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◀ 7.19 Hasegawa Tohaku. *Pine Trees*

(c. 1605–1610) Right of a pair of sixfold screens, ink on paper (61 3/4" × 140 1/4").

region. As the vista recedes from the viewer, the plant life and the hills grow less textured, and the colors lose their saturation. The light source in the distance may be the sun, but it serves as a metaphor for heaven. Pictorially, it washes out all detail in the vast distance.

Depth is perceived in the photograph of Machu Picchu and in Church's painting because of contrasts of hue and value, warm and cool colors, and the relative clarity of the imagery. In both, things that are closer to the viewer are lower in the composition (or frame); things farther away are at the top.

Hasegawa Tohaku's *Pine Trees* (Fig. 7.19), on the other hand, relies more exclusively on atmospheric perspective to create the illusion of depth. The pines define their own spatial context—no tiny plant life to assert their scale, no hills to create a distant backdrop. The illusion of depth—and of sublime, dreamy mists—is created by subtle gradations in texture and tone. There is some overlapping and some placement of more distant trees higher on the screens, but there is little difference in their relative size. When we gaze into the hazy “depths,” we find that the illusion of depth is created by what is *not* there more than by what *is* there.

Linear Perspective

Linear perspective refers to formal systems developed by artists to portray

three-dimensional objects in two-dimensional space. The goal is to provide the viewer with the same impression of relative size, position, or distance that would be created by viewing the objects from a particular point called a **vantage point**. As objects recede from the viewer, they diminish in size and eventually become so small that they vanish. The point at which they “vanish” is called the **vanishing point**. Imagine that you are standing between the two rails

of a railroad track and looking toward the horizon (that imaginary line perceived where the earth and the sky meet)—or as far into the distance that you possibly can. The rails will appear to **converge** the closer they get to the horizon until they look as if they come together. That single point at which they seem touch is a vanishing point on the horizon line. This phenomenon is captured in a photograph of a performance piece by William Pope.L. titled *Training Crawl, Lewiston, ME* (Fig. 7.20).

linear perspective / Formal systems developed by artists to portray three-dimensional objects in two-dimensional space; based on the fact that objects appear smaller when they are farther from the viewer; therefore, parallel lines (such as train tracks) appear to converge as they recede from the viewer.

vantage point / The actual or apparent spot from which a viewer observes an object or picture.

vanishing point / In linear perspective, a point on the horizon where parallel lines appear to converge.

horizon / In linear perspective, the imaginary line (frequently, where the earth seems to meet the sky) along which converging lines meet. Vanishing points are placed on the horizon.

converge / Come together.



▲ 7.20 William Pope.L. *Training Crawl* (2001) Street performance. Lewiston, Maine. William Pope.L trains for “The Great White Way,” his marathon five-year crawl up Broadway in Manhattan.

Photo credit Luc Demers, courtesy of the artist.

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A 7.21 Panel from Cubiculum from the Bedroom of the Villa of Publius Fannius at Boscoreale, Pompeii (c. 50–40 BCE) Fresco.

Brunelleschi, as mentioned earlier, is often regarded as the one who discovered, or perhaps rediscovered, the theory of perspective. But it was Leon Battista Alberti, another Florentine architect, who popularized the use of perspective with his treatise *Della Pittura*, written in 1436. In this day, the book might have been titled *Perspective for Dummies*—anyone could unlock the secrets of creating the illusion of space by following his instructions. The history of linear perspective, however, may predate Brunelleschi and Alberti by two millennia. Roman wall painters were also using linear perspective to transform featureless, flat walls into complex and picturesque scenes with a quite convincing illusion of depth (Fig. 7.21).

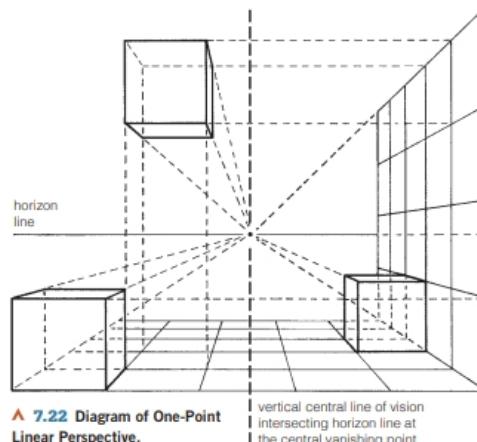
ONE-POINT PERSPECTIVE.
One-point perspective is a system that enables the artist to project the three-dimensional world onto a two-dimensional surface by accurately representing the size of objects relative to the depth of the receding space. First a horizon line

(equivalent to the artist's eye level) is determined and a single point placed somewhere along it—typically in the exact center (Fig. 7.22). Diagonal lines representing depth are then drawn from the four corners—and four edges—of the composition toward the center point; these diagonals are called **orthogonals**. The lines in the diagram that are parallel to the horizon line are called **transversals**. The intersection of the orthogonals and transversals create a grid that the artist can use to determine the “visually correct” size of figures or objects or to arrange architecture within the illusionistic space so that it appears to be three-dimensional. Figure 7.22 shows how cubes would be drawn using one-point perspective. The cubes that straddle the horizon line are at eye level. The cubes below the horizon line are below eye level, and thus the tops of the cubes are visible. Following this pattern, the cubes that are positioned above the horizon line are above eye level; we look up to see the underside of the cubes.

one-point perspective / A type of linear perspective in which a single vanishing point is placed on the horizon.

orthogonals / Diagonal lines drawn from the four corners—and four edges—of the composition toward the center point to represent depth.

transversals / Lines drawn parallel to the horizon line.

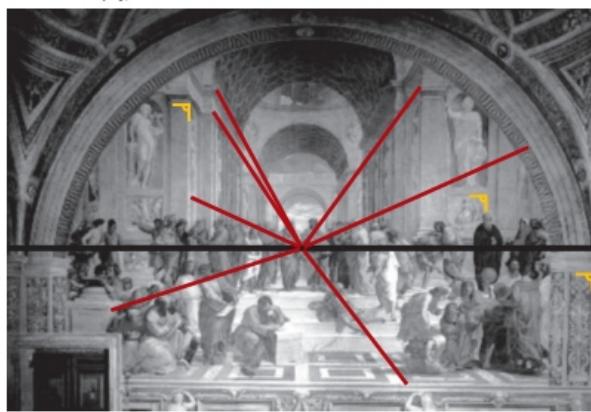


A 7.22 Diagram of One-Point Linear Perspective.

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Part A. *Philosophy, or The School of Athens* (1509–1511) Fresco (c. 26' x 18').



Part B. Perspective in *The School of Athens*. Raphael's painting is a powerful example of one-point perspective. Yet the stone block in the foreground is rendered in two-point perspective.

A 7.23 Raffaello Sanzio (called Raphael). *The School of Athens*.

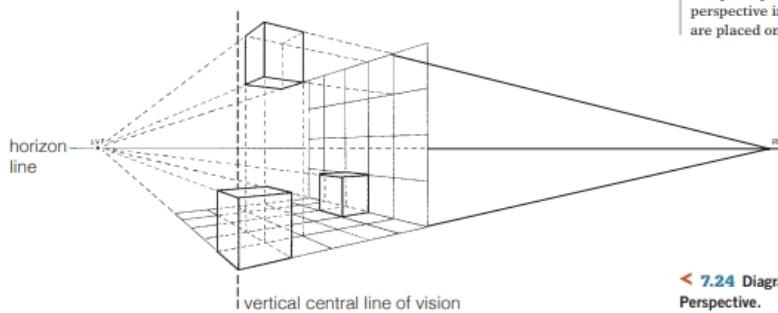
Raphael's (1483–1520) *The School of Athens* (Fig. 7.23a) is a monumental example of one-point perspective. The painting is a virtual who's-who of intellectual shakers and movers from antiquity to the Renaissance. Plato (left) and Aristotle (right), representing divergent philosophical perspectives, share the spotlight in the center of the composition. The horizon line cuts through them and the vanishing point is positioned between them (Fig. 7.23b). Diagonal lines in the marble floor and the architecture converge at this point, drawing the eye into the receding space. The illusion of distance is enhanced by a series of arches that diminishes in height as they approach the horizon line.

Not everything in the *School of Athens* falls into the grid of a one-point perspective system. For example, if you extend the lines along the edges of the block of stone in the left foreground (a figure, probably Michelangelo, rests his elbow on top), you will see that those lines converge at a different point on the horizon. This is not a mistake. Shifting perspectives give the composition a more dynamic quality. After all, the world is viewed from many vantage points simultaneously.

TWO-POINT PERSPECTIVE.

Two-point perspective is used to represent the recession of objects that are seen from an angle, or obliquely, as in that block of stone seen in Raphael's painting. In the diagram for two-point perspective (Fig. 7.24), the imaginary sight lines that extend from the edges of the cubes converge on the horizon.

two-point perspective / A type of linear perspective in which two vanishing points are placed on the horizon line.



◀ 7.24 Diagram of Two-Point Linear Perspective.

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Part A. *Paris Street: Rainy Day* (1877) Oil on canvas (83 1/2" x 108 1/4").



Part B. *Perspective in Caillebotte's Paris Street: Rainy Day.* The use of two-point perspective in the Caillebotte painting is powerful and obvious. It draws our attention upward from the prominent figures in the foreground.

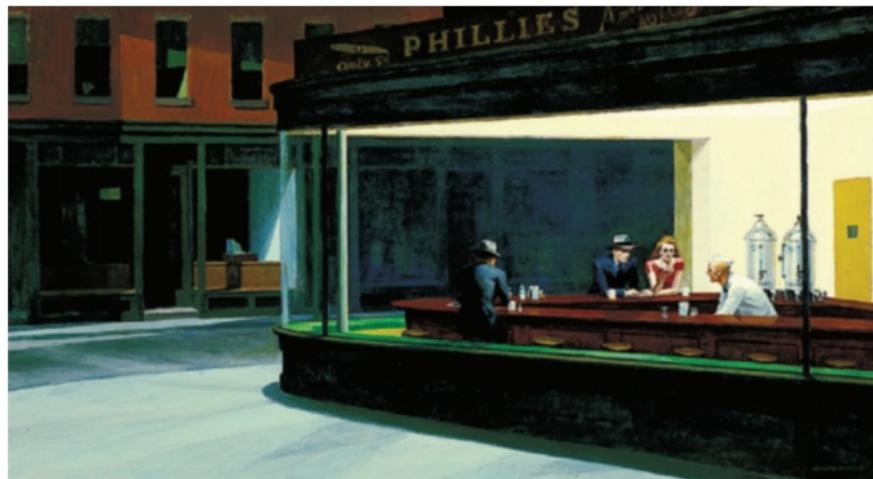
A 7.25 Gustave Caillebotte. *Paris Street: Rainy Day*.

Two-point perspective can be seen, in practice, in Gustave Caillebotte's *Paris Street* (Figs. 7.25a and 7.25b). The diagonal lines in the building in the left background originate at two distinct points on a horizon line that is positioned at the eye level of the couple

strolling with the umbrella in the right foreground.

In the Edward Hopper painting *Nighthawks* (Figs. 7.26), a horizon line bisects the painting but the subtle diagonal lines—if extended—would converge at vanishing points far outside

the boundaries of the composition. This placement suggests a continuation of space beyond the bit that is captured in this scene. In spite of the serendipity that brings the characters together, there is a world going on outside this all-night diner.

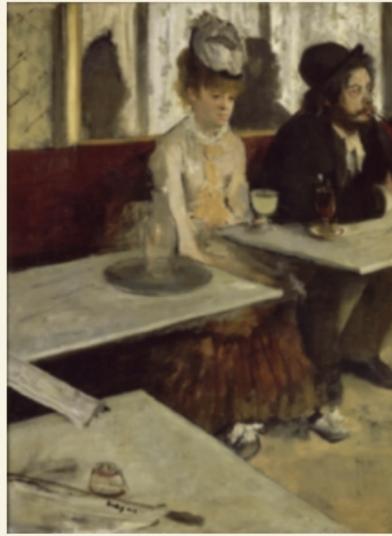


A 7.26 Edward Hopper. *Nighthawks* (1942) Oil on canvas (33 1/8" x 60").
Friends of American Art Collection, 1942.51, The Art Institute of Chicago.

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COMPARE & CONTRAST

So Close and Yet So Far: Perspective, Physical Proximity, and Emotional Distance



A 7.27 Edgar Degas. *In a Café* (1873) Oil on canvas (36 1/8" x 26 3/4").



A 7.28 William H. Johnson. *Café* (1939–1940) Oil on board (36 1/2" x 28 3/8").
© William H. Johnson, courtesy of The William H. Johnson Foundation for the Arts.

In Baz Luhrmann's film *Moulin Rouge*, Toulouse-Lautrec and his motley entourage follow a green fairy into what seems like an alternate universe. Complete with a wand trailing streams of glittery green-gold, she is the absinthe-induced muse, both temptress and consoler. The lime-colored alcoholic beverage is both intoxicating and toxic, and many turn-of-the-century luminaries—artists, writers, and composers among them—partook of its devastating charms.

The couple in Edgar Degas's painting *In a Café* (also called *Absinthe*, Fig. 7.27) seems emotionally detached but they are spatially connected—two points, so to speak, on the same diagonal that will have to continue well beyond the border of the canvas before it meets a horizon line in the far right distance. The diagonal is formed by the alignment of marble-topped tables in a banquette along a mirrored wall; the figures are squeezed into the narrow space in-between the two. Another table is positioned in the lower left quadrant of the composition so that the diagonal line along its outer edge would, if continued, intersect with the first and meet the horizon line at another distinct point in the left distance. Degas's use of two-point perspective—with divergent sets of orthogonals that converge at a point on the horizon line outside

the composition—creates an impression that the scene before us is just one small part of the café setting.

Contrast Degas's café painting with William H. Johnson's *Café* (Fig. 7.28) in which, it would seem, the goal of the artist was to subvert the devices typically used to create the illusion of space. The lines of the floorboards do not converge at a vanishing point; if anything, they splay out subtly from the center. The juncture of the walls seems more like a meeting of color fields in a continuous plane than a corner space. Like paper cutouts, the figures are defined by flat areas of color and the grid-pattern overlay on the man's suit negates any sense of three-dimensionality. The woman's red-gloved hand overlaps the man's shoulder but it looks more like a separate shape than it does an extension of her arm.

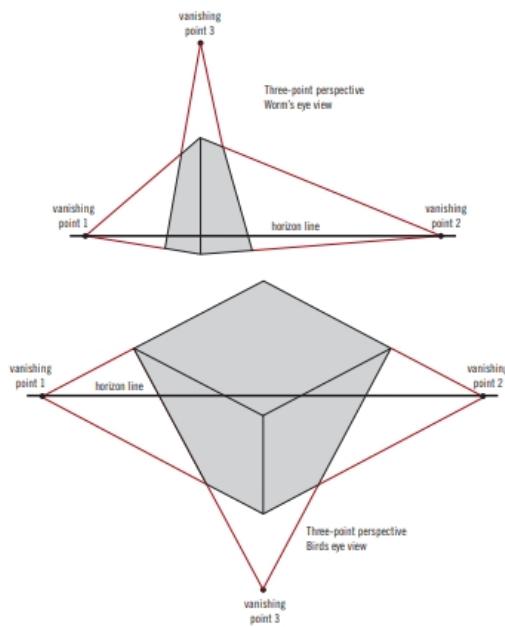
Although the figures in the Johnson painting are comprised of flat, overlapped, and seemingly disjointed shapes, the narrative of the painting is one of connectedness rather than isolation. Johnson's partygoers are social and interactive. The figures in the Degas painting are lost in their own worlds—the worlds of loosely connected words and images conjured under the influence.



Go to CourseMate to explore constructing pictorial space with collage with this chapter's Possibilities for Thinking and Making.

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A 7.29 Three-Point Perspective. In three-point perspective, objects recede to the left and right as well as vertically—either upward or downward, yielding a worm's-eye view or a bird's-eye view.

THREE-POINT PERSPECTIVE.

The term **three-point perspective** describes works in which there is recession to the left, the right, and then upward or downward, as in the "worm's-eye" and "bird's-eye" views of the rectangular solid in Figure 7.29. The most obvious use of three-point perspective lies in the representation of architectural structures as seen from a low vantage point, as in the case of Figure 7.30, or a high vantage point, as in an aerial view.

Optical and Conceptual Representation

The representation of figures and objects from a single vantage point is called **optical representation**. Examples

of optical representation can be seen in paintings with many different styles in this chapter: *The School of Athens*, *The Large Tree*, or *In a Café*, to name a few. **Conceptual representation**, by contrast,

three-point perspective / The bird's-eye or worm's-eye views of three-dimensional works so that they recede to the left, the right, and upward or downward.

optical representation / The depiction of objects as they are actually seen from a single vantage point.

conceptual representation / The use of multiple perspectives to depict objects as they are known to be rather than as they are seen from a single vantage point.



A 7.30 Carolyn Hubbard-Ford. *City in Shards of Light* (1998) Oil on canvas (95 3/4" x 60").
© Carolyn Hubbard-Ford.

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A 7.31 Fowling (Bird-Hunting) Scene (c. 1400–1350 BCE) Fresco fragment (36 5/8" x 38 5/8") from the tomb of Nebamun, Thebes, Egypt.

assembles the distinctive characteristics of figures and objects as they are viewed from different perspectives rather than a single, fixed vantage point. In the Egyptian fresco from the tomb of a nobleman depicting bird hunting (Fig. 7.31), the figures are constructed of a combination of views that offer optimal visual information. The heads, arms, and legs are in profile; the

eyes and torsos are shown frontally. If you think about it, the best way to illustrate legs and what they do is to show them in profile, astride. Looking at a face in profile does not offer you the same clear image of the shape of a human eye that a frontal perspective will. The same is true of the breadth of the shoulders, which would not at all be evident in a profile view. On the other

hand, the “topography” of the face—the projection of the nose and the chin—is best conveyed in a profile view. This combination of different perspectives is also called a **composite view** or **twisted perspective**.

composite view or twisted perspective /
The combination of different perspectives in a work.

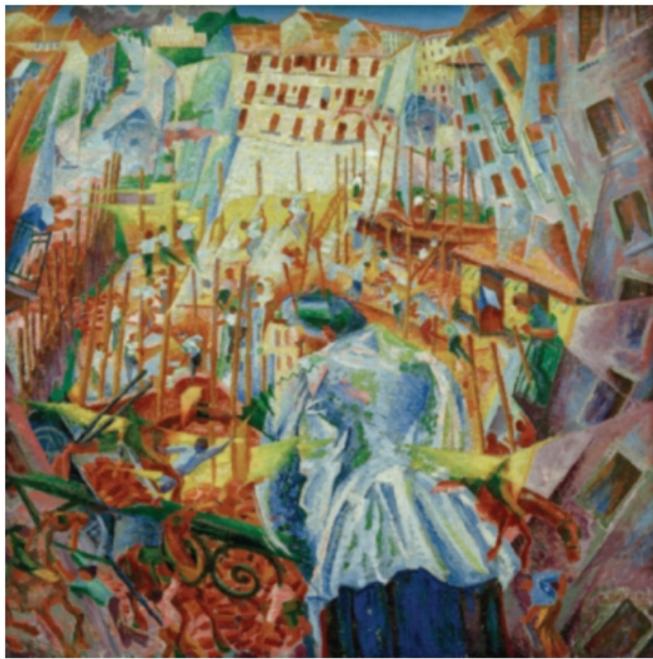
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Multiple Perspectives

The use of **multiple perspectives** may provide a more complete visual and sensory impression of a pictorial whole than could be obtained from a single vantage point. It is also a way to suggest the fourth dimension—time and motion.

Umberto Boccioni and other artists of the Futurist movement (see Fig. 8.2 on page 158) were interested in speed, simultaneity, and the physical relationship between objects and the environment. They believed that the true experience of reality was not static or fixed but rather was one of

incessant movement and continual bombardment of visual imagery. In Boccioni's *The Street Enters the House* (Fig. 7.32), this principle of Futurism is illustrated in the use of multiple perspectives. Lines follow unpredictable paths and shapes are angled in different directions. The artist places the viewer in the middle of the action on a balcony overlooking a city square alive with swirling colors and bustling movement. Our sense of the scene is based not on a single point of view or sight line but rather on the sum total of bits and pieces that the eye observes as we survey the setting.



A 7.32 Umberto Boccioni. *The Street Enters the House* (1911) Oil on canvas (39 3/8" x 39 5/8").

Amplified Perspective

When an artist wants to pull the viewer quickly and sharply from the picture plane into the space of the painting, **amplified perspective** might be used. It is an exaggerated perspective that begins with an image or part of an image that juts out toward the viewer and then recedes dramatically toward the background. The method that is employed to connect the points closest and farthest away from the viewer while maintaining some physical accuracy to what lies in between is called **foreshortening**. The foreshortened figure is, in effect, contracted.

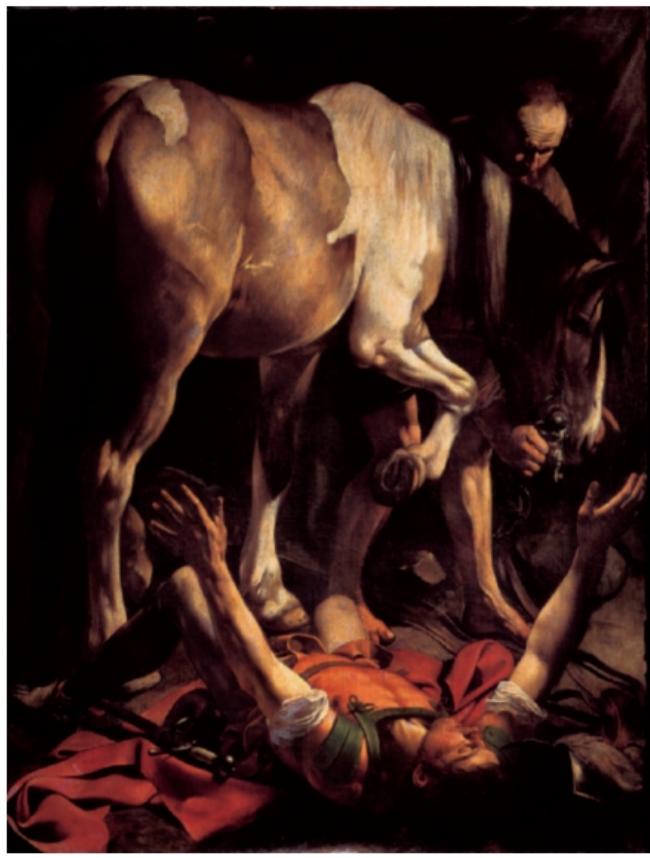
In the *Conversion of Saint Paul* (Fig. 7.33), the Baroque painter Caravaggio positions the main figure so that the proximity of his head to the picture plane immediately draws the viewer into the painting. Paul's groping arms form prominent diagonals that lead the eye upward and back toward the underbelly of the horse from which he was thrown. His torso recedes sharply, in radical perspective, compressing the space between the action and the viewer and thereby drawing the viewer into the event of the saint's dramatic conversion. Everything looms over us as it looms over Paul. With this vantage point, Caravaggio recreated Paul's self-described experience of the overwhelming power of the divine.

multiple perspective / The depiction of objects or scenes from more than one vantage point, providing a broader picture than one could obtain from a single vantage point.

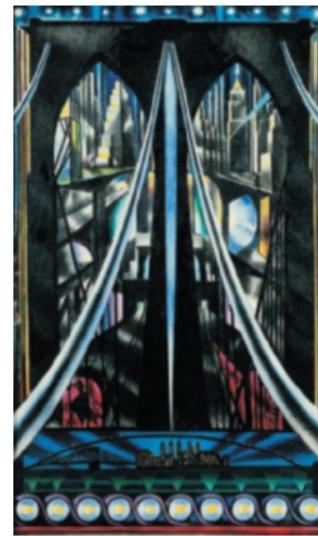
amplified perspective / Exaggerated perspective that begins with an image or part of an image that juts out toward the viewer and then recedes dramatically toward the background.

foreshortening / Diminishing the size of the parts of an object represented as farthest from the viewer. Specifically, diminishing the size of parts of an object rendered as receding from the viewer at angles oblique to the picture plane, so that they appear proportionately shorter than the parts of the object that are parallel to the picture plane.

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A 7.33 Caravaggio. *The Conversion of Saint Paul* (1600–1601) Oil on canvas (90 1/2" x 68 7/8").



A 7.34 Joseph Stella. *The Brooklyn Bridge: Variation on an Old Theme* (1939) Oil on canvas (70" x 42").

TRY THIS

Try to visualize a scene from your childhood. Try to remember who was there and what was there. Remember the smells, the sounds, and how you felt. Now draw the scene from memory. You can use reference images if you need to, but don't just copy and paste or trace them. As all of the pieces are coming together, think carefully about the perspective you are using, and why. What effect does it have? Are you creating an intimate scene by using amplified perspective? Or are you creating a sense of narrative order with the use of linear perspective? Perhaps instead you are combining the objects into the drawing in a fragmented, distant way; could it be that you are applying the method of multiple perspective?

In Joseph Stella's abstract painting of *The Brooklyn Bridge* (Fig. 7.34), the viewer is positioned somewhere beneath the dramatic upward sweep of the suspension cables that hang between the bridge's arched stone towers. The linear perspective of the cables and the cityscape beyond the bridge are exaggerated, amplifying the perception of the light and speed of the city.

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Isometric Projection

Most methods of representing the recession of objects into space are based on linear perspective. They derive from the basic observation that objects look smaller as they recede from the eye, and so do the spaces in between. But there are other methods of portraying the recession of objects in two-dimensional, even though they are not as realistic to the eye.

Figure 7.35 features two cubes, each of which uses a different device to indicate its spatial position. Part A illustrates the cube in linear perspective. The parallel lines that define the top and bottom edges of the sides converge as they "recede" from the viewer. This view is realistic in the sense that it approximates what the viewer would see from a frontal perspective.

Part B is drawn in **isometric projection**. In isometric projection, the top and bottom edges of the receding planes are usually drawn at an angle of 30 degrees from the horizontal, and they do not converge as they recede into space. Isometric projection is a widely used convention for implying space in Japanese art. Japanese American artist Roger Shimomura continues the tradition in many of his contemporary works,



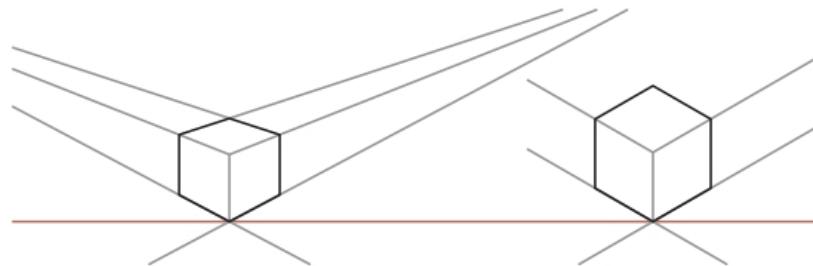
A 7.36 Ando Hiroshige. *Seki* (c. 1841–1842) Color woodblock print (7 3/4" x 12 1/2").

including *Diary: December 12, 1941* (see Fig. 1.6 on page 6). The brown screen on the left recedes upward to the left at an angle of 30 degrees from the picture plane. The screen before the shadow of Superman is perpendicular to the brown screen, but it recedes toward the upper right at 30 degrees from the picture plane.

Ando Hiroshige's woodblock print (Fig. 7.36) also features isometric projection. The front of the house receded from the viewer, rising at an angle of 30 degrees from the lower right to the upper left of the composition. Where the line intersects with a wooden post,

the raised floor also receded from the viewer from the bottom of the post toward the upper right, again at an angle of 30 degrees. Parallel lines do not converge as they recede. The human figures also remain the same size regardless of their apparent distance from the picture plane. The severe geometry of the house and the fence at the left contrast with the playful organic shapes of the individuals.

isometric projection / A method of depicting depth in which the top and bottom edges of the receding planes are usually drawn at an angle of 30 degrees from the horizontal.



Part A. Two-point perspective

Part B. Isometric projection

◀ 7.35 Cubes
Drawn in Linear Perspective and in Isometric Projection. In linear perspective (part A), the sides of the cube converge as they recede from the viewer. In isometric projection (part B), the sides of the cube remain parallel as they recede from the viewer.