

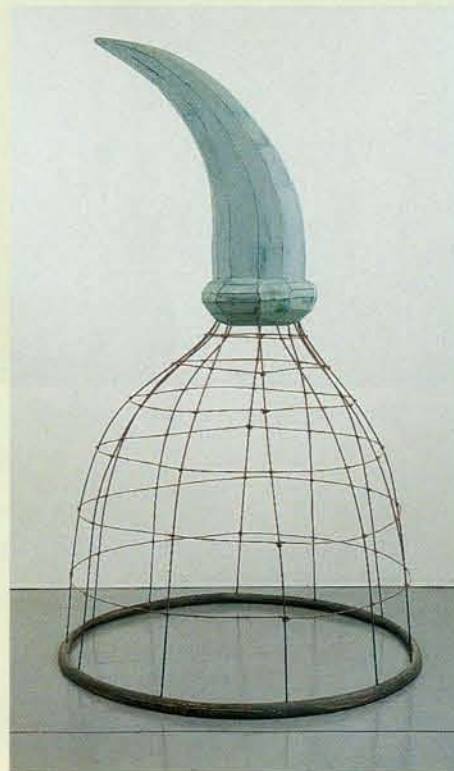
Principles of Three-Dimensional Design

Composition can be defined as the combination of multiple parts into a unified whole. In a well-composed design, all of the elements work together, as a team. As one element becomes dominant, another element becomes subordinate. A dialogue is created between positive and negative forms, and opposing forces add vitality rather than causing confusion.

Each compositional part makes a positive contribution to an effective design. Graceful metal lines have been combined with a series of contoured masses to create the elegant and utilitarian form of Niels Diffrient's *Freedom Chair* (10.1). In Alice Aycock's *Tree of Life Fantasy* (see figure 10.9, page 224), line, plane, and space have been combined to create an exuberant dance. Martin Puryear's *Seer* (10.2) consists of a closed volume at the top and an open volume at the



10.1 Niels Diffrient, *Freedom Chair*, 1999. Die-cast aluminum frame with fused plastic coating; four-way stretch black fabric.



10.2 Martin Puryear, *Seer*, 1984. Water-based paint on wood and wire, 78 × 52¼ × 45 in. (198.2 × 132.6 × 114.3 cm).

bottom. The horn-shaped top piece is powerful and imposing, while the open construction at the bottom invites us to enter and visually explore the structure. A series of curving vertical "ribs" unifies the top and bottom sections, while the contrast between open and closed forms adds a touch of mystery. In all three cases, every element is both dependent on and supportive of each other element.

The elements of design are the building blocks from which compositions are made. The principles of design describe ways in which these building blocks can be combined.

UNITY AND VARIETY

Unity can be defined as similarity, oneness, togetherness, or cohesion. **Variety** can be defined as difference. Unity and variety are the cornerstones of composition.

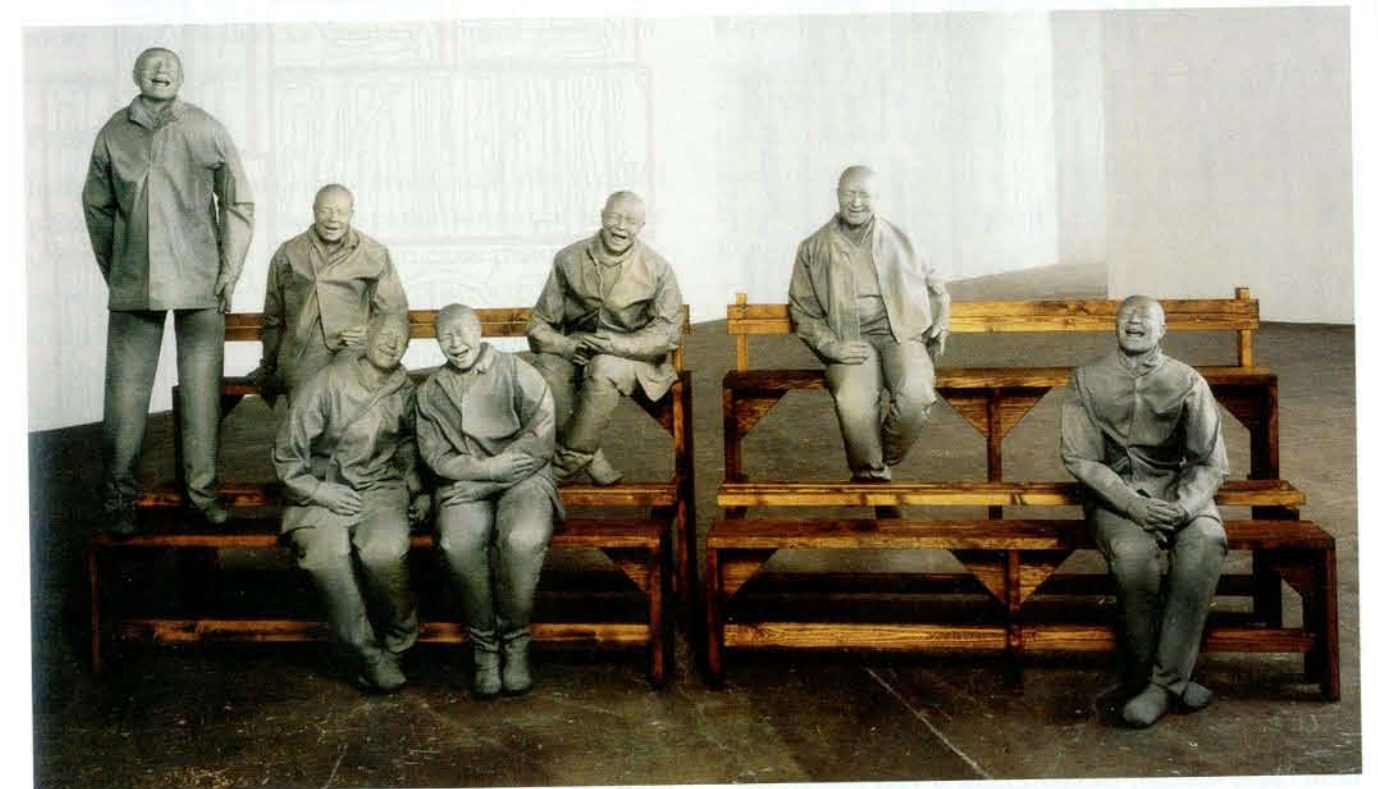
Increasing Unity

We tend to scan an entire composition, then analyze the specific parts. A composition composed of units that are unrelated tends to appear random and

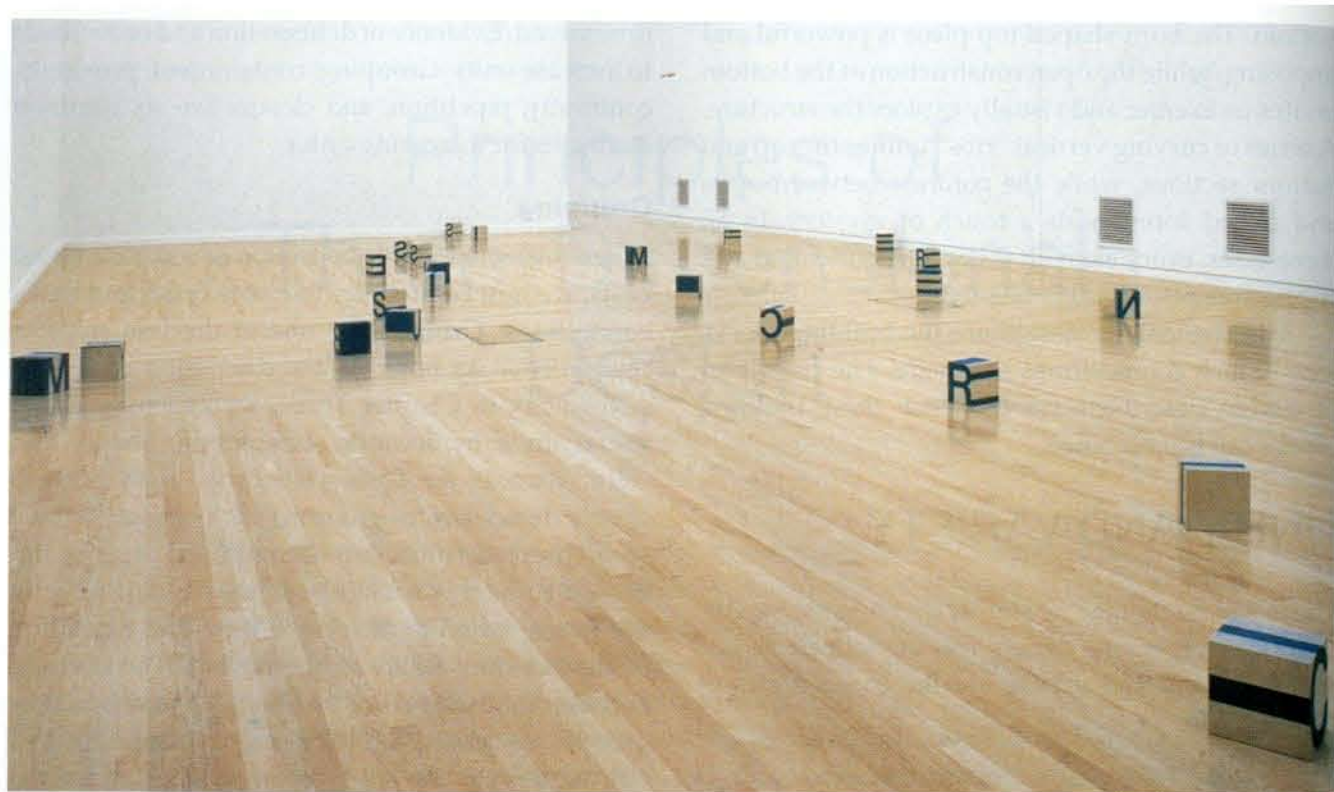
unresolved. Evidence of deliberation and order tends to increase unity. Grouping, containment, proximity, continuity, repetition, and closure are six common strategies for increasing order.

Grouping

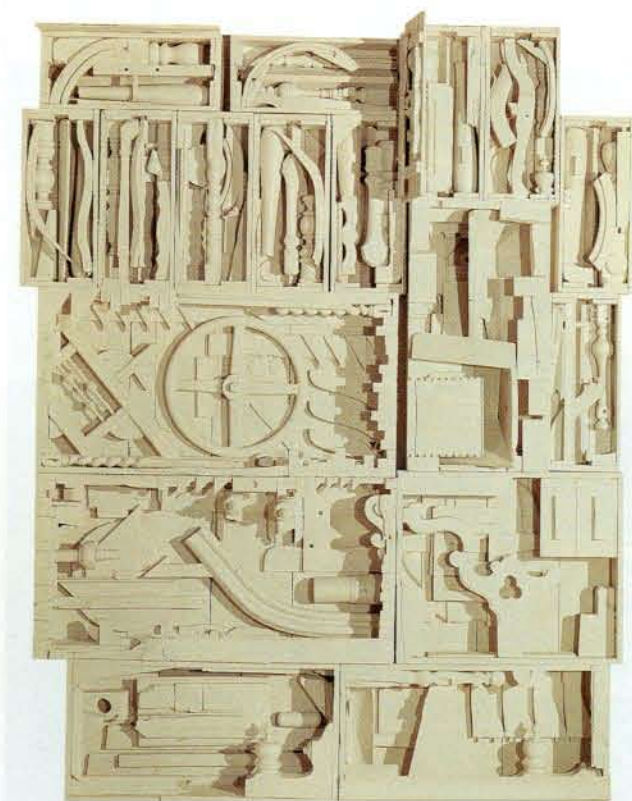
When presented with a collection of separate visual units, we immediately try to create order and make connections. **Grouping** is one of the first steps in this process. As noted in the discussion of Gestalt psychology in Chapter Three, we generally group visual units by location, orientation, shape, and color. *Towards the Corner* (10.3), by Juan Muñoz, clearly demonstrates grouping by location. We first see a complete composition, comprised of seven figures. It is roughly triangular in shape, starting with the single seated figure on the right and extending to the standing figure at the far left. The division between the two sets of bleachers creates two subgroups, comprised of two figures on the right and five figures on the left. We can further group the three figures positioned on the top bleachers and the three figures on the bottom, with the single standing figure providing a visual exclamation point for the sculpture as a whole.



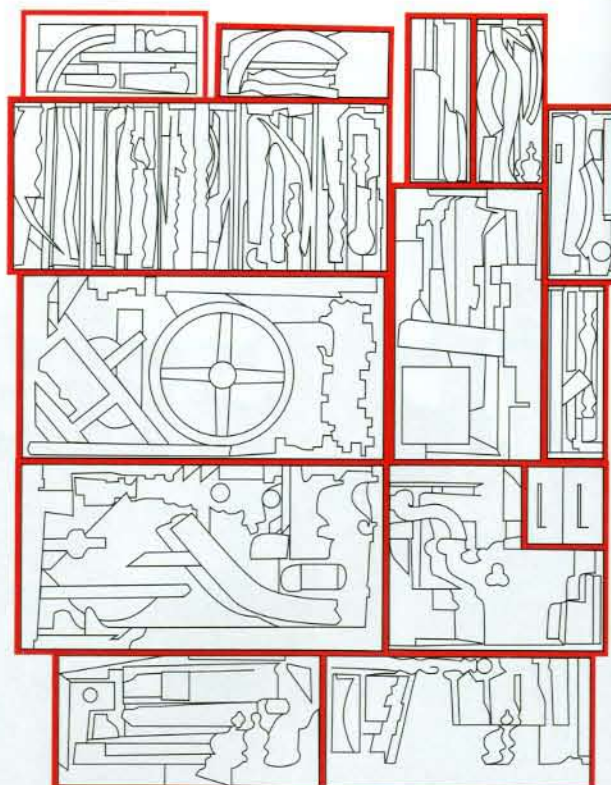
10.3 Juan Muñoz, *Towards the Corner*, 1998. Seven figures, wood, resin, and mixed media.



10.4 Roni Horn, *How Dickinson Stayed Home*, 1993. Installation. Solid aluminum and plastic. 25 cubes, each 5 × 5 × variable lengths.



10.5A Louise Nevelson, *Wedding Chapel IV*, 1960. Painted wood, height approx. 9 ft. (2.7 m). Private collection.



10.5B Line drawing of Figure 10.5A, showing containers in red and overall continuity in black.



10.6 Aaron Macsai, *Panels of Movement*. Bracelet, 18K gold, sterling copper, $\frac{7}{8}$ × 7 in. (2 × 18 cm).

Containment

Containment is a unifying force created by the outer edge of a composition or by a boundary within a composition. A container encourages us to seek connections among visual units and adds definition to the negative space around each positive form. The room itself provides the container for Roni Horn's *How Dickinson Stayed Home* (10.4). Letters from the alphabet are presented on 26 small cubes. Like Emily Dickinson's poetry, the installation is both economical and expansive. A minimal amount of information evokes a wide range of interpretations. Contained by the white walls and dark floor of the room itself, the blocks create a unified statement, despite their seemingly random distribution.

Proximity

In design, the distance between visual units is called **proximity**. Even the most disparate forms can become unified when they are placed in close proximity. For example, Louise Nevelson constructed *Wedding Chapel IV* (10.5A) from an improbable collection of wooden crates, staircase railings, dowels, chair legs, and other scrap. Organized into 14 rectilinear containers and placed in close proximity, the various pieces have become unified into a lively whole.

Continuity

Continuity can be defined as a fluid connection among compositional parts. When objects are placed in close proximity, continuity often happens naturally. As demonstrated by figure 10.5B, each form in *Wedding Chapel IV* touches several other forms. As a result, our eyes move easily from section to section, increasing connections among the parts.



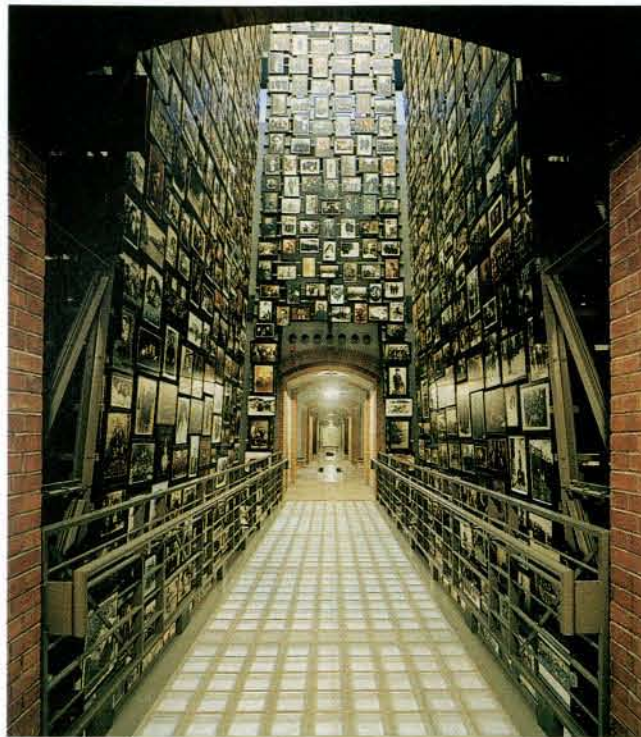
10.7 Mona Hatoum, *Doormat*, 1996. Stainless steel and nickel-plated pins, glue, and canvas, 1 × 28 × 16 in. (2.5 × 71 × 40.6 cm).

Repetition

Repetition occurs when we use the same visual element or effect any number of times within a composition. In Aaron Macsai's *Panels of Movement* (10.6), similar lines, shapes, textures, and colors were used in each of the 10 panels from which the bracelet was constructed. A spiral shape, a wavy line, a sphere, and at least one triangular shape appear repeatedly. Despite their variations in size, texture, and location, these repeated forms create a strong connection from panel to panel.

Closure

Closure is the mind's inclination to connect fragmentary information to produce a completed form. In Mona Hatoum's *Doormat* (10.7), we must visually connect hundreds of steel pins to create the word *welcome*. Closure makes it possible to communicate using implication. Freed of the necessity to provide every detail, the artist or designer can convey an idea through suggestion, rather than description. When the viewer completes the image in his or her mind, it is often more memorable than an explicit image.



10.8 *Tower of Photos* from Ejszyski, Completed in 1993. United States Holocaust Memorial Museum, Washington, DC. James Ingo Freed, lead designer.

Combining Unifying Forces

James Ingo Freed used all of these unifying forces to create the *Tower of Photos* in the Holocaust Museum in Washington, DC (10.8). His design team wanted to demonstrate the number of lives lost in one Polish village while honoring the individuality of the inhabitants. They collected and framed thousands of photographs, including groups of schoolchildren, weddings, and family snapshots. Placed in close proximity, the photographs personalized the victims while emphasizing their connection to the lost community. Based on the chimneys used to burn the bodies of the dead, the tower itself provides the dominant structure for the exhibition, both structurally and emotionally.

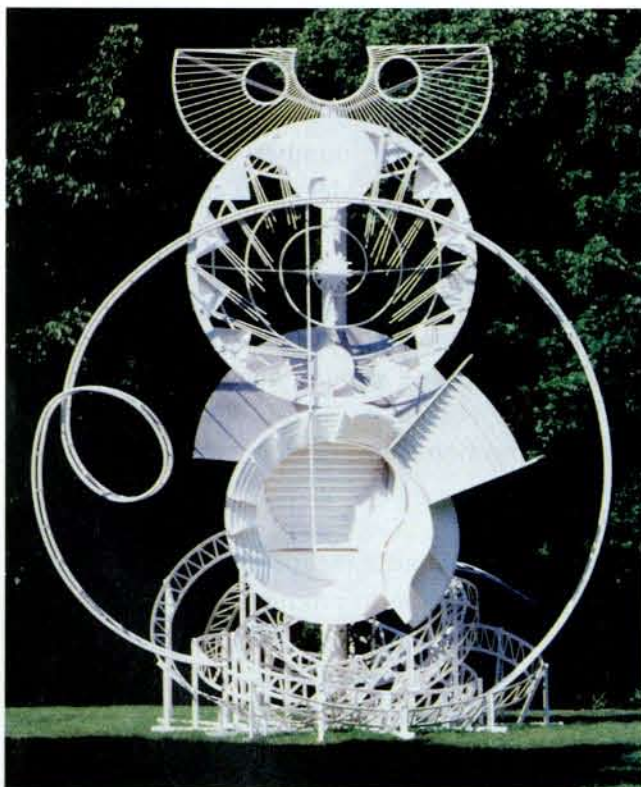
Increasing Variety

Difference in any aspect of a design increases variety. By reviewing the elements of design described in Chapter Nine and the principles of design described in this chapter, you can quickly create a checklist of areas for variation, such as

- *Line variation.* Lines of different diameter were combined with double linear “train tracks” in Aycock’s *Tree of Life Fantasy* (10.9).
- *Variation in texture.* Combining smooth and textured surfaces can add energy and interest to even the simplest form.
- *Variation in pattern.* The Pacific island mask shown in figure 10.10 is unified through symmetrical balance. This underlying order freed the artist to experiment with many colors and patterns.

Degrees of Unity

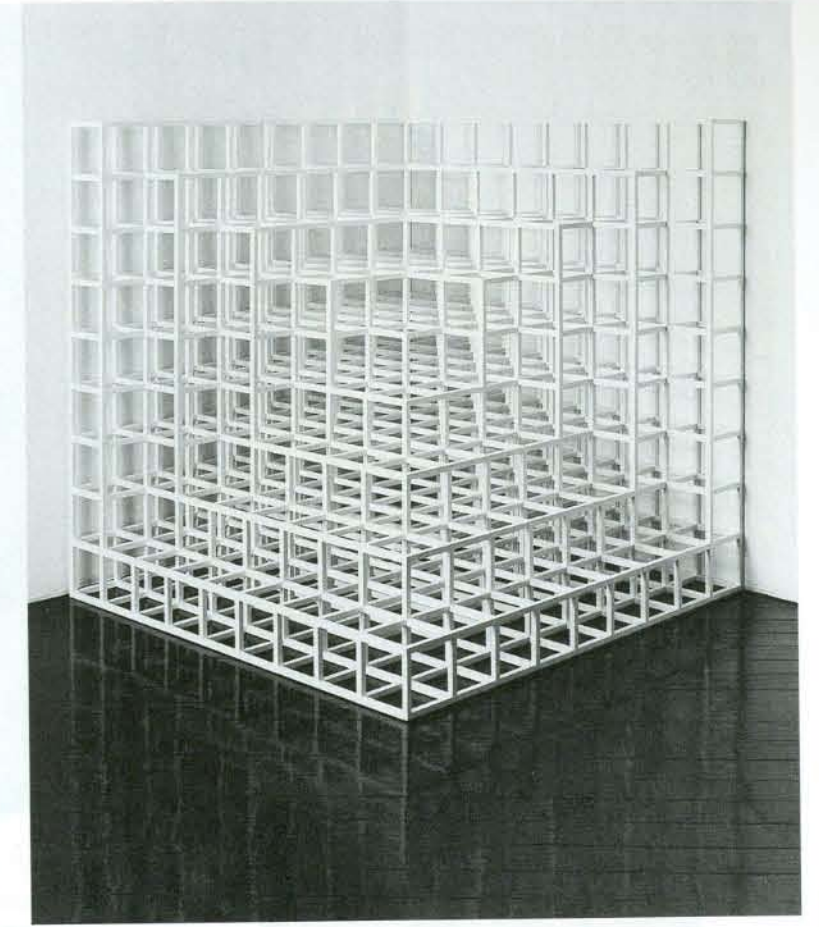
As noted in Chapter Eight, our compositional choices must support our conceptual intentions. Some designs require a high level of unity. For example, Sol LeWitt’s *Wall/Floor Piece #4* (10.11) provides a methodical transition from the horizontal floor to the vertical wall. Other designs require a high level of variety. The lines, shapes, volumes, and masses in Judy Pfaff’s *Rock/Paper/Scissor* (10.12) ricochet off the floor, walls, and ceiling with an almost chaotic energy.



10.9 Alice Aycock, *Tree of Life Fantasy*, Synopsis of the Book of Questions Concerning the World Order and/or the Order of Worlds, 1990–92. Painted steel, fiberglass, and wood, 20 × 15 × 8 ft (6.1 × 4.6 × 2.4 m).



10.10 Mask (Wanis), New Ireland. 37 × 20½ × 19 in. (94 × 53 × 48.3 cm).



10.11 Sol LeWitt, *Wall/Floor Piece #4*, 1976. White painted wood, 43¼ × 43¼ × 43¼ in. (109.9 × 109.9 × 109.9 cm).



10.12 Judy Pfaff, *Rock/Paper/Scissor*, 1982. Mixed media installation at the Albright-Knox Art Gallery, Buffalo, NY, September 1982.



10.13 Leonardo Drew, *Number 56*, 1996. Rust, plastic, wood, 113 × 113 in. (287 × 287 cm).

Grid and Matrix

A **grid** is created through a series of intersecting lines. A **matrix** is a three-dimensional grid. LeWitt's *Wall/Floor Piece #4* (10.11) is an example of matrix. Both can unify a design by creating containment, continuity, and proximity.

In *Number 56* (10.13), Leonardo Drew poured rust into hundreds of plastic bags, which were then connected to a wooden support. The rust and the methodically numbered plastic bags create a dialogue between the orderly grid and the decaying metal. This combination of order and disorder balances monotony with mystery.

Daniel Buren's *The Two Plateaus* (10.14) offers another variant on the grid. This public art project, located in the Palais Royal in Paris, covers a 1,000-square-foot plaza. The striped cylinders range in height from about 2 to 6 feet. Mimicking the columns in the building and organized on the pavement like players on a checkerboard, they bring both energy and humor to the site.

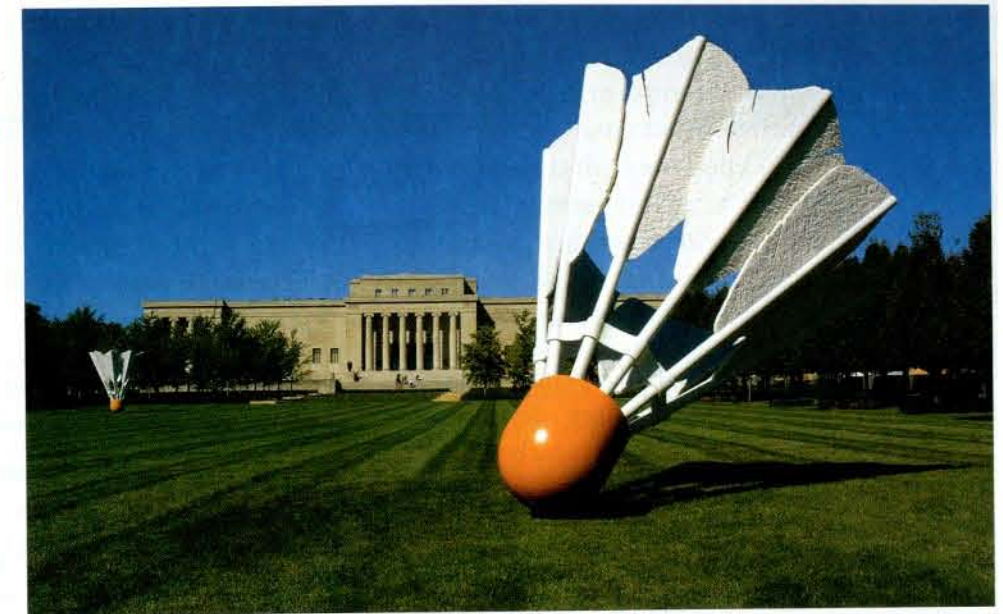


10.14 Daniel Buren, *The Two Plateaus*, 1985–86. 1,000-square-foot sculpture for the Cour d'Honneur, Palais Royal, Paris. Black marble, granite, iron, cement, electricity, water.

Key Questions

- What strategies have you used to unify your composition?
- What gives your composition variety?
- Is the balance between unity and variety appropriate for the ideas you want to express?
- What would happen if your composition were constructed using a pattern or grid?

10.15 Claus Oldenburg and Coosje van Bruggen, *Shuttlecocks*, 1994. Aluminum, fiberglass, urethane paint. Dimensions variable.



BALANCE

Balance refers to the distribution of weight or force among visual units (10.15). For the architect, sculptor, and industrial designer, physical balance is a structural necessity, while a degree of visual balance is an aesthetic necessity. As with physical balance, visual balance requires equilibrium, or equality in size, visual weight, and force. Especially in three-dimensional design, visual balance can be created through the absence as well as the presence of form.

There are three major types of balance.

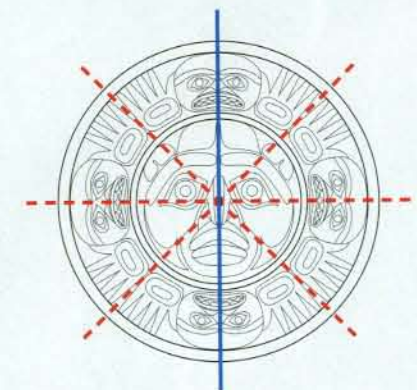
In **symmetrical balance**, forms are mirrored on either side of a central axis. The resulting form is generally physically and visually stable. The central face in figure 10.16A is an example of symmetrical balance.

With **radial symmetry**, design elements extend out from a central point, as with the spokes of a wheel. Radiating in all directions while remaining anchored at the center, this type of balance tends to generate a great deal of energy while retaining a high level of unity. The outer ring in figure 10.16 is an example of radial balance. Diagram 10.16B shows both of these forms of symmetry.

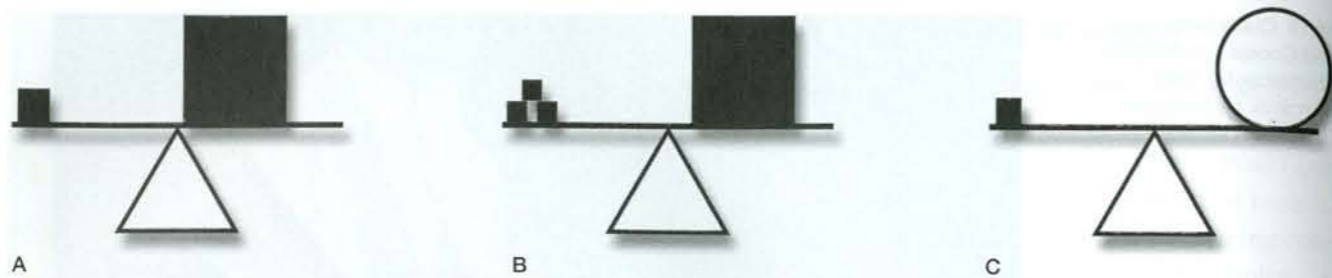
Asymmetrical balance creates equilibrium among visual elements that do *not* mirror each



10.16A Bella Coola Mask Representing the Sun, from British Columbia, before 1897. Wood, diameter 24¾ in. (63 cm).



10.16B Diagram of Bella Coola mask. The central face is symmetrically balanced. The outer ring is an example of radial symmetry.



10.17 Examples of asymmetrical balance.

other on either side of an axis. Depending on the degree of asymmetry, the resulting design may be quite stable, very dynamic, or nearly chaotic. Many strategies can be used to create asymmetrical balance:

- A large form is placed close to the fulcrum, while a small form is placed farther away. Just as a child at the end of a seesaw can balance an

adult near the center, so large and small forms can be balanced in a design (10.17A).

- Multiple small forms can balance a single large form (10.17B).
- A small, solid form can balance a large, open form. The solidity and stability of the square give it visual weight as well as physical weight (10.17C).



10.18 Theodore Gall, *Plaza Facets*, 2001. Cast bronze, 6 × 6 × 6 in. (15.2 × 15.2 × 15.2 cm).

Most artworks are constructed from multiple parts. Size variations among the parts affect both the physical balance and expressive impact. A **dominant**, or primary, form is often balanced by one or more **subordinate**, or secondary, forms. For example, in Theodore Gall's *Plaza Facets* (10.18), the large head on the left is balanced by the column and fragmentary heads on the right. The seven smaller figures create yet a third compositional level. Using these compositional hierarchies, artists and designers can create unified designs using distinctly individual parts.

Two contrasting interpretations of a single figure further demonstrate the expressive power of balance. St. Bruno, an eleventh-century Catholic saint, is shown in figures 10.19 and 10.20. His followers, known as the Carthusian Order, lived in caves and devoted their time to manuscript transcription, meditation, and prayer.

The first statue, completed by Michel-Ange Slodtz in 1744, dramatizes a pivotal moment in Bruno's life. Preferring his contemplative existence to the power

and prestige of a more public life, Bruno rejects promotion to the office of bishop. Slodtz used asymmetrical balance to express this dramatic moment. The small bishop's hat, offered by the angel in the lower right corner, is the focal point of the entire sculpture. The much larger figure of St. Bruno recoils when confronted by this symbol of authority. As a result, the small hat matches the saint in compositional weight.

A very different interpretation of the life of St. Bruno is given in the second sculpture. Completed by Jean-Antoine Houdon in 1766, it emphasizes the contemplative nature of the Carthusian Order and its founder. Using symmetrical balance, Houdon presents a dignified, introspective man. If we divide the figure in half from top to bottom, the two sides basically mirror each other. This saint is a philosopher, very much at peace with the choices he has made. Just as asymmetrical balance is appropriate for the dramatic moment represented by Slodtz, so symmetrical balance is ideal for the serenity shown by Houdon.



10.19 Michel-Ange Slodtz, *St. Bruno*, 1744. Marble.



10.20 Jean-Antoine Houdon, *St. Bruno of Cologne*, 1766. Stucco.

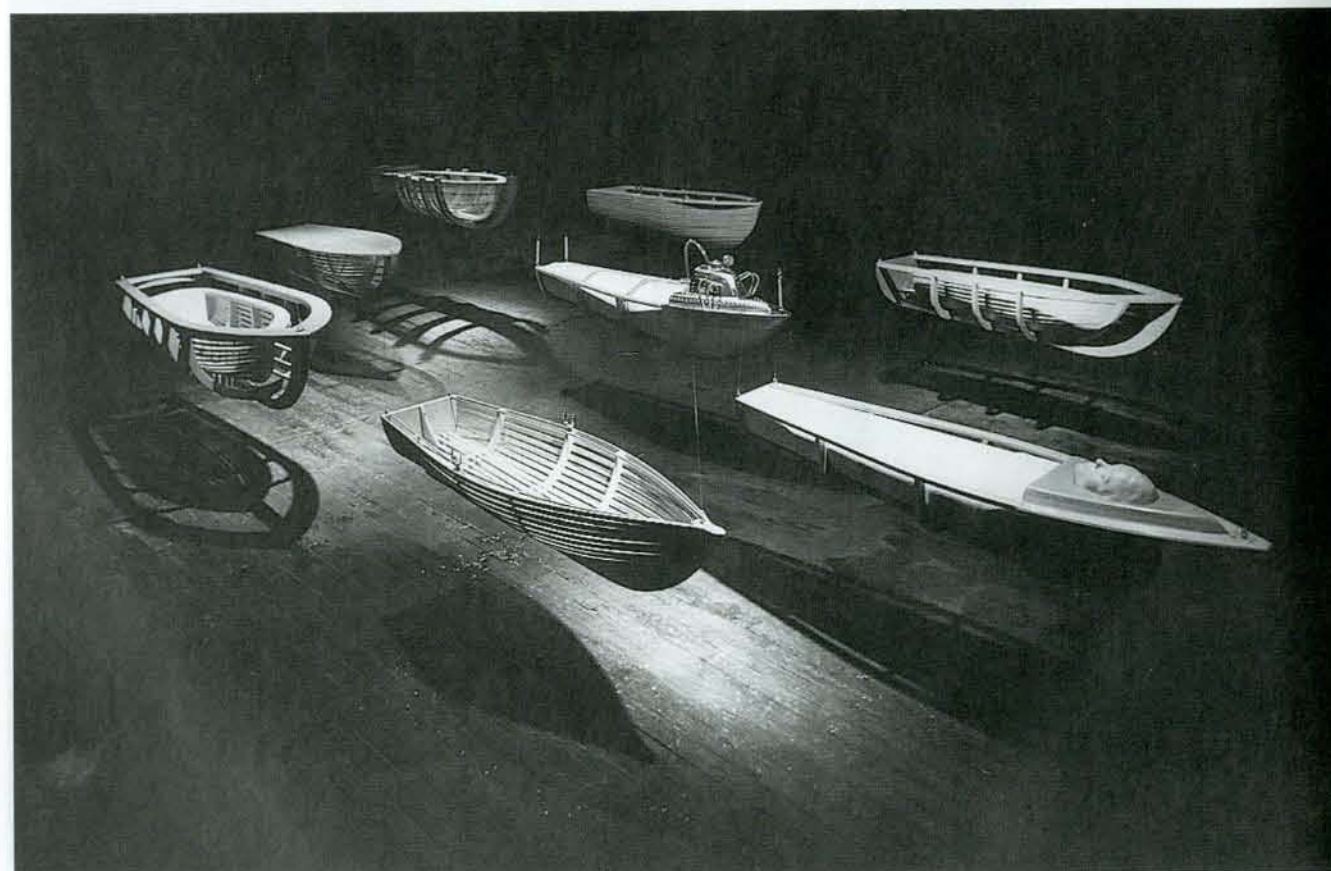


10.21 Chuichi Fujii, *Untitled*, 1987. Japanese cedar, 10 ft 6 in. × 13 ft ½ in. × 11 ft 6 in. (320 × 400 × 350 cm).

Exaggerated weight or buoyancy can shift the balance in an artwork and enhance meaning. In Chuichi Fujii's *Untitled* (10.21), a cedar log seems to have been crushed by the weight of a second log. At the other extreme, Patricia A. Renick's *Life Boats/Boats About Life* (10.22) seems to float on air, as weightless as a dream. Dramatic lighting and cast shadows heighten the magical effect. This artwork derives its power from the denial of gravity, while figure 10.21 derives its power from exaggerated gravity.

Key Questions

- Which form of balance is most effective for the ideas you want to express?
- Which is the dominant form in your composition? Is its dominance conceptually justified?
- What happens when an unexpected part of the design plays the dominant role?

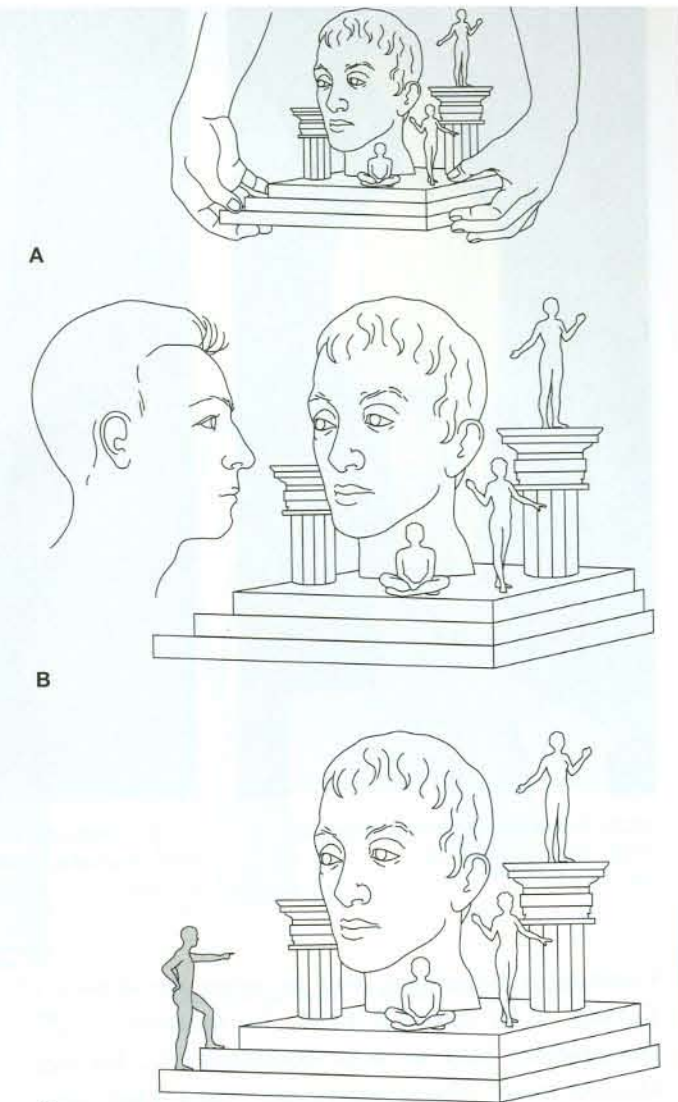


10.22 Patricia A. Renick, *Life Boats/Boats About Life*, 1979–80. 1 to 1½ ft high × 5 to 6½ ft long × 1 to 1½ ft deep (30.5 to 45.7 cm high × 152.4 to 198.1 cm long × 30.5 to 45.7 cm deep).

SCALE

Scale commonly refers to the size of a form when compared with human size. Using our bodies as a constant, we can identify three major types of scale relationships. Small-scale objects can be **hand-held**, while **human scale** refers to designs that are roughly our size. Very large objects and installations are **monumental** in scale.

Returning to Theodore Gall's sculpture, we can explore the implications of each scale type. The actual artwork is roughly 6 × 6 × 6 inches in size, and can be hand-held. At this scale, we are invited to enter and explore the artwork mentally rather than physically (10.23A). At triple this size (18 × 18 × 18 in.), the dominant head in the design would be about the size of our own head (10.23B). This would create a very different dialogue between the audience and the artwork. Expanded to monumental scale—say, 32 × 32 × 32 feet—the artwork would invite physical entry (10.23C). We could now stand beside the sculptural figures in the piece. Simply by changing the scale, the artist could create three very different responses to the same composition.



10.23A–C Scale variations, from hand-held to monumental.

PROPORTION

Proportion refers to the relative size of visual elements *within* an image. When we compare the width of the head with its height, or divide a composition into thirds, we are establishing a proportional relationship.

In industrial design, changes in proportion can enhance or diminish function. The five gardening tools in figure 10.24 are all based on the same basic combination of handle, blades, and a simple pivot. Variations in proportion determine their use. The short-handled pruner in the lower left corner is used to trim twigs and small branches from shrubs. It must fit comfortably in a single hand. The proportions of the lopper in the lower right corner are much different. Its 20-inch-long handle provides the leverage needed to cut heavier branches from small trees. For the industrial designer, function often determines proportion.

In sculpture, variations in proportion can increase aesthetic impact. Three proportional variations on



10.24 Home Pro Garden Tool Line. Designers: James E. Grove, John Cook, Jim Holtorf, Fernando Pardo, Mike Botich. Design Firm: Designworks/USA.



10.25 Constantin Brancusi, *Maiastra*, 1912. Polished brass, 29¼ × 7¼ × 7¼ in. (75.7 × 18.5 × 19 cm).



10.26 Constantin Brancusi, *Golden Bird*, 1919, *Pedestal* c. 1922. Bronze, stone, and wood, 37¼ in. (95.9 cm), base 48 in. (121.9 cm).



10.27 Constantin Brancusi, *Bird in Space*, 1928. Bronze (unique cast), 54 × 8¾ × 6½ in. (137.2 × 21.6 × 16.5 cm).

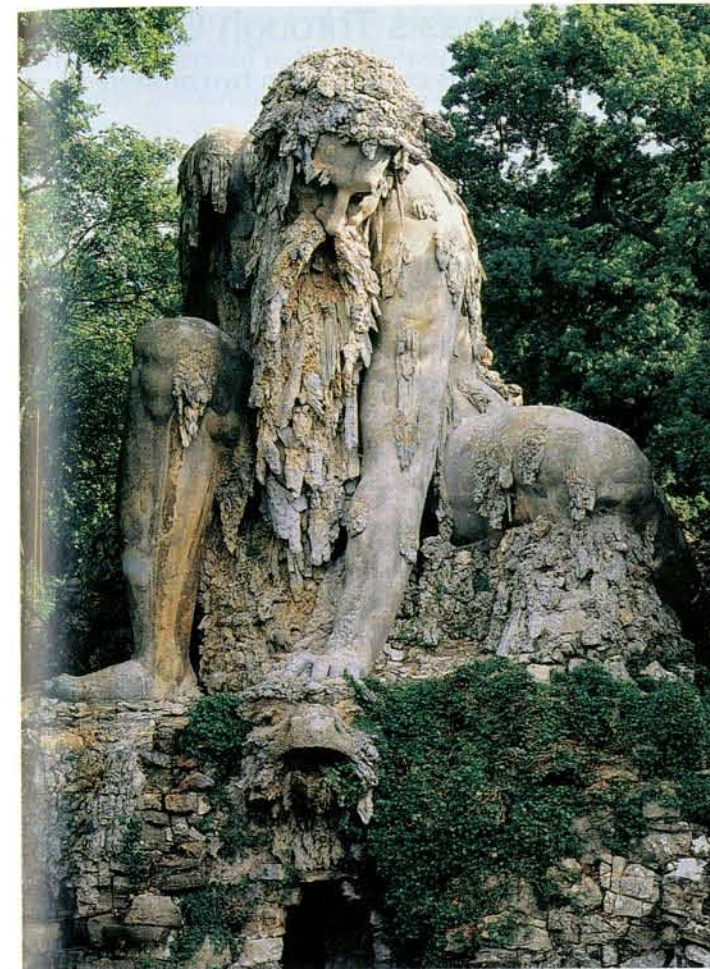
Constantin Brancusi's *Bird in Space* are shown in figures 10.25 through 10.27. In *Maiastra* (10.25), the abstract bird form is dominated by the egg-shaped torso, which tapers into the folded wings at the bottom and the raised head at the top. This bird is approximately 3 times taller than it is wide. Brancusi further abstracted *Golden Bird* (10.26) and elongated the body. The bird is now 7 times taller than it is wide, and an elaborate base adds even more height to the sculpture. With *Bird in Space* (10.27), Brancusi elongated the form even more and added an expanding "foot" below the folded wings. This bird is almost 10 times taller than it is wide. By lengthening the columnar structure in this final version and carefully tapering the sculpture near the base, Brancusi made this simple sculpture fly.

As with all design decisions, choosing the right scale and proportion greatly increases expressive power. Giovanni Bologna's *Apennine* (10.28) is scaled to overwhelm the viewer with a sense of the mountain spirit's presence. His human frame is monumental, and the surrounding trees and cliff appear to diminish by comparison.

Proportional extremes can be equally expressive. Standing just under 5 feet tall, Alberto Giacometti's *Chariot* (10.29) offers a somber analysis of the human condition. The solitary figure is delicately balanced on gigantic wheels, which then rest on two small pedestals. The entire form is linear, as if distilled down to the barest essentials. Both the chariot and the life it transports are precariously balanced and seem fragile and vulnerable.

Key Questions

- What would happen to your composition if you dramatically changed its scale?
- What would happen if you dramatically changed the proportions in your composition?
- Imagine that your design can be stretched or compressed in any direction. What are the advantages of a very tall, thin composition, compared with a short, cubic composition?



10.28 Giovanni Bologna, *Apennine*, 1580–82. Stone, bricks, mortar. Villa di Pratolino, Florence region, Italy.



10.29 Alberto Giacometti, *Chariot*, 1950. Bronze, 57 × 26 × 26½ in. (144.8 × 65.8 × 66.2 cm).

EMPHASIS

Emphasis gives particular prominence to part of a design. A **focal point** is a compositional device used to create emphasis. For example, the bishop's hat in Slodtz's version of St. Bruno (figure 10.19, page 229) is the focal point of the composition. Both emphasis and focal point are used to attract attention and increase visual and conceptual impact.

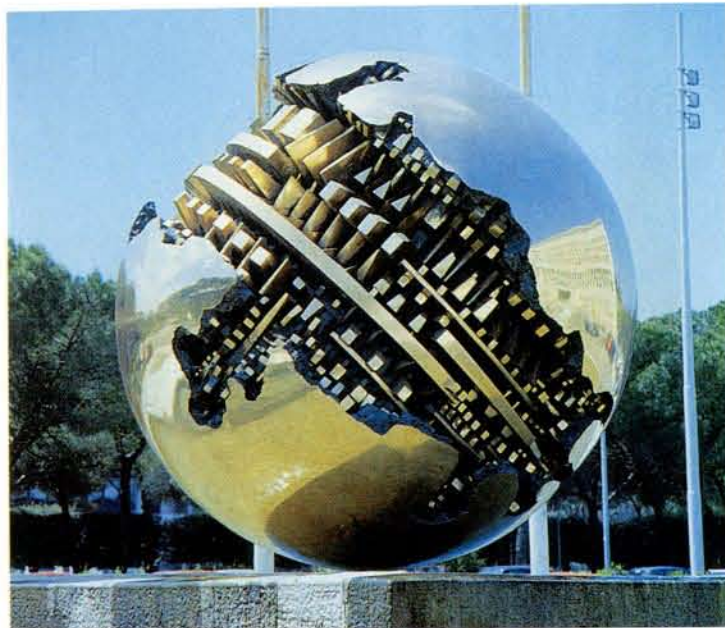
Emphasis by Isolation

Any **anomaly**, or break from the norm, tends to stand out. Because we seek to connect the verbal and visual information we are given, a mismatched word or an isolated object immediately attracts attention. In *I Never Liked Musical Chairs* (10.30), metalsmith Joana Kao established the norm through



10.30 Joana Kao, *I Never Liked Musical Chairs*. Bracelet, sterling, 24K, 2¼ × 1¼ in. (7 × 4 cm).

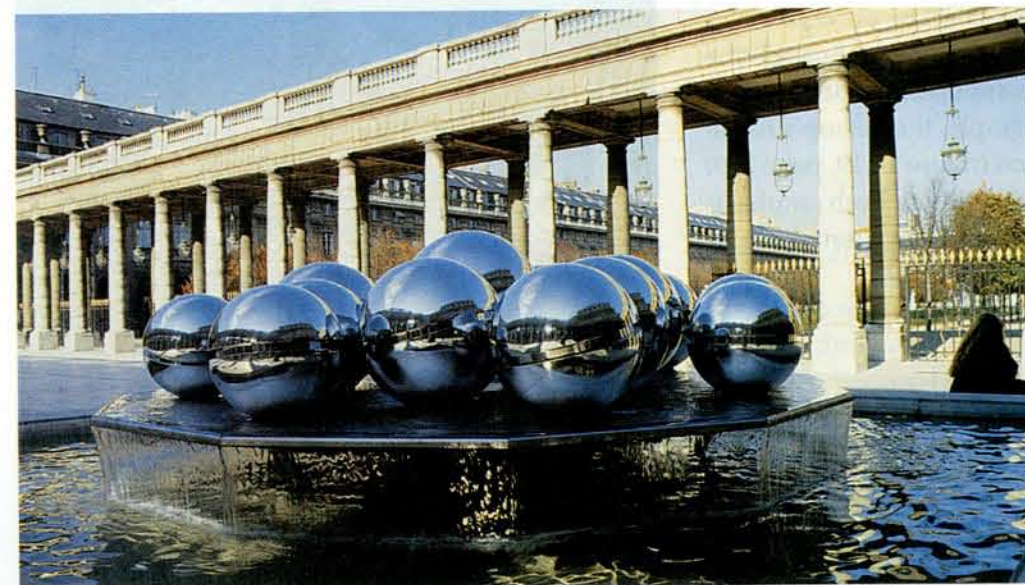
seven tiny chairs connected by a silver chain. The figure at the end of the chain breaks the pattern. This break conveys the isolation felt by a child who has been ejected from the game.



10.31 Arnaldo Pomodoro, *Sphere*, 1965. Bronze, 47 in. (119.4 cm) diameter. Ministero degli Esteri, Rome.



10.32 Mary Ann Scherr, *Loops*, 1988. Sterling silver necklace, 8 1/2 × 4 1/4 × 5 in. (21.6 × 12.1 × 12.7 cm).



10.33 Pol Bury, *Fountains at Palais Royal*, Paris, 1985.

Emphasis Through Contrast

Contrast is created when two or more forces operate in opposition.

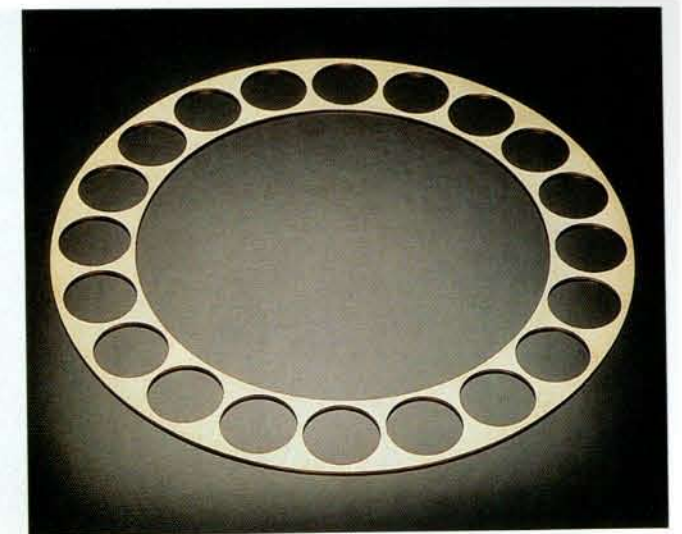
By reviewing the elements and principles of design discussed thus far, we can quickly create a long list of potential adversaries, including static/dynamic, smooth/textured, small/large, and curvilinear/rectilinear. When the balance is just right, powerful compositions can be created from any such combination. Many artists and designers devote most of their compositional area to one force and a much smaller amount to a contrasting force. The larger force sets the standard, while the smaller force creates the exception.

Contrast can appear in many forms and in varying degrees. Two opposing forces dominate Arnaldo Pomodoro's *Sphere* (10.31). The imposing spherical form seems to have been eaten away by an external force, leaving a pattern of rectilinear teeth across its equator. This creates a strong contrast between the massive structure and the invading space, and adds rhythm and texture to the spherical form.

Loops (10.32), by Mary Ann Scherr, presents a contrast between movement and constraint. A curving plane encircles the user's throat, providing protection but restricting motion. Below, the suspended rings sway

with every movement of the body, creating a dynamic counterpoint to the constraining collar.

Water animates Pol Bury's *Fountains at Palais Royal* (10.33). The design relies on three major elements. The site itself is dominated by the regularly spaced columns that are so characteristic of neoclassical architecture. The polished steel spheres, poised within the bowl of each foundation, reflect these columns and the shimmering water, which provides the third element in the design. In a sense, the spheres serve as mediators between the rigid columns and the silvery water. Like the columns, they are simple volumes, arranged in a group. Like the water, they seem fluid as they reflect the moving water and the passing clouds. In this project, unity and variety have been combined to create an elegant and ever-changing sculpture.



10.34 David Watkins, *Torus 280 (B2)*, 1989. Neckpiece, gilded brass, 11 in. (28 cm).

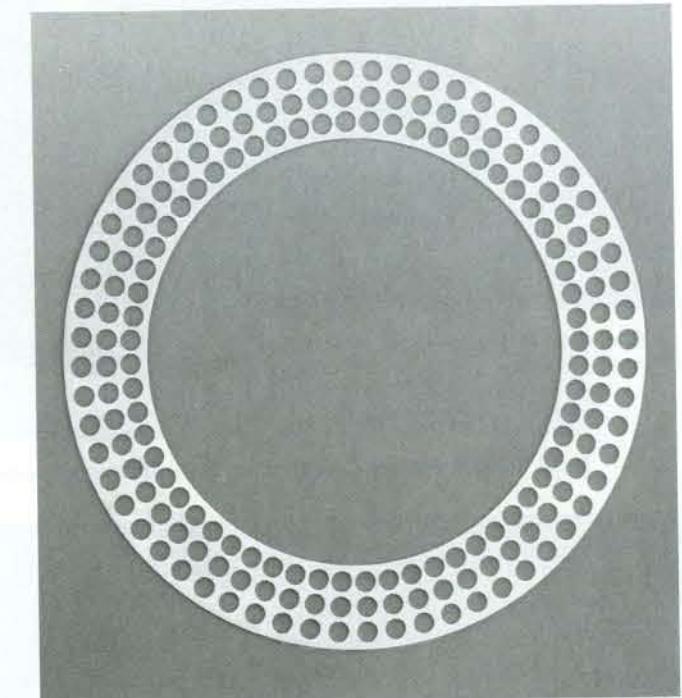
Key Questions

- Is there a focal point in your composition? If not, should there be?
- What is the most prominent form in your composition? Is it the form you most *want* to emphasize?
- What would happen to your composition if you dramatically increased the amount of contrast?

REPETITION AND RHYTHM

As noted at the beginning of this chapter, *repetition* occurs when we use the same visual element or effect any number of times within a composition. **Rhythm** can be defined as the organization of these multiple elements or effects into a deliberate pattern. Just as a musician creates a deliberate pattern connecting sound and silence, so the artist can create rhythm using positive form and negative space.

As with music, the number and distribution of beats create the rhythm. In David Watkins' *Torus 280*



10.35 David Watkins, *Torus 280 (B1)*, 1989. Neckpiece, gilded brass, 11 in. (28 cm).

(B2) (10.34), the large circular shapes create a slow, regular pattern. When the number of circles increases in *Torus 280 (B1)* (10.35), the tempo increases. As the neckpiece expands outward, the space between the circular openings also expands, creating greater variety in form.



10.36 Tanija & Graham Carr, *Untitled*, 2001. Wet-formed leather, acrylic paint, 13¼ × 29¼ × 29¼ in. (35 × 74 × 74 cm).



10.37 Jean-Baptiste Carpeaux, *The Dance (After Restoration)*, 1868–69. Marble, 7 ft 6½ in. (2.3 m).



10.38 Steve Woodward, *Model of Proposal for Concourse Commission*, 1987. Wood, 13¾ × 8 × 7½ in. (34.9 × 20.3 × 19 cm).

Rhythm plays an even greater role in figure 10.36. The woven herringbone pattern in the bottom suggests first a clockwise then a counterclockwise visual movement. A similar pattern at the top accentuates the spatial variations in the piece. Tapered rectilinear shapes create a border, around both the interior and the exterior edges. Like a complex musical piece, three types of rhythm have been skillfully woven together.

The multiple views offered by physical objects accentuate the importance of rhythm. The movement of four women around an exuberant musician creates a joyous dance in Jean-Baptiste Carpeaux's

The Dance (10.37). Our eyes follow the turning heads, clasped hands, and swirling arms as they move in, out, and around in space. A similar rhythm animates Steve Woodward's *Model of Proposal for Concourse Commission* (10.38). The plywood vortex seems to rise out of the floor to collect in a spinning disk at the top, then descend again, in perpetual motion. When combined with the spinning effect, this up-and-down movement gives the design great vitality.

Repetition is often used to increase compositional unity. It can also be used to quantify an elusive idea. For example, the 30 statues in Magdalena Abakanowicz's *Standing Figures* (10.39) are unified

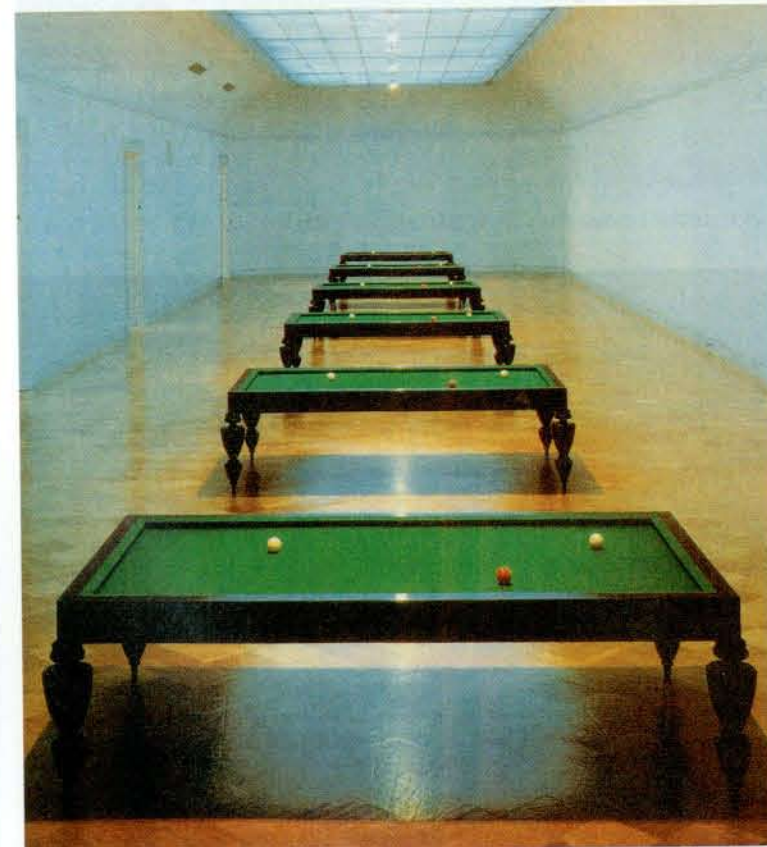


10.39 Magdalena Abakanowicz, *Standing Figures (30)*, 1994–99. Bronze, overall 54 ft 3 in. × 19 ft 8 in. (16.55 × 6 m).



10.40 Tomb of Emperor Shih Huang Ti, 221–206 b.c. Painted ceramic figures, life size.

by their similarity in size, shape, and solemnity. Variations in each cast bronze surface provide a degree of individuality. Often interpreted as victims of war, the hollow, headless figures seem frozen in time, offering a silent testimony to a tragic past. The 6,000 clay soldiers filling the tomb of Emperor Shih Huang Ti (10.40) demonstrate a different use of repetition. As he faced his death, the emperor may have sought companionship or protection from his army. Sherrie Levine's *La Fortune* (10.41) demonstrates a third use of repetition. Our sense of reality is challenged when we encounter these four pool tables. The identical arrangement of the balls seems impossible: the balls would be randomly distributed in four actual games. Here, a very ordinary scene becomes mysterious, even nightmarish, due to the inexplicable repetition.



10.41 Sherrie Levine, *La Fortune* (After Man Ray) 1–6, 1990. Felt, mahogany, resin, 33 × 110 × 60 in. (84 × 280 × 153 cm).

Key Questions

- Try repeating any element in your design. What does this repetition contribute, conceptually and compositionally?
- What happens when simple repetition is changed to specific rhythm?
- Does the rhythm remain constant in your design, or is there a change in pace? What is the advantage of each approach?

SUMMARY

- Through composition, we can combine multiple parts to create a unified whole.
- Grouping, containment, proximity, repetition, continuity, and closure are six common strategies for increasing unity. Difference in any aspect of a design increases variety.
- A grid is created through a series of intersecting lines. A matrix is a three-dimensional grid.
- Symmetry, radial symmetry, and asymmetry are three common forms of balance. A dominant, or primary, form is often balanced by one or more subordinate, or secondary, forms.
- Scale and proportion are two types of size relationships. Proportion refers to size relationships within an image, while scale involves a size comparison with our physical size.

KEYWORDS

anomaly
asymmetrical balance
balance
closure
composition
containment
continuity

contrast
dominant
emphasis
focal point
grid
grouping
hand-held

human scale
matrix
monumental
proportion
proximity
radial symmetry
repetition

rhythm
scale
subordinate
symmetrical balance
unity
variety

IN DETAIL

Born in Poland in 1930, Magdalena Abakanowicz has witnessed some of the most traumatic events of the twentieth century. Originally based in Russia, her family fled to Gdansk during the Bolshevik revolution of 1920. Germany then invaded and occupied Poland in 1939. The Soviet occupation of Poland after World War II created a rigid and strongly conservative educational system for artists. Until Stalin's death in 1953, "Socialist Realism," a form of political art, was the only acceptable aesthetic approach. In response to her personal experiences, Abakanowicz often uses multiple figures to suggest both the anonymity and power of a mindless human collective.

