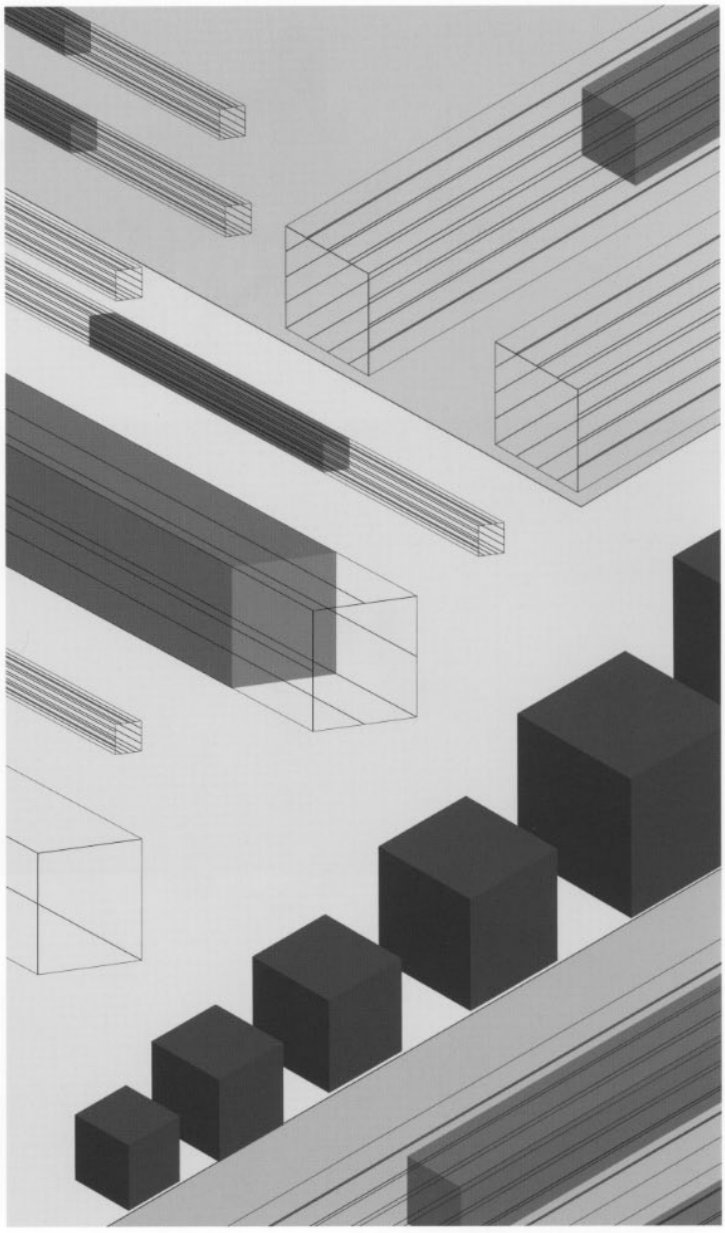
Space and Volume

A graphic object that encloses three-dimensional space has volume. It has height, width, and depth. A sheet of paper or a computer screen has no real depth, of course, so volume is represented through graphic conventions.

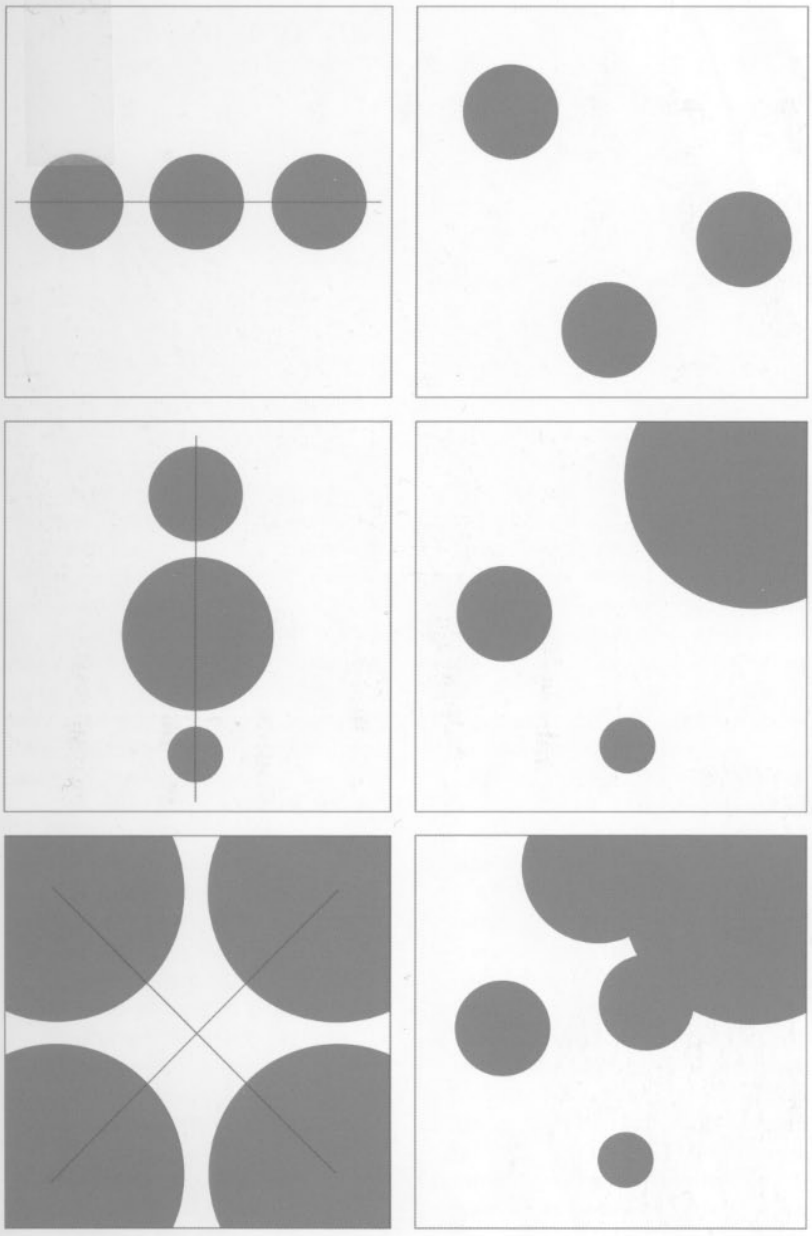
Linear perspective simulates optical distortions, making near objects appear large as far objects become small, receding into nothing as they reach the horizon. The angle at which elements recede reflects the position of the viewer. Are the objects above or below the viewer's eye level? Camera lenses replicate the effects of linear perspective, recording the position of the camera's eye.

Axonometric projections depict volume without making elements recede into space. The scale of elements thus remains consistent as objects move back into space. The result is more abstract and impersonal than linear perspective.

Architects often use axonometric projections in order to keep a consistent scale across the page. Digital game designers often use this technique as well, creating maps of simulated worlds rather than depicting experience from the ground.



Projection Study This idealized landscape uses axonometric projection, in which scale is consistent from the front to back of the image. As seen on a map or computer game, this space implies a disembodied, godlike viewer rather than a physical eye positioned in relation to a horizon. Visakh Menon, MFA Studio.



Symmetry and Asymmetry
Symmetry can be left to right, top to bottom, or both. Many natural organisms have a symmetrical form. The even weighting of arms and legs helps insure a creature's safe mobility; a tree develops an even distribution of weight around its core to stand erect; and the arms of a starfish radiate from the center.

Symmetry is not the only way to achieve balance, however. Asymmetrical designs are generally more active than symmetrical ones, and designers achieve balance by placing contrasting elements in counterpoint to each other, yielding compositions that allow the eye to wander while achieving an overall stability.

Symmetry The studies above demonstrate basic symmetrical balance. Elements are oriented along a common axis; the image mirrors from side to side along that axis. The configurations shown here are symmetrical from left to right and/or from top to bottom.

Asymmetry These studies use asymmetry to achieve compositional balance. Elements are placed organically, relying on the interaction of form and negative space and the proximity of elements to each other and to the edges of the field, yielding both tension and balance.