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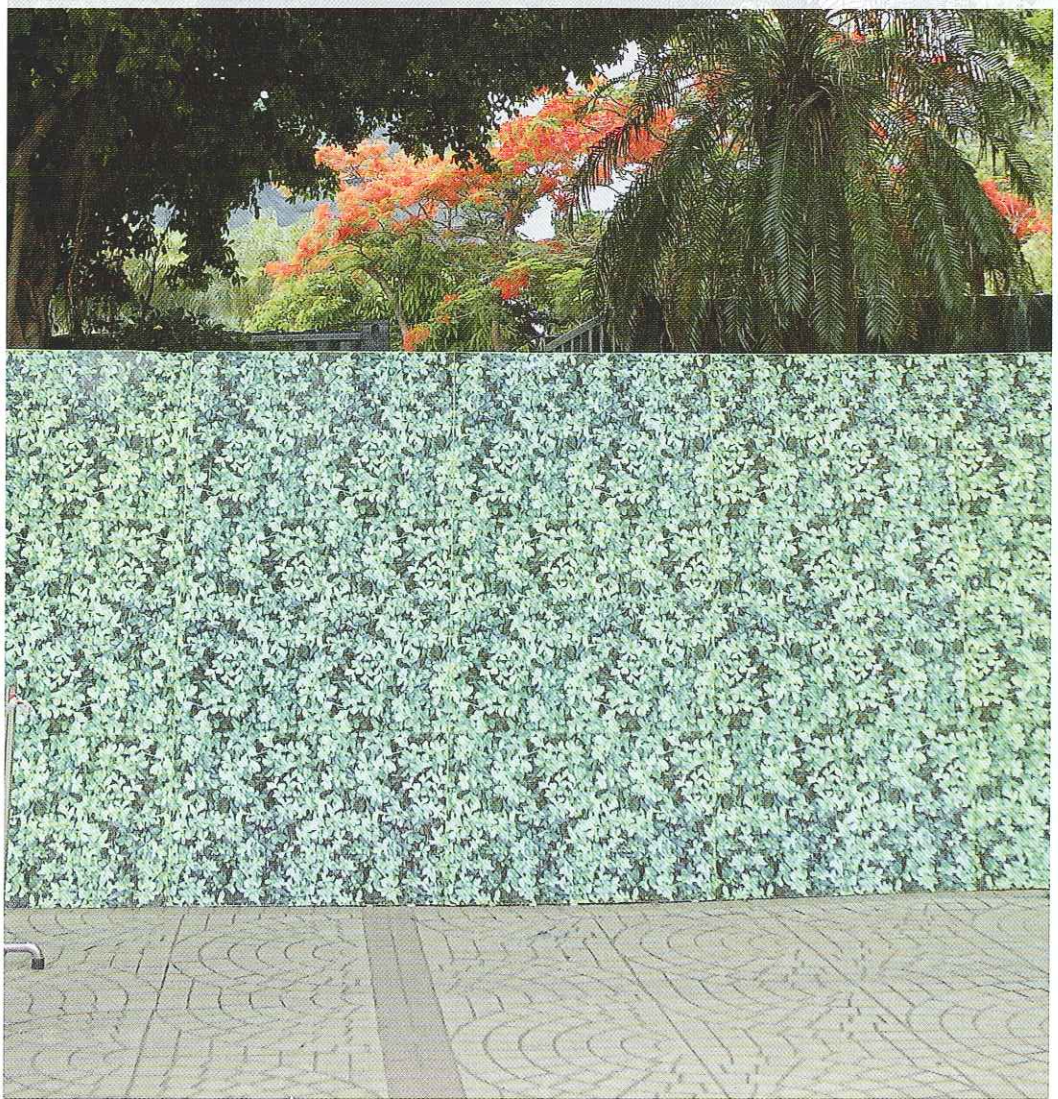


You are in a restaurant with a friend and are planning to go to a movie together after dinner. You will be driving in separate cars but your friend does not know how to get to the theater. So you draw the route between the restaurant and the theater on a napkin. This map is a representation: it describes, depicts, or stands in some way for the experience of driving from the restaurant to the specified location.

Your map, however, differs significantly from the one provided by the auto club. Both maps include roads and landmarks, but your map excludes any features or aspects that are not essential to the task of getting to the movie theater. It focuses only on the sequence of decision-making points along a specific route, and these are likely to have been depicted slightly inaccurately by the scale of your drawing. In contrast, the auto-club map has the far larger task of providing accurate navigation routes to and from anywhere in the city.

Your map includes specific roads and landmarks that you know your friend will recognize. Knowledge of your friend and of the route allow you to shape the map references in very particular ways: the intersection where there used to be a gas station, the school where you both went to kindergarten, the store where your friend's mother works. In other words, the representation is motivated by the histories of you, your friend, and the location, as well as by the specific task of getting to the theater.

If a stranger were to find your map on the ground in the parking lot of the theater, information about its origin would be encoded in its form. Even without knowing who made the map, someone could tell that it had been created under particular circumstances (over a meal or a drink, for example) and had probably been accompanied by a verbal explanation, which presumes some degree of familiarity between the maker and the user. The forms used in the map tell the stranger something about how comfortable the maker was in his or her mapmaking role and to what degree personal observation informed the task.

WHAT DO WE MEAN BY REPRESENTATION?

As this example shows, *representation* (see p. 26) is a process through which people make something that expresses an interest in some particular aspect of something else and that is motivated by both context and intent.[1] Representations are substitutions for something else, surrogates in some alternative form that provide information about things, as well as about the makers and, possibly, the audiences for those things. The map to the movie theater is a substitute for both the physical route (a configuration of landscape features and roads) and the mental concept of driving the route (a conceptual

plan that gives a sequence of physical actions to enable someone to reach a goal and that shows the order of particular stimuli along a path on the way to the goal). It also expresses a relationship between the maker and the audience.

Representations may be expressions of intangible ideas, concepts, or feelings in some physical form (for example, a gesture, a drawing, or a poem). They may also communicate information about tangible objects, people, or places in the real world in a different physical form (for example, diagrams, photographs, or maps). And in other instances, one representational form may be substituted for another, such as a film for an oral history or a picture of five apples for the Arabic numeral 5.

The most basic unit of representation is the **SIGN**, which is something that stands for something else to someone in some respect. For example, C-O-W is a linguistic sign. There is consensus among speakers of English that this combination of letters and the sounds associated with them stand for a large farm animal that gives milk. A soldier who salutes with his or her right hand is also a sign: there is a common understanding in many cultures that this gesture signifies respect for those of higher rank among members of the military. And a red cross composed of two intersecting lines of equal length and width is a sign. In non-Arab countries, this symbol stands for a politically neutral organization dedicated to emergency relief in times of war or disaster.

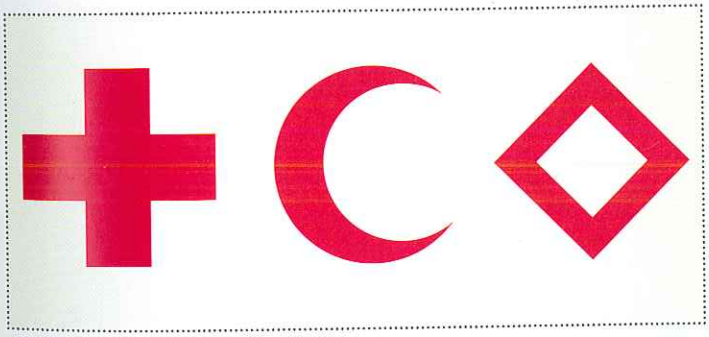
SIGN

The most basic unit of representation. According to Ferdinand de Saussure's linguistic model, a sign consists of a signifier and a signified. According to Charles Sanders Peirce, a sign is something that means something to someone in some respect.

In these examples, the relationship between the physical attributes of the sign and what it stands for is **ARBITRARY**. Nothing about C-O-W looks or sounds like a real cow. The same letters may be used in other words and have no meaning associated with animals, farms, or milk (for example, MosCOW, COWard, or CO-Worker; see also p. 106).

ARBITRARINESS

Ferdinand de Saussure suggested that the relationship between a sign and what it stands for is arbitrary. In visual and verbal language, the correspondence between the sign and its meaning is a matter of cultural agreement, not an inherent property of the sign itself.



2.1 RED CROSS, RED CRESCENT, AND RED CRYSTAL, 2007
International Federation of Red Cross and Red Crescent Societies

All three symbols stand for a neutral organization that provides relief in times of war or disaster. The relationship between this meaning and each of the three forms is *arbitrary*. There is no meaning inherent in the cross, crescent, or diamond; significance is established solely through their use in cultural practice. Three different identities are necessary because various countries associate the symbols with ideas unrelated to the organization's work.

The arbitrary nature of the Red Cross symbol is evident in its history (SEE FIGURE 2.1). Standing for an organization founded in 1863 by five men from Geneva, Switzerland, to aid wounded soldiers, the symbol is the inverse of the Swiss flag (a red cross on a white background, rather than the Swiss white cross on a red background). As such, it borrows the country's signification of neutrality in times of war. In other words, the meaning of one sign was assigned arbitrarily to the meaning of another.

Because any cross also has cultural associations with Christianity, the organization operates as the "Red Crescent" in Arab countries—what one group of people associates with neutrality is charged with less-than-neutral religious significance for another. In 2005, an international committee addressed the dilemma of a two-symbol system for the same relief effort. A new symbol adopted by the two organizations, the "Red Crystal," is described as "free from any religious, political, or other connotation."[2] But many Arab countries saw the adoption of a third symbol as an unnecessary accommodation to Israel, which refused to use either the cross or the crescent. A frustrated Swiss diplomat said, "We're actually trying to get a solution for the Red Cross, but some seem to want us to try to solve the entire Middle East conflict."[3]

This ability to read abstract symbols in many ways, and to assign new meaning to a form that previously had no meaning, demonstrates the arbitrariness of signs.

THE CONTEXT OF CULTURE

The intention in all three previous examples (the cow, the soldier, and the red cross) is to exchange meaning with other members of our culture. Such a meeting of minds is usually achieved through language, which is, according to the cognitive psychologist Donald Norman, a representational system in which the *represented* world (those things about which we communicate) is expressed in terms of a *representing* world (the signs, sounds, and symbols we use in that communication).[4] Were there not some cultural consensus about the meaning of signs and symbols among members of a linguistic community, communication would not be possible.

The sociologist Stuart Hall dissects this notion of the signifying practices of culture in his book *Representation* (1997). He cites three different theoretical approaches to explaining the concept. The **REFLECTIVE APPROACH** suggests that meaning resides in the object, person, or event in the real world and that the language system simply reflects or mimics what is already there.[5] But he says that if this were the case we would not be able to communicate about things never seen or through metaphor or analogy: the atomic structure of a chemical element would be incomprehensible as a diagram and a rose would simply be a flower with thorns, never a poetic expression of affection or beauty.

REFLECTIVE APPROACH

Stuart Hall used this term to refer to a view of representation in which the meaning of something is inherent in the person, object, place, or event itself and the representation simply mirrors what is already there.

The **INTENTIONAL APPROACH** takes the opposite stance, whereby meaning is imposed on the object, person, or event by the author or maker of the representation.[6] But if this were true, says Hall, we would be able to communicate through entirely private languages. We could simply decide that a sign stands for something (a circle for childhood, for example) and that everyone, without explanation or education, would instantly understand the association of the sign with this idea.

INTENTIONAL APPROACH

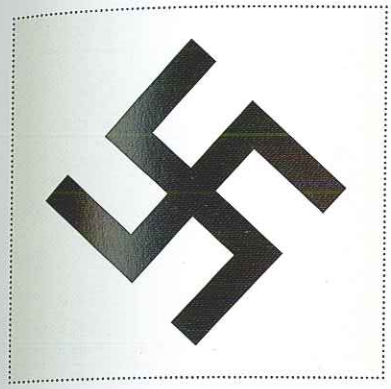
Stuart Hall used this term to refer to a view of representation in which the meaning of something is imposed on the representation by its author or maker.

The **CONSTRUCTIONIST APPROACH** acknowledges the public, social character of language. This third theory posits that we construct meaning through the use of representational systems that link concepts to signs.[7] The conceptual system is made up of our mental representations of things in the world and we correlate it with a language system made up of sounds, images, gestures, or words in order to exchange their meanings with others.[8] The material world of people, things, and places is therefore linked to the symbolic social practices through which meaning is made. A church is not a church simply because it has certain physical components (steeple, altar, pews, and so on), but because it is a place of cultural rites and rituals, spiritual associations, and community, and because we have come to associate its form with these activities through our social and cultural experiences.

CONSTRUCTIONIST APPROACH

Stuart Hall used this term to refer to a view of representation in which the meaning of something is shaped partially by the social practices that surround it. See also constructionism (p. 20).

The graphic example of the swastika illustrates the *constructedness* of representational meaning through cultural practices. Used for thousands of years, the abstract form held meaning for cultures as diverse as the ancient Trojans and Egyptians, Europeans in the Middle Ages, and Native Americans. The word swastika comes originally from the Sanskrit *svastika*, meaning "good,"



2.2 SWASTIKA

The swastika is used by various religions and dates back to prehistory. For most of its history, the swastika had positive associations; its use by Nazi Germany, however, recast its meaning irreversibly for modern times.

and throughout history the symbol has been used to connote life, sun, power, strength, and good fortune.[9] The Germans appropriated it in the nineteenth century as a symbol for German nationalism and used it as their battle sign. When Hitler resurrected the form in 1920 all former positive associations gave way under the brutal practices of the Third Reich (SEE FIGURE 2.2). As much as the Nazis viewed it as a symbol of the Aryan struggle, others saw hate and genocide in its form. In this instance, the aesthetic qualities of the abstract graphic form itself, its long history of positive associations, and the significance assigned to it by those in charge of its application were insufficient in overcoming the negativity of social practices surrounding its use in Germany in World War II. So strong are these social meanings that, even decades later, it is inconceivable that the symbol can be recast in modern times.

Stuart Hall describes these associations as **SEMANTIC NETWORKS**, as fields of related meanings, with each network having its own characteristic language or discourse. In *Doing Cultural Studies* (1997) Hall analyzes the Sony Walkman as an object that could be "read culturally," through its semantic network (as a cultural representation as well as a functional object for playing recorded music). Not long after its invention in 1979, the Walkman came to stand for Japanese high technology, youth-oriented active lifestyles, and the world of recorded music and sound.[10] The object itself was not especially novel in appearance and used the same materials and power source as its predecessor, the transistor radio. But a consensus was very quickly achieved regarding the Walkman's position in culture and its wider range of meanings, much in the same way as today's iPod has cultural connotations and social practices—personal music mixes, the digital connectedness of today's youth culture, challenges to the traditional practices of the recording industry, media convergence, and so on—that extend its meaning beyond the mere function of listening to music. In fact, the cultural role of the iPod is so well understood that manufacturers of other products now respond to it in their own designs—the Toyota Yaris, for example, was first advertised as being "iPod-compatible"—and new practices incorporate the iPod into their lexicon ("podcasting"). An industry has been built around designing "apps" for the iPod Touch and its sister products, the iPhone and iPad.

This expanded field of associations and affiliations is referred to as the **CONNOTATIVE** function of a sign. For example, the saluting soldier, mentioned earlier, could connote respect, authority, allegiance, blind obedience, or camaraderie. Depending on his or her uniform and the past experiences of the viewer, he or she may be interpreted as an enemy, hero, oppressor, peacekeeper, or liberator. Within different contexts he or she may constitute a threat, provide a sense of security, or encourage someone to join the service. All are possible connotations of the gesture by a person in uniform, and the variability of such meanings allows the graphic designer to craft richer messages for specific audiences than if such meanings were not available.

By contrast, the **DENOTATIVE** or literal meaning of a sign is less open to variable interpretation. Our soldier is simply a gesturing person in a uniform and the Walkman is merely a small, portable stereo in the denotative sense. We often deploy denotative representations when seeking objectivity or

SEMANTIC NETWORK

Stuart Hall's term for the field of related meanings or connotations that are affiliated with a person, thing, place, or event. It is through such affiliations that objects can be "read culturally."

CONNOTATION

An idea or feeling that a representation invokes in addition to its literal meaning. Because such meanings are not explicit, objective descriptions of fact, they generally arise from cultural and social experiences in which people, things, places, and events become associated with particular abstract ideas, emotions, or behaviors. Sometimes referred to as second-level meaning.

DENOTATION

The literal or surface meaning of a sign. Denotative meaning is explicit and direct and usually avoids metaphor. Sometimes referred to as first-level meaning.

rationality. The auto-club map, for example, tells us nothing about the subjective experience of a particular journey, the perceived duration for which we might travel on various roads, or our frustration with the characteristic traffic on one route versus another. In contrast to the more connotative map on the napkin, it simply denotes that the roads exist and the geographic relationships among them.

CHOOSING AN APPROPRIATE SIGN

Choosing an appropriate sign is therefore a complicated task, especially when communicating to mass audiences that belong to diverse interpretive cultures. The designer must search for signs that are generally understood to represent the appropriate concepts and also present them in a way that competes successfully among other demands for people's attention. Signs must be familiar but used in an inventive way to be successful in today's climate of information overload.

categorization

The work of Eleanor Rosch, a psychologist at the University of California, Berkeley, provides insight into the possible choices among signs for a particular concept. Rosch's experimental work focuses on a mental process called **CATEGORIZATION.** This term refers to how we identify stimuli in our environment and group them in memory as members of a category, similar to others in that category and different from members of other categories.[11] A category could be "things that are soft," "people not to be trusted," or "redness." Our cultural experiences determine many of the categories into which we sort stimuli and the members within each group. For example, the list of members in the category of "success" or "authority" may differ among people from various social groups or of different ages or gender. This *categorization* of concepts is thought to be fundamental to perception, thought, language, and action.[12]

CATEGORIZATION

The act of identifying stimuli in the environment and grouping them in memory as members of a category, similar to others in that category but different from members of other categories. Categorization allows us to think and communicate metaphorically. Eleanor Rosch and George Lakoff use the concept of categorization in their work.

Categorization allows us to think and communicate metaphorically. We need not see the actual thing being represented, in a literal sense, as long as, to the people who are viewing the sign, it shares some important quality with the thing it stands for. Metaphor is a powerful tool in design (see p. 189). It allows us to make the strange familiar by comparing something new or unknown to something known. The desktop metaphor, for example, enables us to communicate intuitively with the operating system of our computers. We understand how to perform certain functions, or the role of particular objects in the real world, and we bring those behaviors and objects into the virtual world as substitutions for lines of computer code. For example, our knowledge of the behavior associated with a file allows us to execute certain computer operations without reflection. We intuit from past experience the difference between a file and a folder, recognizing that the former is information and the latter is a container. Such metaphors create a user-friendly environment through which a system that would be indecipherable to many is made accessible to people without technological expertise.

Metaphors also allow us to make the familiar strange by revealing overlooked aspects or perspectives of a known thing through its comparison with something else. The designer John Rheinfrank (1944–2004), for example, challenged the design professions to drop the language of war and adopt the language of biology as a metaphor for the role of design in business (instead of speaking of "strategies," "campaigns," and "target" audiences, to frame our thinking in terms of "growth," "sustainability," and "evolution"). By using the metaphorical basis of representations to shift the categories to which we think a concept belongs, we reconfigure the string of associations and expectations. We see something in a new way.

In his book *Women, Fire, and Dangerous Things* (1987), the linguistics professor George Lakoff cautions us that categorization is not just the collection of properties shared by the things in a category. He cites research suggesting that our categorical reasoning is embodied (in other words, has a basis in our physical experience of the world), and is in some cases as much a matter of culture as of biology.[13] If categories are only about the properties inherent in the thing itself, how could thinking about them be independent of the object itself and how could we have categories about abstract concepts (for example, "power" or "innocence")?[14] And if categories are defined only by the qualities of objects, then no examples in the category should be more representative than others in that category.[15]

To explain this last point, Eleanor Rosch describes categories as having a graded structure of better-to-worse examples, with many categories having unclear boundaries.[16] There are prototypical "best examples," members that are clearly central to the category and that we may be able to identify as arising from some common experiences. These **PROTOTYPES** tend to be processed in the mind as concrete, information-rich images from which we generalize (transfer expectations) to other examples.[17] Rosch tells us, for example, that we may agree that a particular red object is "red" but debate in our minds the "redness" of a second object. The reference for the redness of the second object is likely to be the red of the first object that we assessed as a best example of the category "red." We may describe the second red as being "too pink" when what we really mean is that it is "pinker than the best example of red."[18]

PROTOTYPE

Eleanor Rosch's term for the "best example" of a category. A prototype is a member so central to the category that it contains most or all of the characteristics that define the category, unlike other members that might be more peripheral and likely to invoke other categories.

If we think of the graphic design task as triggering the appropriate concept category in the minds of viewers, it makes sense when possible to construct representations that use best examples or prototypes shaped by the audience's physical, social, or cultural experiences. An analysis of the images in FIGURE 2.3 employs Rosch's perspective of categorization in thinking about visual representation.

> FIGURE 2.3A is likely to be described by many people as "erotic": the woman's manner of dress (fishnet hose), posture (reclining with legs crossed), the setting (satin-sheeted bed), and point of view (concealing the face, focusing on the lower half of the body) recall multiple aspects of images that many in Western cultures would associate with erotica. Some people may even refer to this image as a cliché, a *prototype* that suffers from overuse by the culture in representing the category.

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FIGURE 2.3B is a photograph of a nude woman. While some people may also describe this image as "erotic," others may label it as "fine art." As a member of the latter category, the human figure is viewed by the photographer as an object with qualities not unlike those of items in a still life. We are less able to deliver a narrative about the woman or her circumstances in this image than in FIGURE 2.3A because she is photographed less as a person associated with certain social behaviors than as an object with particular formal characteristics. This approach has a stronger affiliation with fine art than with erotica, although the boundaries between the two categories are blurred.

FIGURE 2.3C is a Georgia O'Keeffe painting from 1926 of an iris. For many this is simply a flower. For others who know O'Keeffe's work and have a larger frame of reference in the history of art, the image is "erotic" through its resemblance to the female anatomy, even though a human figure does not appear in the work. From this perspective, the image has status as an example of "erotica," while for others it is a best example of "flowers" (a denotative rather than connotative meaning).

FIGURE 2.3D is a painting by Edouard Manet from 1863 entitled *Le Déjeuner sur l'Herbe*. In Manet's time, the erotic nature of a nude woman in the presence of clothed gentlemen would have been scandalous. Today, however, this meaning is likely to be secondary to the overall impression of "a famous painting from the past." Its best-example status for the concept of "erotic" is therefore time- and culture-specific.

FIGURE 2.3E shows a teapot in a tea cozy. If this image was viewed on its own, few people would consider it to be "erotic." But if it was surrounded by images that clearly belong to the category of "erotic," its image content might be re-evaluated, even though a human form does not appear in the representation and the general category of the object is more likely to be associated with a prim and proper grandmother than with sexual behavior. By referencing the category "erotic" through surrounding images, we call forth the relevant physical features of the object that might otherwise have stronger associations with other categories. What initially appears to be out of place among the other objects in the group gains new meaning as we search for the feature or attribute of the teapot that is consistent with the category.[19]

This collection of images demonstrates that the literal, denotative meaning of subject matter in a representation is insufficient, in itself, to trigger the concept category. In the case of the Gibson photograph and the Manet painting, nudity alone lacks the power to call up the highly emotional concept of "erotic." O'Keeffe's iris and the teapot demonstrate that inanimate objects can take on abstract meanings (in this case, human sexuality), despite their denotative content. They are, however, more ambiguous and culturally peripheral as "erotic" than FIGURE 2.3A—they risk being misinterpreted because they have

2.3 (A–E)

Each of the images in this collection can be interpreted as "erotic," yet some are "better examples" of the concept than others. Some depend on the cultural experience of the viewer, while others rely on their position within the collection.

2.3A WOMAN WEARING FISHNET STOCKINGS

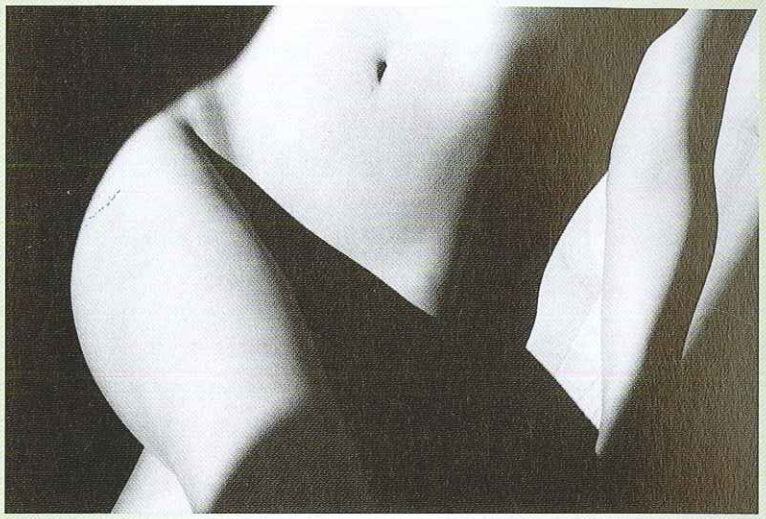
2.3B *NUDE, CHICAGO*, 2009
Ralph Gibson (b. 1939)

2.3C *BLACK IRIS*, 1926
Georgia O'Keeffe (1887–1986)
Oil on canvas
Metropolitan Museum of Art, New York, Alfred Stieglitz Collection

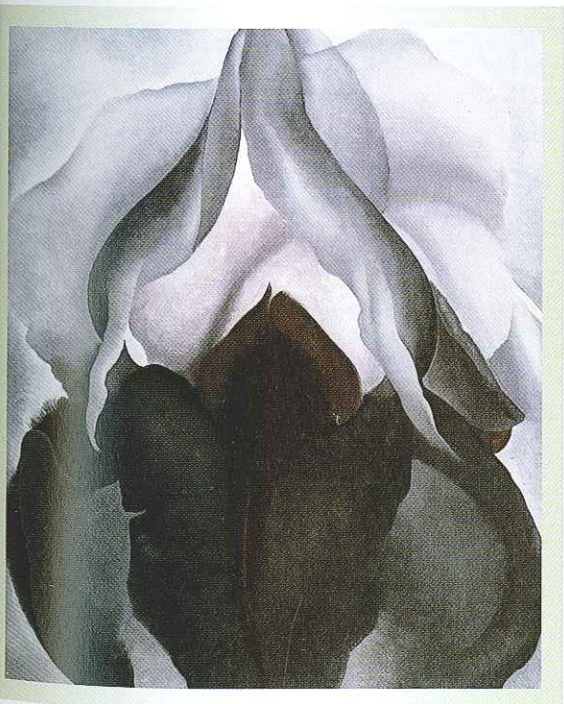
2.3D *LE DÉJEUNER SUR L'HERBE (THE LUNCHEON ON THE GRASS)*, 1863
Edouard Manet (1832–1883)
Oil on canvas
Musée d'Orsay, Paris, France

2.3E TEAPOT AND TEA COZY

2.3A



2.3B



2.3C

2.3D

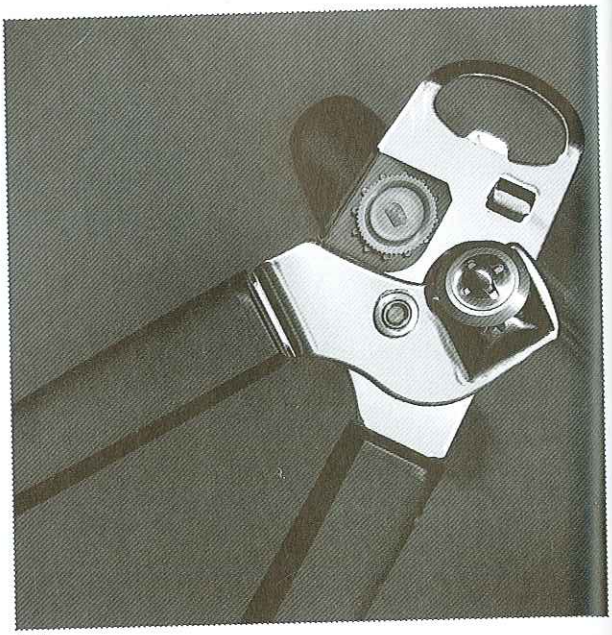
2.3E

stronger membership in other categories (fine art, flowers, tea, housewares, and so on) for some viewers.

It is critical to graphic design to understand how such images reinforce concepts through metaphor or deflect interpretations of meaning to other categories. If the image fails to exhibit the appropriate features or qualities of the metaphor that establish the sign's association with the desired concept, the representation may confuse the audience. Or if the image is outside the audience's experience as a member of the desired category targeted by the design, it also may fail as a representation.

representational style

In addition to the denotative and connotative content of the subject matter, meaning can be communicated by the representational style through which it is rendered. FIGURES 2.4A–C show a variety of ways of representing a simple object.



2.4A

2.4 (A–C)

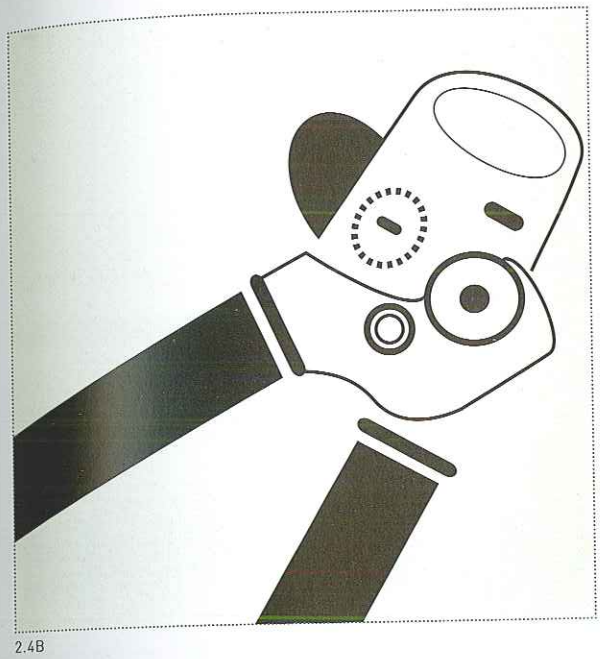
These three images represent different interpretations of the same object, a can opener. The first image is analogous to reality in its photographic reproduction. Interpretation of the other two images, however, is based on our understanding that the designer included some of the available information about the object in the rendering, but left out other details. Drawing, therefore, is generally seen as a subjective representation of reality, while photography is often considered to be objective.

ANALOGOUS

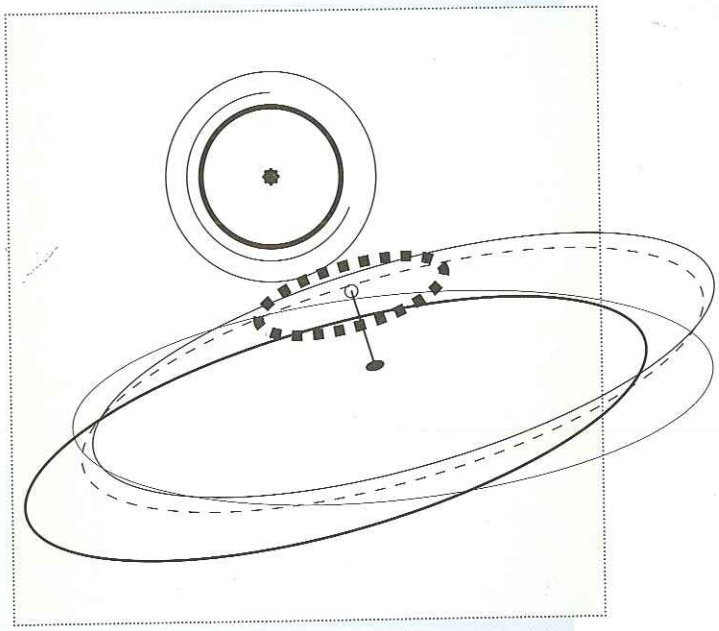
Roland Barthes's term for a representation that is natural or that physically resembles what it stands for. A photographic representation is analogous to the subject being photographed, whereas a gesture drawing may be less so.

FIGURE 2.4A is what semiotician Roland Barthes (1915–1980) calls **ANALOGOUS** or *natural*—the photograph replicates or is congruent with our experience of the object in the real world (see pp. 128–31). The camera, as a machine, makes no choices about what to record and what to leave out. Everything within the frame is captured on film or as digital information. Barthes tells us, however, that the photograph is also paradoxical. While the photographic image may be denotative in its accurate recording of the objects, people, or places that are its literal subject matter, there is a second, connotative meaning that results from special effects, pose, lighting, the inclusion of other objects, and its position within a series or sequence of other images.[20] We learn the meanings of such representational codes largely through our exposure to images in our culture: soft focus = romance or a dream state; framed portraits of a wife and children = family values; lighting from below = sinister qualities; and so forth. Despite this understanding that photographic meaning can be manipulated, we generally trust photography to be more "objective" or denotative than other types of image.

On the other hand, we easily accept the drawing in FIGURE 2.4B as someone's subjective interpretation of reality. Through the rendering style, we recognize that the maker of the drawing revealed some aspects of the object and omitted others. We make judgments about its meaning on that basis; the decision to include and omit certain details connotes what the maker of the sign thought was important, relevant, or interesting. Further, we can usually place the choice of a drawing style within an historical or cultural context. A loose gestural drawing of the object is quite different from a technical or classical rendering of the form. A cartoon of Bugs Bunny and



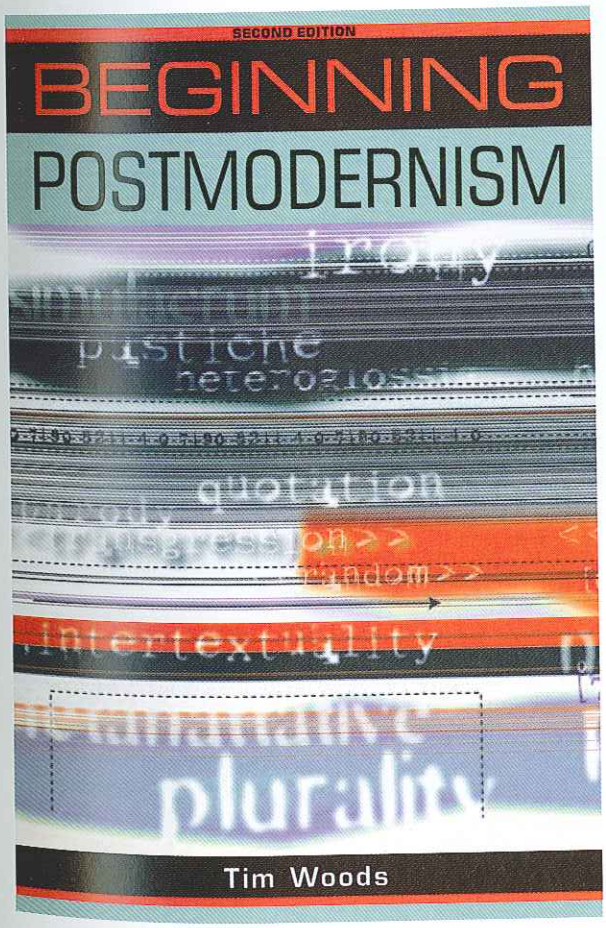
2.4B



2.4C

a realistically rendered rabbit by the sixteenth-century artist Albrecht Dürer are both representations of the same animal species, but they mean very different things based on their respective representational styles. The same basic elements may be present in all types of drawing, but the representational style connotes a different expressive intent or status of the image within a culture.

2.5 COVER FOR *BEGINNING POSTMODERNISM*, TIM WOODS, 1999
River Design Company



The representation in FIGURE 2.4C barely resembles the object in its natural form, focusing instead on its action. Here, the meaning is very specific but communicated through an abstraction that we have learned through other similar representations to mean "action" or "rotation." We are free to ignore all other attributes and possible meanings of the object because the representation directs our attention exclusively to the gadget's behavior.

In this way, form *is* content. The gadget is the literal subject matter in each image, but the meaning of each sign is different precisely because of its representational style. In the case of the photograph, we make assumptions about truth and accuracy, even knowing there is a human being behind the machine that made it. In the other two examples, we clearly recognize subjective viewpoints.

Representations sometimes communicate not only their subject matter but also meanings implied by the technology through which they are made. Such meanings are subject-matter-independent and arise from the semantic network of connotations associated with the technology itself. In the cover design for a book on post-modernism

2.6 POSTER FOR AMERICAN CENTER FOR DESIGN SIXTH *LIVING SURFACES* CONFERENCE, 1998
Geoff Kaplan (b. 1963)

Kaplan represents the history of communication technologies in his approach to imagery. The subject matter of the images is less important than references to the technologies through which they are produced or distributed.

by River Design Company (SEE FIGURE 2.5), for example, the printed typography behaves in the same way as motion typography behaves on a digital screen. The book title need not include the word "media" for this message to come across. The cover design is not merely an illustration of type on a computer screen, but type that appears to behave as though it is actually changing its state of being, which is in fact possible only through dynamic media.

Geoff Kaplan's poster for the *Living Surfaces* conference on new media (SEE FIGURE 2.6) recalls various technologies from the history of design. The range of typographic choices (spanning centuries in their historical references) and images, which juxtapose a classical print-based layout with bitmapped form, call forth the historical lineage of narratives and venues for their dissemination, the topic of the conference. The poster communicates its meaning largely through these representations of technology, not through the literal subject matter of the text or images.

2.7 COVER FOR "THE NEW ROCK AND ROLL," ISSUE OF *STICK* MAGAZINE, 1996
Scott Clum (b. 1964)
Photograph by Trevor Graves

FIGURE 2.7 is Scott Clum's design for a rock-and-roll issue of *Stick*, a magazine for snowboarders. The gritty typography (poorly copied, badly spaced, with ink blots) reminds us of band posters stapled to telephone poles in college towns and on urban street corners. The form of the typography is intentionally "low tech," recalling associations with alternative music, free from the control of slick record producers, and the counter-culture of snowboarding. Again, the meaning is less about what is shown or said than about how it was made.

In all these examples, the primary message carriers are representations of the technologies that shape the quality, not the literal content, of form. Such qualities are not inconsequential by-products of the means of image or type production—although those aspects have representational value as well—but technological references used specifically for their associative meanings.

ORDERING THE ELEMENTS WITHIN THE REPRESENTATION

The visual arrangement or ordering of elements within the representation, called syntax, also influences how we interpret meaning. We assign significance to the placement, orientation, and perceived hierarchy among elements within the visual field.

narrative

In *Reading Images* (2005), Gunther Kress and Theo van Leeuwen offer a strategy for analyzing the influence of visual structure on the construction of meaning. They call the elements of the composition **PARTICIPANTS**—any object, person, or shape within a photograph, for example, is a participant—and the dynamic forces or tensions among them **VECTORS**.[21] The vector may be an actual line or a line implied by other directional cues within the composition, such

PARTICIPANT
Gunther Kress and Theo van Leeuwen's term for any person, object, or element within a visual composition or a photograph. A participant is an "actor" in the narrative.

VECTOR
The dynamic forces or tensions among participants in a visual composition or photograph. A vector may be visible (as in a line) or implied (as in the direction of a person's gaze or the perceived trajectory of a shape in space).

2.8 *TIME CATCHER*
Saul Selwyn Flores (b. 1989)

This image can be read narratively, using Kress and van Leeuwen's idea of a vector connecting the man to the object beneath the water. The story is grounded in the perceived relationship between the two established by the visual composition.

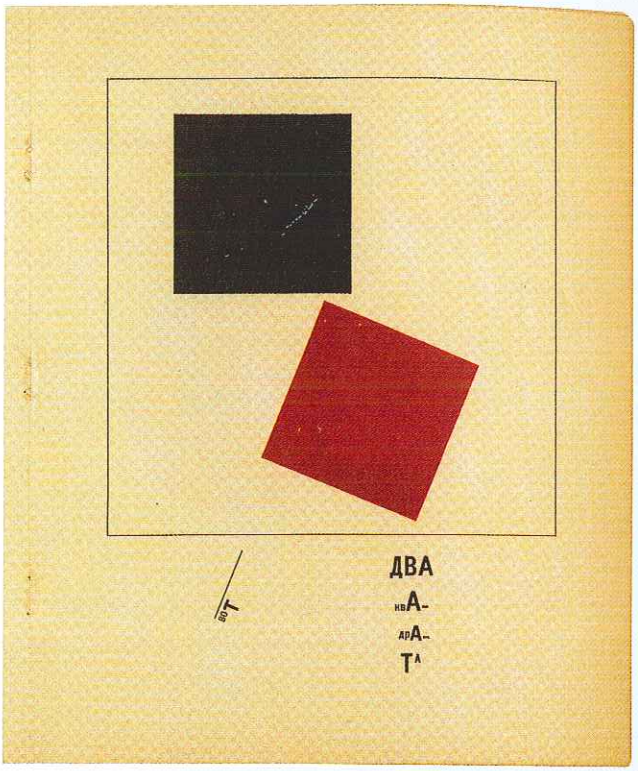
as the direction of a person's gaze toward an object, the pointing quality of a geometric shape, or the gesture of a diagrammatic element.

Kress and van Leeuwen suggest that when participants are connected by a vector, they are represented as doing something to or for each other; and that the role of vectors in visual compositions is akin to action verbs in language.[22] In this way, visual compositions are narratives—they present unfolding actions and events, processes of change, or transitory spatial arrangements in a sequence of possible arrangements or states of being.[23]

Applying Kress and van Leeuwen's analytical framework to FIGURE 2.8, for example, the vector is established by the fisherman's arm and fishing line and reinforced by his gaze. The man is an actor and the object of his attention, which is under the water, is a goal. The vector connects the two, even though the goal is hidden. If the vector did not direct our attention to a particular kind of transactional relationship between the fisherman and his goal, it would be more difficult to construct a story about the image. The narrative meaning of the representation arises, not merely from the attributes of the man (from his age, assumptions about his nationality or social class based on his dress, and so on) or of the imagined fish beneath the water, but also from the relationship between the two that is apparent only through the visual arrangement of the composition. Without this visual relationship we might think he is simply out for a boat ride.

2.9 URBAN OUTFITTERS CATALOG, 2005
Jim Datz, art director; Annie Wolf, photographer

In some images, the person in the photograph is connected by the vector to something outside the picture frame. Kress and van Leeuwen tell us that we interpret this kind of gaze differently for each gender—we see women as



2.10 PAGE FROM *OF TWO SQUARES: A SUPREMATIST TALE IN SIX CONSTRUCTIONS*, 1922
El Lissitzky (1890–1941)

withdrawing mentally, as lost in contemplation, while we typically describe men as focusing on a distant horizon.[24] In either case the vector extends the interpretive space and therefore the possible story of the image. In this way, the cropping of images changes their meanings.

The historian Stuart Ewen discusses fashion photography in his book *All-Consuming Images* (1988). He describes the tendency to crop such photography as an attempt to depict the "dream of wholeness" through fragmentation. Because no single model can be perfect in all ways, the "ideal" woman is created through multiple photographs of many women, each with one perfect attribute—an "inventory of disembodied parts, in order to construct the semblance of wholeness."[25] In this case, the cropping robs us of rich narratives because the elements in the photographs lack individuality, moving them from what Ewen calls "self as subject" to "self as object."[26] In Kress and van Leeuwen's terms, they become non-transactional—static, detached taxonomies of human form.

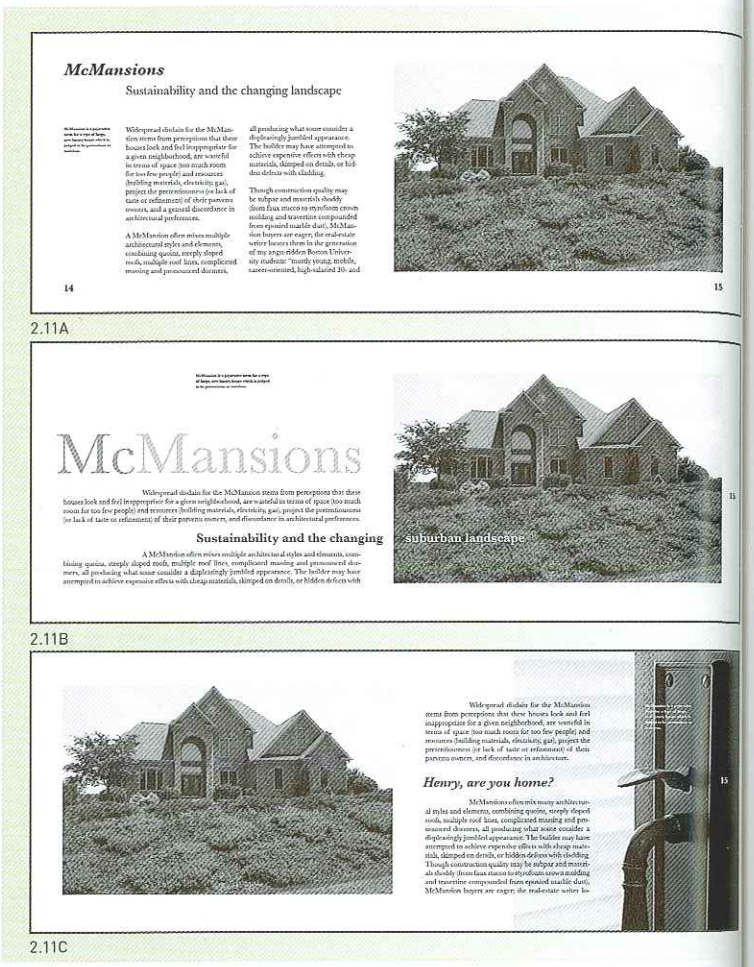
In FIGURE 2.9 the vector moves from the man to the woman to the photographer. The goal of the man in the photograph is the woman, but we also detect her awareness that she is being watched from outside the frame of the picture as well; that she holds the power to attract attention from two participants. The man in the photograph continues to watch her, even though there is another participant outside the frame who could conceivably distract him were she less compelling. The fact that he does not look away is meaningful. By establishing herself as the goal of two participants, as the point where two vectors converge, she represents the sexual attraction through which she commands attention. As consumers, we are led to believe that such attraction arises from her clothing, the advertised product.

In FIGURE 2.10 the black square teeters on the corner of an unstable red square, suggesting a possible collapse. The narrative, in this case, is the implied future trajectory of the two dependent squares. This toppling of shapes is as much an unfolding of events as are the previous examples in which we have literal subject matter. In this example, we lack the specific semantic meanings of the more naturalistic content of photographs. We are, however, no less capable of describing the directional qualities of the dominant shape, as well as its past or future trajectory within the picture space. The narrative in this case is a stripped-down representation of action, but it is as much an unfolding of events in time as are the previous examples.

the relationship between text and image

Multiple images or images and text in juxtaposition hold the same potential for establishing meaning on the basis of their visual syntax. In such configurations the relationships among signs are as important as the signs themselves. In the layout in FIGURE 2.11A, the arrangement of typography responds to the perimeter of the photograph. Nothing about the composition of elements *within* the photographic frame exerts any influence on the placement or shape of the block of text. In Kress and van Leeuwen's terms, there is no vector established from image to type that represents any connotative or narrative meaning, no transaction among participants; the two forms simply coexist in the same space and their relationship is only one of physical alignment and proportion. In contrast, the composition in FIGURE 2.11B aligns the text with the horizon line in the image—the type emphasizes the relationship of the house to the land by extending the topography as typography. The addition of the second image (the close-up of a door latch) in FIGURE 2.11C takes the viewer conceptually from the street to the front door of the house, a goal. This shifts the narrative, raising questions about why we are there, and what lies inside the door. The original image of the house has not changed from one layout to the next, but the possible narratives it represents are expanded through typography and the presence of the additional image.

In his analysis of photographic representation, Barthes discusses a historic reversal in the relationship between text and image. The image—once simply an illustration of the text that was designed to elucidate the ideas expressed in words—now reigns as the primary carrier of meaning in most visual communication. He describes contemporary text as "parasitic to the image," as



2.11 (A–C)

The content and cropping of the primary photograph is identical in these three layouts, yet the meaning of each composition is different. In **2.11A** the text simply conforms to the perimeter of the image, reinforcing an abstract formal relationship. The typography in **2.11B** extends the horizon line in the photograph, focusing our attention on the relationship of the house to the land. In **2.11C**, the addition of the second image takes the viewer to the front door, establishing a narrative relationship between the viewer and the house.

an accessory rationalizing the image, a "secondary vibration, almost without consequence."[27] "Formerly there was a reduction from text to image; today, there is amplification from one to another."[28] The image introduces the cultural connotations previously reserved for the text. By this Barthes means that in the past the image served as an objective, denotative version of the text, as apparent in textbook illustrations or in journalistic photography (SEE FIGURE 2.12). Today's images, through their deployment of culturally charged signs and compositions designed to foreground certain aspects of the representation, introduce connotations that were previously the responsibility of the text. Barthes is not saying that the design of typography is irrelevant, only that text is no longer the only information that functions connotatively and culturally.

2.12 PAGES FROM *GATEWAYS TO ART*
Designed by Geoff Penna
First published 2012 by Thames & Hudson Inc.

In an art history textbook, we expect images to serve as more detailed visual examples of the theme or movement discussed in the adjacent text. These images rarely introduce new content that undermines the narrative.

Consider, for example, the photograph of President George W. Bush in FIGURE 2.13. Staged for a press release by the White House staff, the image cleverly places the President's head in line with those of former presidents George Washington, Thomas Jefferson, Theodore Roosevelt, and Abraham Lincoln in the monument at Mount Rushmore. The speech delivered that day, to be covered by newspaper reporters, had no particular content relationship to the monument—it could have been delivered anywhere. The connotation of the representation (that President George W. Bush has something in common with the country's most revered leaders and will be remembered as one of the great presidents) overshadows the accompanying text. In this way, the image is culturally charged in a manner that the text of the speech or news report of the event was not.

2.13 PRESIDENT BUSH DELIVERING A SPEECH AT MT. RUSHMORE, August 15, 2005
Photograph by an employee of the Executive Office of the President of the United States

This image, cleverly staged by the White House staff and made available to newspaper journalists, places the President's head among the grouping of former presidents on Mt. Rushmore. The implied meaning is that Bush's leadership ranks in significance with that of Washington, Jefferson, Roosevelt, and Lincoln, something not discussed in the article. What upset many readers was the subjectivity of the myth-building introduced solely by the image in a medium that professes to uphold standards of objectivity (i.e. journalism).

MATCHING THE REPRESENTATION TO ITS CONTEXT OF USE

More than two thousand years ago, the Roman architect Marcus Vitruvius Pollio (fl. 1st century BCE) described the essences of design as firmness, commodity, and delight.[29] Today's designers translate these qualities of design as usability, usefulness, and desirability. While the goal is to achieve all three, the contexts that define design problems frequently place a greater burden on representations for achieving one outcome more than the others.

In some cases, the primary goal of the representation is efficient use. The audiences for income-tax forms and signage in airports, for example, do not expect to contemplate the patriotism of paying taxes, or how the signage system complements the architecture of the terminal. This is not to say that form is irrelevant, aesthetics do not matter, or that there are not emotional consequences in making one visual choice over another. Usability is *not* the opposite of appealing form; it is *not* a rationale for a detached, default solution that ignores the full spectrum of audience needs and wants. The priorities in such contexts as taxpaying and airport navigation, however, are clarity, accuracy, completeness, efficiency, and objectivity; such representations must be usable over and above all other possible considerations.

Donald Norman discusses the appropriate use of representational form in his book *Things That Make Us Smart* (1993). In one example, he shows the typical inconsistency in the representation of dosage instructions for prescription medicines (SEE FIGURE 2.14).[30] The patient who takes multiple medications each day often confronts conflicting narrative descriptions that must be reconciled to ensure he or she receives the correct dosage. The form of the information requires more reflection than patients want to expend in reading such instructions. In a reconfigured representation, Norman shows that ordering medications in a matrix by the time of day places all instructions in a consistent format and allows the patient to ignore medications that are not required at the current time; the visual pattern is more usable in this task than is the narrative form.

ZANTAC	Take twice a day at meals
LISINOPRIL	One tablet daily
SINGULAIR	Once a day in the morning
LIPITOR	One at bedtime
AMOXICILLIN	Twice a day with meals

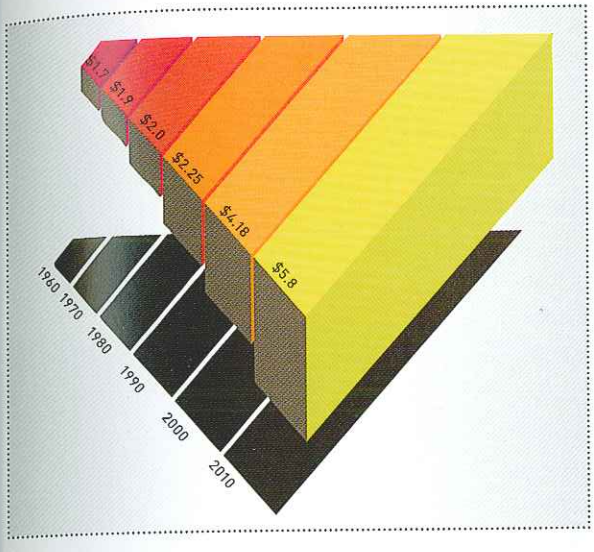
	BREAKFAST	LUNCH	DINNER	BEDTIME
ZANTAC	X		X	
LISINOPRIL	X			
SINGULAIR	X			
LIPITOR				X
AMOXICILLIN	X		X	

2.14 TRANSLATION OF MEDICAL INSTRUCTIONS
Based on a chart by Donald Norman, published in *Things that Make us Smart* (Cambridge, MA, 1993)

Norman makes the point that prescription information arranged by time, rather than in the narratives that appear on the labels of medicine bottles, is less confusing to patients about what medications to take at any particular time.

In other contexts, the goal of the representation is to engage the audience more deeply in reflection about concepts and to inform judgments about significance and possible courses of action. Under these circumstances, we value attributes of representations that invite the analysis of importance or consequence, provide insight through enlightening stories, and connect meaning to future action. The priorities in such projects are about managing complexity, revealing patterns and relationships, and establishing hierarchies. Good solutions are not merely efficient, they are also effective. They extend our ability to think about things, demonstrating that they are useful and worthy of time spent in contemplation.

The chart in FIGURE 2.15, comparing company revenue across several years, is similar to one that appeared in an annual report for consumers who make stock purchases and was recognized in a prestigious design publication. The colored bars (which create the illusion of a receding plane) carry no meaning other than to hold the typeset numbers represented by the sizes of the vertical gray bars. Attention is drawn to this feature by the most vibrant colors in the chart, yet the reader must debate whether the diminishing sizes of the colored bars represent varying amounts of something or are simply the illusion of perspective among elements of the same size. In actuality, the sizes of the colored bars are meaningless and have nothing to

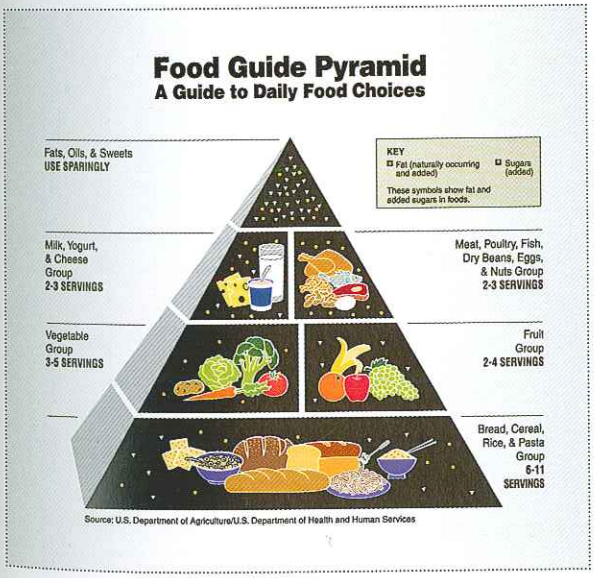


2.15 FINANCIAL CHART
Based on an award-winning diagram

This chart shows successive years of revenue for a company. The relevant financial comparison resides in the vertical gray bars. The colorful bars confuse the viewer by an ambiguous spatial representation and the changing sizes of black bars represent no statistical information.

do with the data. The black drop-shadows—which merely contain the typeset years for which financial data is provided—reinforce the perspective illusion and distract readers from the more important data comparisons among the vertical gray bars. Because the comparative data is at an angle, it is difficult to determine how much actual difference there is between any two gray bars. So if consumers depend on this chart to make crucial judgments about the health of the company and stock purchases, they might reasonably question why the form of the chart confuses the very information necessary for reaching such conclusions and why there is no payoff for the additional time spent in reflection. The chart is ultimately usable (with work, we can identify what the form represents), but many of its elements are not very useful.

Many people are familiar with the original Food Guide Pyramid designed by the United States Department of Agriculture (USDA) to explain what constitutes a healthy diet. The USDA represented various food groups as pictorial illustrations located within wedges of a five-sided pyramid (SEE FIGURE 2.16). The number of objects illustrated in each wedge of this diagram (fruits, vegetables, dairy products, and so on) has nothing to do with the recommended consumption of any food group. Instead, readers are asked to equate food intake with differently proportioned sections of a polyhedron representing the various food groups, a difficult perceptual comparison. While the more obvious differences in the sizes among the polyhedron sections and their vertical locations in the pyramid are moderately useful in determining that we should eat less meat than fruits and vegetables, people rarely plan meals or make food choices on the basis of surface area or volume. The truly useful information appears in the text in the margins of the diagram, indicating the number of recommended daily servings from each food group (although there are still questions about what constitutes a "serving"). In this case, numbers are better matched to the way in which we plan meals than are spatial representations. The usefulness of the chart is compromised by a perceptual mismatch between the form of the information and the means through which people are to adopt the recommended behavior.



2.16 USDA FOOD PYRAMID, 1992
United States Department of Agriculture

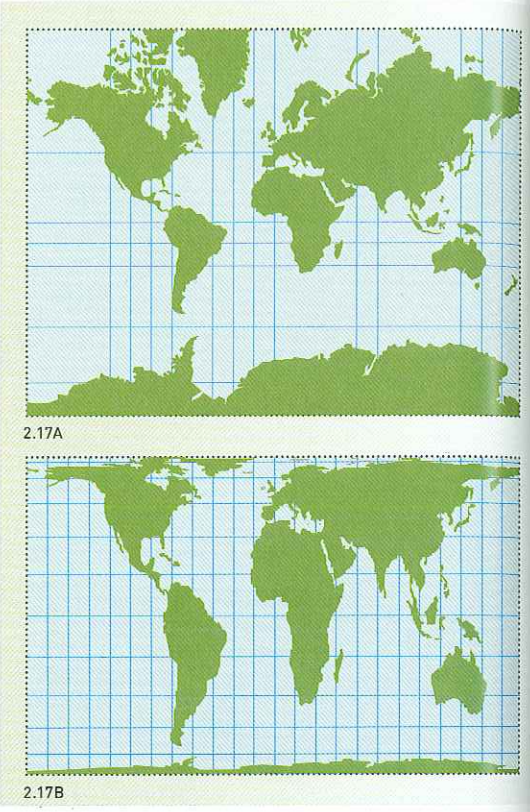
This version of the food pyramid encouraged consumers to make nutritional choices based on comparisons among differently sized wedges of a polyhedron, a tough perceptual task that is unrelated to how we plan meals (by servings). The most useful information appears in the text surrounding the image.

In some cases, the purpose of the representation is to aid us in forming a perspective about something. In this type of communication, representations may be evaluated as insightful, revealing, credible, compelling, or convincing. They are valuable to us in making judgments and in forming or confirming opinions. Other representations appeal to our emotions in an attempt to persuade us to some opinion or action, frequently addressing a want rather than a need. In these types of representation we usually expect subjectivity, a point of view, and consider the motivation of the message source in our interpretation of meaning.

The photograph of President Bush at Mount Rushmore, discussed earlier (see p. 49), demonstrates a point of view, both literally and figuratively. The camera angle from which Bush was photographed inserts the President physically into the sequence of other presidential heads in the monument. This placement is intentional. The position of the photographer is not a natural one were Mount Rushmore simply a backdrop for the President as an important speaker, but it is necessary to reinforce the political point of view that Bush's record is consistent with those of his great predecessors. For readers who agree, the photograph is confirmation of that belief. But for those who take a different political stance, the photograph represents media manipulation.

What is disturbing for the latter group is the relationship between the loaded connotations of the photograph and the objectivity we expect from journalistic photography. Our interpretation of meaning depends not only on the attributes of the representation itself, but also on the extended meanings of the category of imagery to which the representation belongs. We trust newspaper reporting—as opposed to editorial commentary—to be accurate and free from bias. For those who consider the Bush photograph biased, outrage results both from its content and from what is perceived as a violation of journalistic integrity, maneuvered by White House media moguls.

We generally consider maps and diagrams as "objective" representations, yet many are used to promote particular points of view, values, or social outcomes. The view of the world that many of us hold in our minds, for example, is represented in the Mercator projection, a sixteenth-century attempt to depict landmasses on the surface of a sphere in flat form. The result is an east–west distortion of geographical shapes that diminishes the relative sizes of South America and Africa and enlarges Europe and North America (SEE FIGURE 2.17A). The Peters projection from 1973, on the other hand, represents land of equal area equally, but distorts the shape of the Earth (SEE FIGURE 2.17B). The publication of the Peters projection spawned controversy over whether one map was more "fair" than another, especially in policy decisions that affect developing nations. While the Mercator projection is still the dominant representation, the debate makes apparent that the choice to use one representational form over another, however mathematical its origin, can be seen as a value-driven decision.[31]



2.17 (A–B)

The Mercator Projection (top) distorts the sizes of landmasses in order to depict them on a flat plane, while the Peters Projection (bottom) shows landmasses of equal dimensions equally. Both are accurate representations when considered under the limitations of their mathematical models, but they create very different perceptions of geography. Such perceptions guide policy making, as well as assumptions about distance and time.

PROPAGANDA

A form of communication aimed at influencing opinion or inciting action, based on a particular, usually political or cause-related, point of view.

In contrast, we fully expect some representations to be subjective. **PROPAGANDA**, an attempt to sway opinion, is understood to have a point of view and has employed a variety of techniques across history. *Testimonials* by people we respect lead many of us to adopt political positions without independent judgment: "If my hero believes this, it must be right for me because I aspire to be like this person." Given today's equivalency between "hero" and "celebrity," this technique need not employ testimony from anyone knowledgeable on the issue or of exceptional character. *Bandwagoning* encourages acceptance because "everyone believes or does" something, playing on our desire to be

2.18 *THE ETERNAL JEW*, 1937
Hans Stalüter

The propaganda technique of scapegoating, blaming a common enemy for negative circumstances, often depicts the "villain" in the most unflattering light. Physical and behavioral characteristics are exaggerated to distance audiences from feelings of empathy.

part of a dominant social group. To disagree with the commonly held opinion is to declare our own inability or unwillingness to see what is obvious to everyone else. *Scapegoating* blames a detractor, uniting those with otherwise dissimilar beliefs in their opposition to a common enemy and relieving them from responsibility for the negative consequences of making a decision on the issue alone. The scapegoat is usually depicted in an unflattering or exaggerated way (SEE FIGURE 2.18). Other approaches use *reward or punishment*, warning of the negative consequences of holding a particular opinion or associating the "rightness" of a position with some personal benefit. In all cases, these appeals are visceral or emotional and do not depend on deep reflection or judgment about the subject matter. Their power lies outside the content of the issue itself and resides, instead, in the relationship between the context of use and the psychology of the viewer.

SUMMARY

While graphic designers are professionals whose job it is to build meaningful representations, all people use signs and symbols to exchange meaning with others in their culture. The construction of meaning involves a complex interplay of factors relating to the creator of the representation, who encodes the message in some culturally negotiated form, and the interpreter, who brings past experiences and context to a determination of its significance.

We sort stimuli into categories in our minds in ways that allow us to recall them when confronted with new stimuli. These categories include members that share something in common, with some being more central or prototypical to the category than others and with fuzzy boundaries between the categories.

The style of the representation and its composition carry meaning over and above the literal content. Today, cultural meanings reside in images that were once thought simply to illustrate more culturally charged text. We read significance in the choice of style and means of production, attributing subject-matter-independent meaning to both. We also view the arrangement of signs within the representation as meaningful, with the visual relationships among elements serving a narrative function. The relationship between text and image has shifted over time.

We expect communication artifacts to be usable, useful, and desirable, but recognize that different contexts often demand more of one quality than another. Representations succeed in achieving these outcomes when there is a good fit among the choice of signs, the ordering among signs in the same physical space, and the context of use.