11

Graphic Design

Introduction

Graphic design for the Web encompasses a very wide range of decisions about the visual dimension of a website. On one hand, graphic design is broad and integrative. We see this especially in page layout, an important aspect of graphic design. On the other hand, graphic design entails many highly specific decisions. So, for example, various people on a design team may contribute to the idea of a fictitious "Mama Ragú" welcoming visitors to the website that promotes Ragú Italian food products. But it is very likely the graphic designer who chooses the photograph and, if necessary, alters it to fit the design. (For a quick advance peek at Mama Ragú, see Figure 11.7.)

These are the main goals of graphic design for the Web:

- Adding aesthetic appeal
- Helping to express the theme of the website
- Helping to show the logical relationships among all elements that appear on the page, both core content elements and elements of the interface

Well-funded Web development projects include a professional graphic designer. Ideally, the graphic designer is involved from the earliest stages when concept sketches are being drawn. On large projects, the graphic designer may be working full-time; on smaller projects, the graphic designer may be brought in at strategic intervals. When there is no professional graphic designer, someone must step into this role, though it is a challenge for a non-specialist to achieve really good results.

Professional graphic designers cross many boundaries in their work. They are often skilled at interface design, information design, and creating core visual

content, especially illustrations. Many small Web design firms are staffed entirely by graphic designers or consist of a single graphic designer.

This chapter will provide you with a quick education in graphic design, especially as it pertains to the Web. Here is what we cover:

- Aesthetic appeal on the Web
- Uses of line, shape, and color
- Designing screen text
- Expressing theme with style and mood
- Principles of composition
- Strategies for page layout

Although this chapter can point you toward success in graphic design, it cannot do the whole job. You should develop the habit of carefully considering the visual design of the websites you visit, and you should take note of magazine advertisements, posters, commercial signage, and roadside billboards. It is very valuable to read books, take courses, and work closely on a project with a trained graphic designer. The readings suggested in this chapter can contribute greatly to your sophistication in graphic design and related areas.

You should strive for sophistication in graphic design even if you don't plan to practice graphic design. You should be able to communicate clearly with a graphic designer in order to explain what you want. You should be able to recognize when a website's visual design is unsuccessful and to articulate the reasons for your judgment.

To achieve good results in your own designs, follow well-established design principles. Also, be patient: What a professional designer can do quickly, you may need to achieve by successive approximation—and by soliciting lots of feedback. When you finally get it right, it's not so important that you had to discard numerous bad versions of your design.

Aesthetic Appeal on the Web

The word "aesthetic" refers to the human response we associate with beauty. Aesthetic appeal is a key goal of graphic design on the Web because it engages users. Aesthetics is especially important on the home page, where users make a split-second decision whether to stay or leave. Furthermore, an aesthetic design lends prestige and credibility to the organization that owns the website, subtly asserting, "These people know what they're doing."

Aesthetic design does not mean that the pages of a website should be regarded as objects of fine art and evoke the response, "How beautiful!" You don't need flowers or sunsets on your website. Done well, even a bus schedule will be perceived as visually attractive. If a website communicates about starvation and disease, the graphic design may be stark and grim. But users can still recognize the aesthetic quality of the design, just as they recognize the ugliness in a thoughtless or misguided design.

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Uses of Line, Shape, and Color

Line, shape, and color are always present. You can think of them as resources, or "raw materials," of graphic design.

Line

Lines connect two or more points and are the essential element of graphic design. Lines can be given a variety of stylistic attributes. For example, there are hard-edged lines and soft-edged lines that fade into their backgrounds. All these attributes can be created easily with illustration software applications. The main stylistic attributes are listed below:

- Straight lines
- Curved or swirly lines
- Jagged lines
- Irregular or hand-drawn lines
- Dotted and dashed lines
- Lines with high or low contrast against their backgrounds
- Lines with hard or soft edges
- Lines that are thin or thick
- Lines whose orientation is vertical, horizontal, or diagonal

These line types, of course, can be used in combination: There are jagged dotted lines, and a line can change from jagged to straight. In many cases our response to a line is influenced by our notion of how someone might draw that kind of line. So, for example, jagged lines suggest energy and informality and, possibly, damage and violence. Swirly lines also suggest energy and informality but at the same time suggest freedom of movement and joy. Dotted lines suggest thoughtfulness, someone with a message to communicate.

Shape

Shapes are formed by lines. Shapes can also be implied by lines that do not fully complete a shape. When lines are sufficiently thick, we perceive them as shapes. Shapes are a fundamental component of almost any possible Web page. Shapes define objects and suggest planes. As we show later, shapes are the basis of page layout.

Shapes as Objects in a Design

Shapes and lines make up the objects that appear as core content elements. Extremely complex, often irregular shapes, combinations of shapes, and lines (with or without color) make up drawings of people, buildings, products, and so forth. When the artist is skillful, we don't even think of these representations as shapes: We don't notice that the shoulders and chest of Napoleon Bonaparte approximate a blue trapezoid (wider at the shoulders, narrower at the waist) and that the head is a complex oval. In addition, regular geometric shapes—circles, octagons, stars,

diamonds, and so forth—serve many roles in our designs. Recall that Zompco employs a triangle as its corporate logo.

Shapes as Planes

Perspective drawing, shadowing, and other techniques have been used for centuries to create the illusion of 3-D space. But simple juxtapositions and modifications of shapes can subtly suggest multiple planes and give extra interest to an image. One prevalent technique is to allow shapes to overlap so that one seems to be sitting on top of another. Another prevalent technique is a "reverse-out": The designer visually cuts out pieces of a shape to suggest an underlying plane showing through. Both techniques are shown in Figure 11.1.

Color

Color affects us strongly and in complex ways. It is a major aspect of almost any website design. Color and in particular color for the Web make for a complex subject encompassing the properties of light, differences among operating systems and Web browsers, and the physiology and psychology of human perception. Here we offer just the briefest introduction to Web color. We approach the topic from the perspective of a designer working with the color-selection features of a software application. A good resource for color theory and design is Jill Morton (1998). For a comprehensive book that explains how to implement graphics on the Web, see Lynda Weinman (1999).

The Make-Up of Color

Capable computers give us a choice of 255 different hues, ranging through the full color spectrum (red, orange, yellow, green, blue, indigo, violet). Each hue corre-
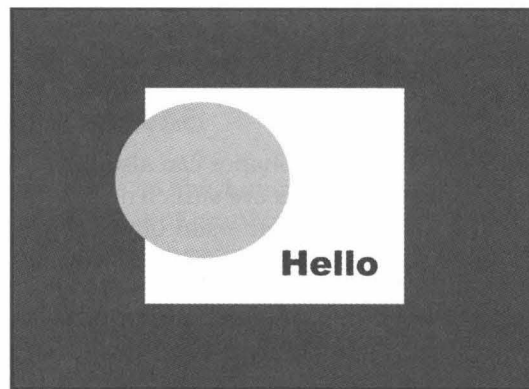

Figure 11.1. The use of overlapping and a reverse-out to suggest multiple planes. Users will perceive three planes in this graphic, shown in gray, white, and black.

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sponds to a particular wavelength of light. Black, white, and gray are not hues: Black is the absence of light; white comes from mixing red, green and blue light; gray is a mixture of white and black.

A hue in its pure form is said to be "fully saturated." Most often, however, we do not use hues in their fully saturated form. We can modify a hue by changing its "value" (or "luminance"), its lightness or darkness. This is the equivalent of adding white or black to the hue. The computer's color-selection feature offers 128 gradations of white and 128 gradations of black. Lighter values of a color are often called "tints"; darker values "shades." We can, for example, lighten the hue of red to various tints of pink or darken it to various shades of scarlet. We get shades of brown by darkening yellow.

Very often designers also want to "dull" or "mute" a color. This is the equivalent of adding different quantities of gray, at any given value of a hue. Computers allow us to de-saturate a hue with gray in 255 gradations (or "tones"). So, for example, having tinted the fully saturated red hue to a light pink, you can mute the light pink to a dull light pink and even further to a pinkish light gray.

You may have noticed that all the combinations of hue, value, and de-saturation with gray amount to approximately 16 million colors. Clearly, then, it is no small feat for computers to faithfully reproduce the colors intended by the designer. Even with capable computers, there are a variety of minor problems in displaying color. Furthermore, to avoid significant display problems for people using computers with 8-bit color capability, you must restrict yourself to the 216 guaranteed ("browser-safe") colors. You must therefore decide whether to take advantage of 16 million colors or restrict yourself to this subset, depending on the computer capabilities of the audience you intend to serve.

How We Respond to Color

Colors are perceived as warm or cool. The warm colors are red, orange, and yellow. The cool colors are green and blue. People respond strongly to the warmness or coolness of colors, and so this "warm-cool color contrast" must be an important consideration in your design.

Colors also have various associations. For example, green is associated with vegetation and fertility, with envy, and with the visual signal "Go." There is also the ugly "puke" green. Some color associations operate across many cultures (green as vegetation and fertility) while others do not (green as envy). Furthermore, the context greatly affects how people respond to any color. Red appearing as flowing blood is very different from a sumptuous red carpet.

A significant number of people, mostly males, have some kind of difficulty in interpreting colors ("color blindness"). Therefore, avoid color coding as the sole cue for important information; for example, don't use color coding as the only means to distinguish among easy, moderate, and difficult hiking trails.

Color Combinations and Color Harmony

When designing Web pages, think in terms of color schemes and color harmony rather than individual colors.
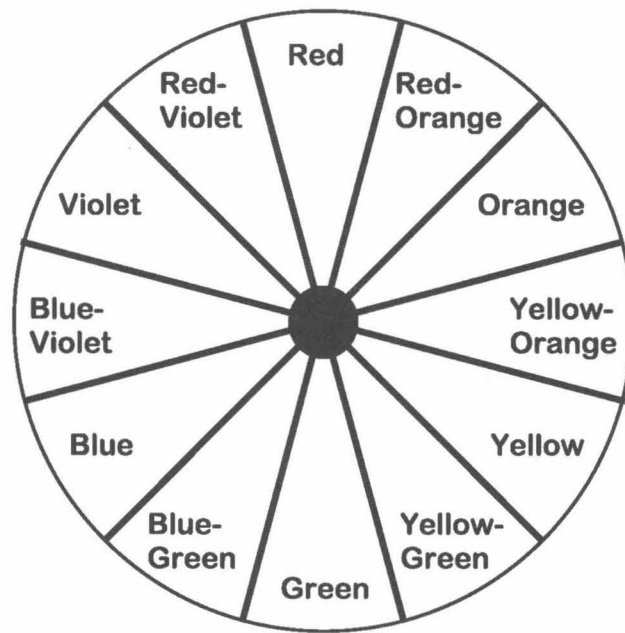
Figure 11.2. The standard (Itten) 12-hue color wheel.

The five most important kinds of color harmony are described below using the standard (Itten) color wheel shown in Figure 11.2. These harmonies, broadly speaking, pertain to hues in their various values and levels of de-saturation with gray.

- *Monochromatic.* Monochromatic is the simplest kind of color harmony. It consists of only a single hue with variations in value and saturation.
- *Complementary.* Complementary color harmony consists of any two colors that are opposite or nearly opposite on the color wheel. Complementary harmony provides very strong contrasts. Therefore, if a design makes extensive use of a particular color, you may want to employ the complementary color over a much smaller area as an accent color.
- *Analogous.* Analogous harmony employs three to five colors that are neighbors on the color wheel. The differences among these hues are not extreme; they form a pleasing progression of related colors. Often the most important, or "key" color, is the middle color in this progression.
- *Triadic.* Triadic harmony employs any three colors spaced fairly evenly on the color wheel. Usually the key color is saturated while the others appear in darker values.
- *Split complementary.* Split complementary color harmony consists of a key color, the complementary (opposite) color on the color wheel, often used as an accent, and the two neighbors of the key color or the complementary color.

In the world of print, color is expensive; each color you add to a publication increases the printing costs significantly. On the Web, color is free. On one hand, this is

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a great bonus for designers. On the other, it is very easy to misuse color. A key guideline, therefore, regarding color and color combinations on the Web is restraint.

Enhancement of Graphic Files

Image editing software applications, such as Photoshop and Paint Shop Pro, give designers many ways to enhance a graphic. For example, it is possible to soften the focus of a photograph or add a rippled look or texture to a drawn graphic. Many enhancements entail modifying color. Two of the most important color enhancements are brightening an image and colorizing an image.

Brightening refers to increasing luminance, tinting the colors toward white. We can improve an under-exposed photograph by moving the brightness into a normal range. At times, however, we brighten an image beyond a normal level in order to eliminate detail, lessen the image's impact, or generalize its meaning. For example, in an alternative design for the Asthma Horizons home page shown in Figure 11.3, the brightening of the photographs helps to suggest the general idea of an active lifestyle. Otherwise, the photographs might suggest that this website is about sports. Plus, the light tint serves as a good background for text.

Another technique is colorizing, converting an image to a uniform hue and saturation while retaining the original values of the colors. A designer, for example, can give an antique look to a conventional black and white photograph by colorizing it a light, sepia brown.
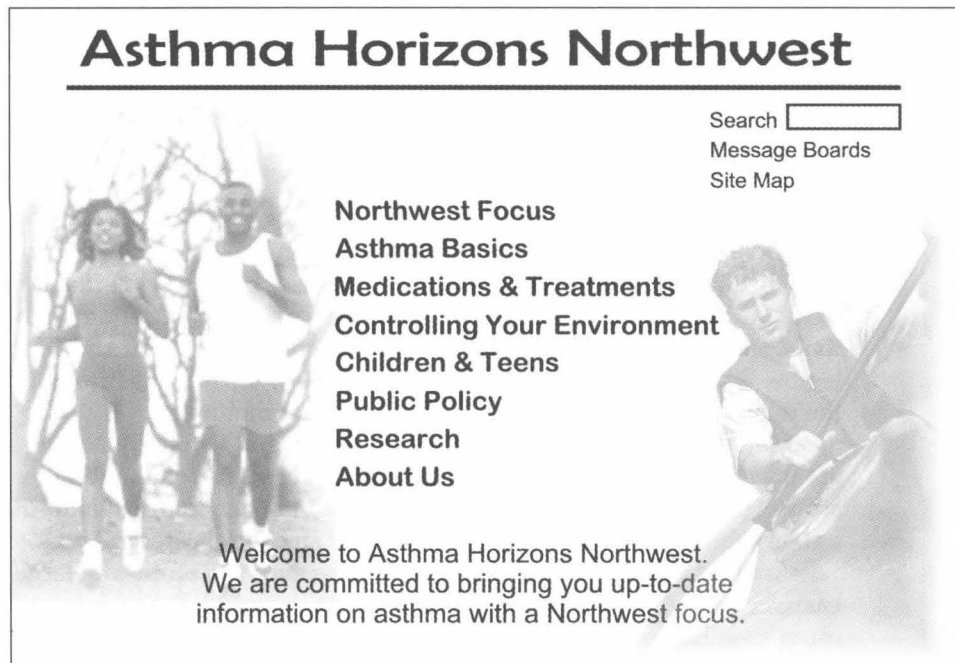

Asthma Horizons Northwest

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Northwest Focus
Asthma Basics
Medications & Treatments
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Public Policy
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Welcome to Asthma Horizons Northwest.
We are committed to bringing you up-to-date
information on asthma with a Northwest focus.

Figure 11.3. A version of the Asthma Horizons home page in which images are de-emphasized by increasing the brightness.

Colorizing can also give a group of images greater unity. For example, a designer scans and digitizes three graphics to make a collage. She then brightens and softens the focus of the border areas so the graphics blend better. Even so, the result is not attractive because the original graphics represent very different styles and use very different colors. There is a black-and-white newspaper photograph from the 1920s, a painted poster for a 1950s Hollywood movie with pastel tints, and a contemporary color photograph with a sharp focus and fully saturated colors. By colorizing the entire collage in values of medium green, the designer adds a strong element of visual unity. Note that the colorized image exhibits monochromatic color harmony.

Designing Screen Text

Many decisions about the appearance of words on the screen are considered an aspect of graphic design. Below we discuss choice of fonts, the contrast between text and background, and related issues. See Thomas Williams (2000) for guidelines and citations from the research literature regarding legibility and other aspects of information display.

Fonts

In print, we distinguish between body fonts and display fonts. Body fonts are those well suited for extended ("body") text. Display fonts are suited for headings, titles, and other brief but prominent text elements, referred to as "display" text. This distinction also pertains to the Web. Most link text can be considered a special kind of display text.

Body Fonts

For body text, designers must choose fonts with good screen legibility. Some fonts have been designed specifically for screen use, including Verdana and Georgia from Microsoft and Myriad and Minion from Adobe. Various established print fonts, such as Palatino and Helvetica, also display well on screen. Fonts are highly legible when they are composed of strong, clear strokes that are not distorted by the relatively poor resolution of most computer monitors.

Many fonts (among them Georgia, Minion, and Palatino) include serifs. These are the small horizontal "feet" at the base of vertical strokes and other small cross strokes that finish off such letters as E and s. Many good print fonts are unsuitable as body fonts on the screen because of their small, delicate serifs.

Another consideration is font size. Make sure your fonts are large enough for easy reading. A generally reliable choice is 12 point (HTML font size 3). The optimum size, however, depends on the particular font you are using and other factors. Align body text on the left; use boldface, italics, and all upper-case characters sparingly; and avoid underlining entirely except to indicate a link.

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An important consideration is line length. Most computer monitors are significantly wider than they are deep—just the opposite of most books and many other paper documents. This creates the possibility of lines of body text that stretch all the way across the screen and consist of more than 100 characters. These lines are both unattractive and hard to read. Users do best with a moderate line length, approximately 40–60 characters. One way to avoid overly long lines is to employ a single column of text with wide margins. Or, use multiple columns, but guard against lines of text that are too short.

Display Fonts

Because display elements are brief and often larger in size, you can take greater liberties in regard to legibility. There are a great many highly expressive fonts used primarily for display purposes. Just a few are shown in Figure 11.4.

Even if your body and display fonts are well chosen, too many fonts and even too many sizes of the same font will give your pages an overly busy, unattractive appearance. Many print documents employ a single body font (traditionally a serif font) for body text and a second font (traditionally a sans serif font), possibly in more than one font size, for the headings. Typically there is more font variation on the Web than in print, particularly because designers often employ one or more additional fonts for nav bars, nav columns, and other aspects of the navigational interface. Even so, be sure that you are adding extra variation only with good reason and that the fonts you choose work well together.

What the User Sees

There can be differences between the fonts you specify and what individual users actually view. If you specify a font that is not installed on the user's machine, the system will display a substitute font. This situation can be partially alleviated by

Broadway is theatrical.

Eurostile is sleek and contemporary.

Mistral is an informal script.

Harrington is elegant.

Figure 11.4. A small sampling of highly expressive display fonts. Of these fonts, only Eurostile might be used as a body font.

specifying a second, third, and even fourth choice for any text element. For example, you can specify Verdana with two fairly similar sans serif alternatives, Helvetica (typically installed on Macs) and Arial (typically installed on PCs), and a final alternative of using the system's default sans serif font. If you are intent on incorporating a particular display font in your design and it is not a highly prevalent font, you will need to create the display element as a graphic. Keep in mind, however, that text elements created as graphics load more slowly than regular text and require more effort when you update the website. Font problems should gradually lessen with increased use of downloadable fonts.

A good general guide to fonts and typography is Robert Bringhurst (2000). At Eyewire (www.eyewire.com) you can find many useful tips and, in their Type Viewer, you can preview font samples from Adobe and other major makers of fonts. Valuable information on font technology plus links to many additional sources can be found on the Microsoft Typography website (www.microsoft.com/typography). Also, consult the World Wide Web Consortium website (www.w3.org) for the latest standards on specifying fonts and formatting text.

Text and Background

An important factor in text legibility is ample contrast between text and background. You will recall that increasing this contrast was one of the reasons for brightening the kayaking and jogging graphics on the Asthma Horizons home page shown in Figure 11.3. It is surprising how many websites employ dark text over a dark background color, text over an overwhelmingly complex pattern, and other nearly illegible combinations of text and background. The guidelines presented below lead to good legibility.

Nothing is more legible than black text on a plain white or near white background, although various dark text colors do provide ample contrast against light background colors. Light blue, for example, often works well as the background for black text. A sound strategy is to strongly favor black text on a light background for body text and to reserve strong colors for headings and other display elements and, more generally, for drawing the user's attention to some aspect of the design.

White or other light fonts against black and other dark backgrounds may also be legible, but you should carefully judge legibility on a case-by-case basis. One font and font size may be significantly better than another.

Expressing Theme with Style and Mood

The theme is the core message that connects a website to its audience. Helping to express the theme is a key role of graphic design. While every page contributes to the theme, this is, in particular, the job of the home page. You have already seen several designs for the Asthma Horizons home page in which warm colors, a sunburst motif, and carefully selected photographs of active individuals helped to convey the theme and evoke the appropriate mood. Below we consider several

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Happy, joyful	Dramatic	Sleek and modern	Dignified
Warm, welcoming	Mysterious, spooky	Business-like, direct	Somber, grave

other instances in which graphic design decisions help express the theme. Before doing so, we look more closely at mood.

Mood in Web Design

The term "mood" describes emotions, attitudes, or associations that users experience when they view and read the pages of a website. The appropriate mood helps to establish the theme. Because moods are general responses rather than specific messages or statements, we use single words or phrases to describe moods. The prevailing moods of the Asthma Horizons website are cheerfulness, optimism, and energy. Human beings have a very complex emotional life, and so there are many moods and many ways to describe moods in words. A sampling is shown in Table 11.1.

It is important to recognize just how subtle and complex moods are. For example, in featuring a photograph of kayakers against beautiful snow-capped mountains, the Points West website projects joy—but joy in a serene, meditative form. On the other hand, the website for a rafting company that encourages customers to bump the rafts and splash one another will attempt a rambunctious, playful kind of joy. Although Annie and Peter rejected Hank's idea to put an animated kayaker on their home page, an animation could certainly contribute playfulness to the overall mood.

It is also important to recognize that moods are highly individual. Designers can only *attempt* to evoke a particular mood. Whether they succeed depends to a large degree on how well their design is attuned to the audience. But even when a designer understands an audience well, individuals will always respond somewhat differently.

The Theme of the Steinway & Sons Website

We do not need to infer the theme for the website of Steinway & Sons, the world-famous, highly prestigious manufacturer of pianos (Figure 11.5). Their theme appears as the welcoming statement on the home page:

> Welcome to Steinway & Sons. For over 140 years, Steinway has been dedicated to the ideal of making the finest pianos in the world. Whether you are a professional artist, a student, or enthused listener, we hope you enjoy exploring the rich tradition of these beautiful instruments.

The visual design of the home page helps to express this theme. The spare, uncrowded page layout and the black background (suggesting a concert piano) elicit a mood of calm and dignity. So does the Classical Greek lyre shown at the
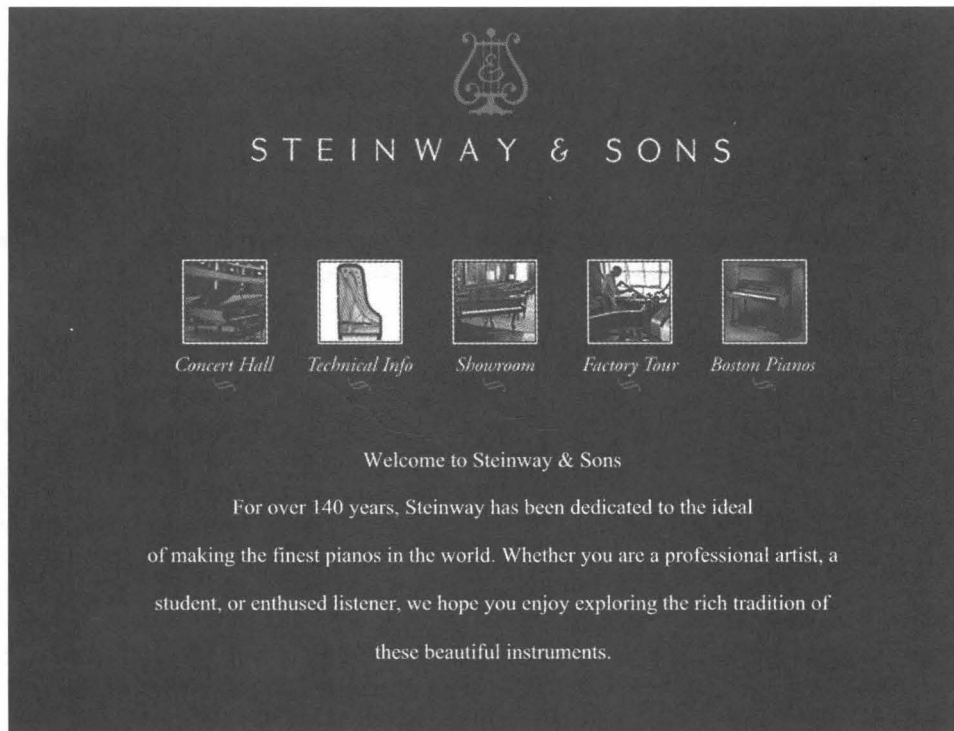
Figure 11.5. The home page of Steinway & Sons. (www.steinway.com)

top of the page (the Steinway logo). The images on the five graphical buttons suggest Steinway craftsmanship, and the images make extensive use of golden brown wood colors—which also suggest the precious metal.[1]

Graphic designers know that widely spaced upper-case letters have a formal, dignified quality, and that technique is employed here. The welcome message is displayed in the default font specified in the user's browser.

The Theme of the Mi Zong Luohan Gongfu Club Splash Page

Some websites employ a preliminary "splash" page that is initially displayed when the user types the website's URL. The role of the splash page (or splash animation) is to make a strong first impression—to establish the theme of the website in a very focused and compelling manner. One reason splash pages can succeed is that users are not asked to make choices regarding links. There is usually just a single link (sometimes labeled "Enter") to the true home page. On the other hand, there is a definite risk to this design concept: Given the non-sticky nature of the

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[1]This page actually scrolls to display a site map. The design, however, does not encourage users to scroll the page.
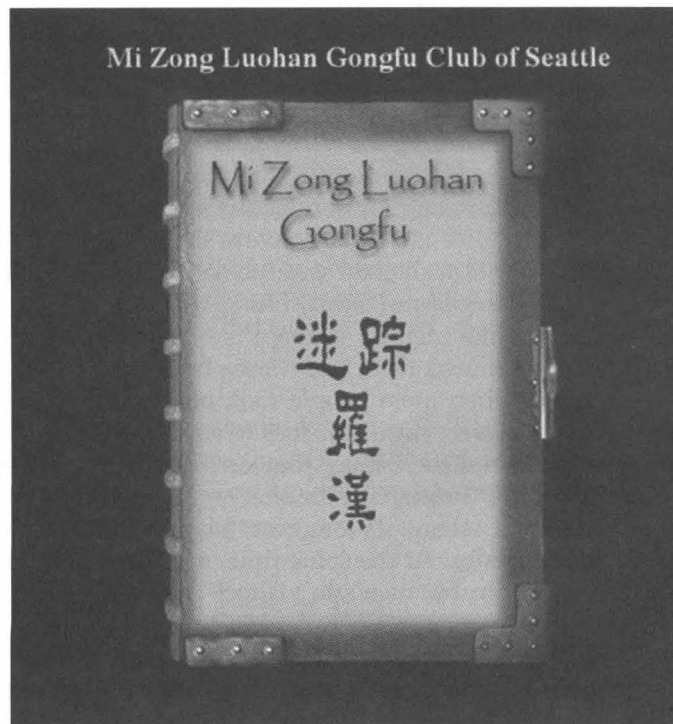
Figure 11.6. The splash page, produced as a student project, for the Mi Zong Luohan Gongfu Club of Seattle, Washington.

Web, some users may object to the extra click and leave before reaching the true home page.

Seattle's Mi Zong Luohan Gongfu Club employs an effective splash page, shown in Figure 11.6. The antique book projects a mood of intensity and mystery and conveys the idea that Gongfu is not just a means of self-defense or a form of exercise but rather a centuries-old discipline with a strong spiritual dimension. To pursue Gongfu is to undertake a life-changing journey into another culture and another world.

The book is depicted with soft lines and the rich brown colors of weathered leather and the tarnished metal plates. Although the colors resemble the Steinway colors, there is a great difference in the textures. Whereas the Steinway page suggests the smooth, polished surface of a piano, the Gongfu Club splash page suggests more complex textures of leather and hammered metal. Also, while both have black backgrounds, the Gongfu design, but not the Steinway design, employs a light source to suggest 3-D space.

Finally, the Gongfu Club designer has playfully violated the fundamental rule that users should always know "what's hot and what's not." The only hotspot on the page is the clasp on the book, and so the user's effort to find this

hotspot and "unlock" the book suggests the idea that committing to the study of Gongfu is more than an easy, casual act.

The Theme of the Ragú Website

Mama Ragú lives in the old neighborhood, follows family traditions, and of course serves delicious, home-cooked Italian meals. As the main figure in the Ragú website (Figure 11.7), she conveys the themes that Ragú food products are prepared in the old-fashioned way (to serve Ragú is almost home cooking) and that meals are the center of family life.

The banner-like identity element is bright tomato-sauce red, Mama's 1950s brick house is a muted pink, and Mama herself is a black-and-white image, suggesting an era when most people took black-and-white photographs. The user will find many clever "retro" touches when exploring the rooms of her house. The rounded, thick-stroked display font on the right nav column is one of several playful fonts used throughout the site.

Various text elements suggest Mama's old-fashioned, Italian-flavored speech and attitudes. At the same time, a strong strain of wit and whimsy runs through Ragu.com because site visitors are fully aware that Ragú is part of a large corporation.

Ragu.com offers Italian recipes, of course. But it also gives people reasons unrelated to food for visiting the site, many centered on romance ("How to stay romantic after you have kids"). Ragu.com also solicits and publishes narratives
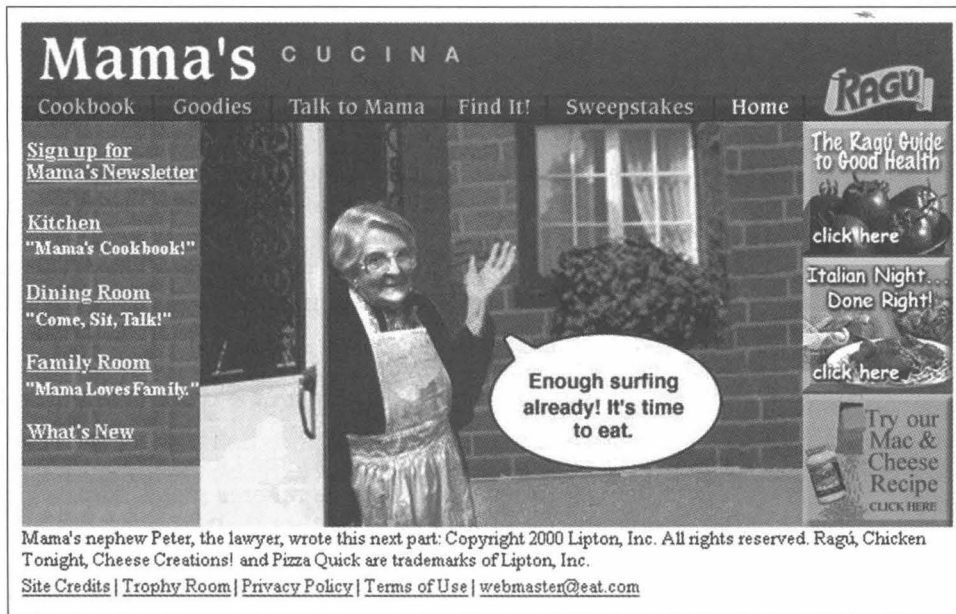

Figure 11.7. Mama Ragú and the Ragú website. (www.ragu.com)

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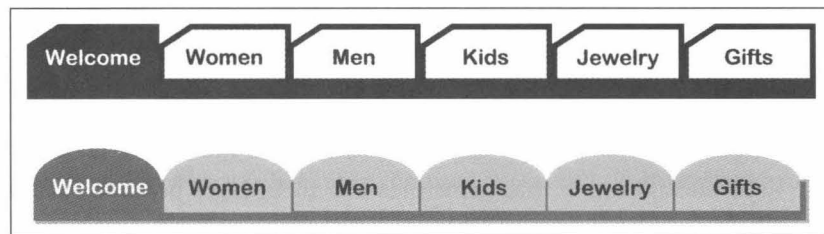
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Figure 11.8. A set of tabs for an online store with inappropriately angular shapes and hard-edged, high-contrast lines and an improved set of tabs that elicits a warmer, friendlier mood.

("Tell Mama your most romantic moments"). Ragu.com is an early corporate website and a pioneer in projecting wit and charm, in offering substantive reasons to return regularly, and in creating among site visitors a sense of shared values and community.

Expressing Theme with a Set of Tabs

One aspect of Web graphic design is contributing to the styling of interface elements. Buttons, nav columns, tabs, and other interface elements, no less than core content elements, possess such stylistic attributes as line, shape, color, and font choice. As we see below (in regard to Bigtime University), graphic design decisions can address problems in the navigational interface. Here we see the decisions through which a set of tabs better expresses the theme of a website.

The two sets of tabs shown in Figure 11.8 are equally functional, but the top set with its angular shapes and hard-edged, high-contrast lines is inappropriate for an online store selling clothing and related merchandise. Someone skilled in graphic design would almost certainly employ rounded tabs that elicit a more relaxed, friendlier mood, as shown in the bottom set of tabs. Similarly, the Welcome tab on the top set of tabs is a fully saturated "pure" blue that contrasts strongly with the pure white on the rest of the tabs. In the improved version, the tab colors harmonize: The Welcome tab has been muted with gray and the other tabs are a tint of the Welcome tab.

Seven Principles of Composition

Principles of composition are fundamental to graphic design. They focus the designer's attention on important aspects of the design, enable the designer to spot problems, and point toward solutions. Below we explain and illustrate seven valuable principles of composition:

- Emphasis
- Grouping

- Subordination
- Simplicity
- Proportion and scale
- Balance
- Unity

You should know that principles like these have been formulated by various experts in graphic design and that there are significant differences among the many sets of principles. This set, we think, is especially helpful to Web designers not trained in graphic design. They apply both to highly artistic home pages and to straightforward interior pages that present bus schedules, municipal budgets, and technical reports. Also realize that the success of any Web page design is a very complex matter and that a page may certainly be successful even if it seems to violate one or even more of these principles.

Below are three excellent books that present principles of composition in far more detail and in a much broader (though non-Web) context than we do here. For an all-around introduction see David Lauer and Steven Pentak (2000), for a more advanced discussion see Wucius Wong (1993), and for guidance in applying graphic design principles to the design of software user interfaces, see Kevin Mullett and Darrell Sano (1995). In addition, if you wish to understand the physiological and psychological basis of human perception, see Vicki Bruce, Patricia Green, and Mark Georgeson (1996).

Before turning to these principles, we introduce a very useful technique for analyzing a design: the squint test. The idea is to blur your vision to eliminate semantic meaning and obscure minor visual features. In this way you can better assess the relationships among the main visual elements in the design. You don't even need to really squint. You can, for example, reduce the size of an image on your computer screen.

Emphasis

In contrast to text, where our eyes follow the sequence of words set down by the author, there is no fixed route through a graphic. Designers, however, seek to emphasize certain parts of the graphic and thereby exert some control over the user's gaze. Usually, they intend one element or area of the screen to be the user's initial focus and then either plan a specific visual pathway for the user's gaze to follow or else plan for some elements to be secondary in emphasis and still others to be tertiary. Here are some of the means for drawing and guiding the user's attention:

1. *Location.* Certain locations on the page are more prominent than others. Placing an element near the top of the page is a powerful means of emphasis. On the other hand, placing an element very low on the page, especially below the scroll line, guarantees that it will not be seen quickly. For users whose language is read left-to-right, a position on the left side of the page is more conspicuous than on the right.

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2. *Size.* Larger objects are more prominent than smaller ones. We often create visual hierarchies of greater to lesser emphasis based on decreasing size.
3. *Contrast and surrounding blank space.* An object stands out against a contrasting background but may be easily overlooked when the background is similar in hue or color value. Also, blank space enhances contrast whereas an object can be readily overwhelmed by an overly busy background. Notice that the Steinway lyre, medium gray against a black background, still stands out adequately as an element of secondary emphasis. The lyre, however, would be lost if the background were speckled or mottled or if the lyre were located near dominant design elements.
4. *Distinctiveness.* An object that differs in shape, color, or some other respect from those around it stands out. The photograph of Mama Ragú is especially dominant because it is essentially the only black and white element on the page.
5. *Depth.* A 3-D appearance stands out amid flat surroundings. So, for example, the 3-D appearance produced by a drop shadow will result in extra prominence. This technique, however, should be used sparingly or it becomes an ineffective gimmick. Also, recall that the 3-D appearance suggests a link and may prompt useless clicks.
6. *Movement.* Human beings respond to movement, including on-and-off flashing; however, we immediately reject design elements whose movement is simply a gimmick devoid of any real value.
7. *Interesting content.* The preceding techniques are "pre-attentive"; they operate instantly and automatically. It takes a moment longer for users to decide whether a screen element is meaningful to them, but quality content can hold the user's attention. Consider that Web advertising banners use every pre-attentive trick in the book but ultimately fail to interest people because the content is not compelling.

Grouping

Grouping is essential for establishing logical relationships among elements on the page. Grouping is employed everywhere on the Web. For example, nav columns group a set of related links, and related products are often grouped in a Web page's main content area.

Grouping is achieved through proximity and similarity. For example, the 16 squares shown in Figure 11.9 are perceived as four groups due to proximity. The grouping would be further enhanced through similarity had each of the four groups been given a distinctive color.

Grouping by similarity can be seen in the evolution of the Bigtime University website (discussed in Chapter 8, "The Navigational Interface"). An early design, shown in Figure 11.10, was unsuccessful because users did not consistently recognize that the links in the right navigation column pertained specifically to the Downtown Campus and not to the university as a whole. Some users, for example, would futilely click the Faculty and Staff link trying to learn about a faculty
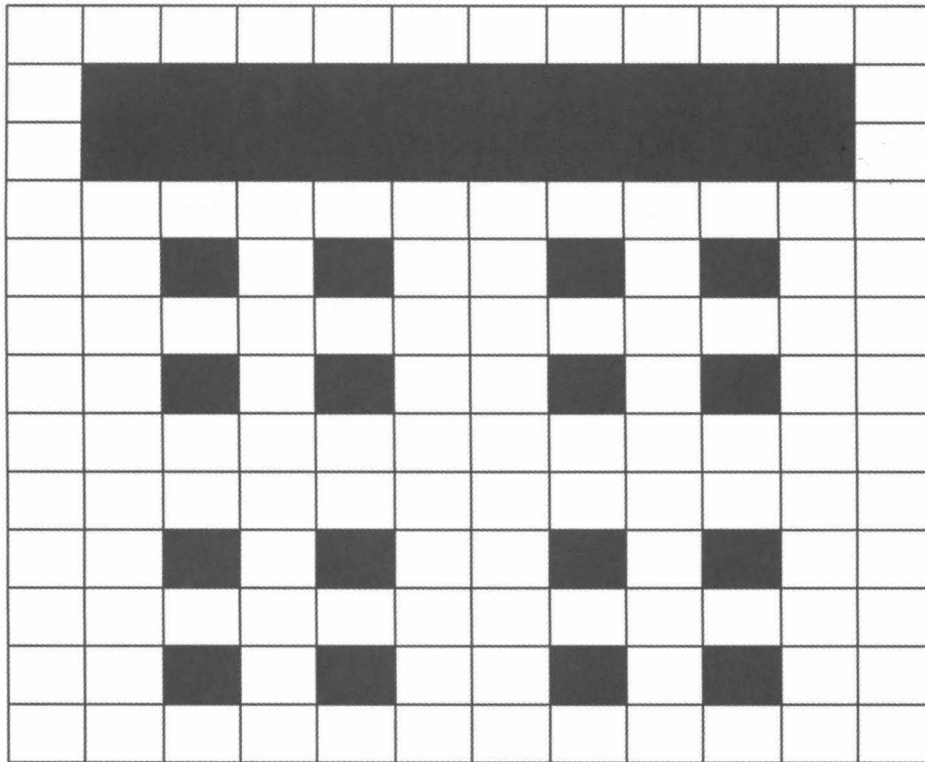
Figure 11.9. Sixteen squares perceived as four groups because they are clustered together (proximity). The four groups are subordinated to the rectangle because the rectangle is larger and closer to the top of the image.

member at the South End Campus. The navigational interface is much improved in the revised design (Figure 11.11). Now the light color strongly groups the right nav column, the information in the main content area, and the link (currently selected) to the Downtown Campus on the left navigation column. Users, for example, now recognize that they need to click the South End Campus link to display information about a faculty member in that unit of the university.

Subordination

Subordination is closely associated with grouping and emphasis. Collectively, they play a major role in revealing the logical relationships among the elements on each Web page.

Very often a set of grouped elements is visually subordinated to another element through emphasis. This is shown in Figure 11.9, where the 16 squares are subordinated to the rectangle that is larger in size and positioned higher on the image. Indentation will also subordinate a group of elements.
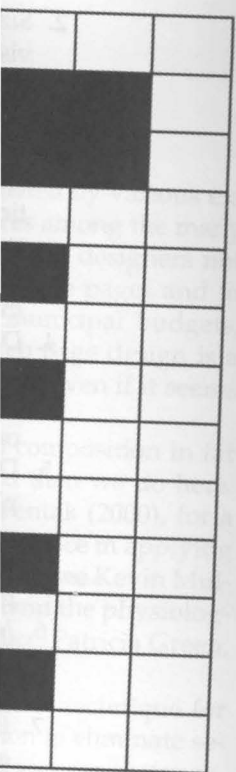
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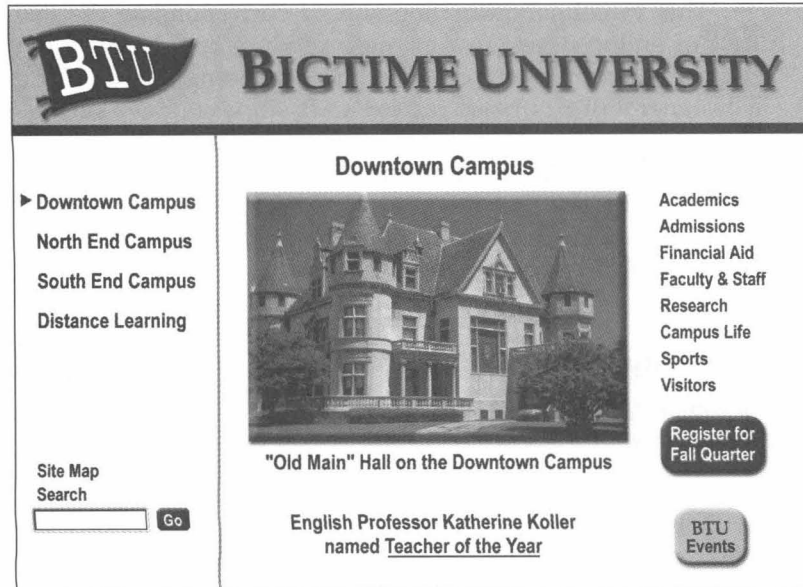
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Figure 11.10. An unsuccessful design in which some users did not real-
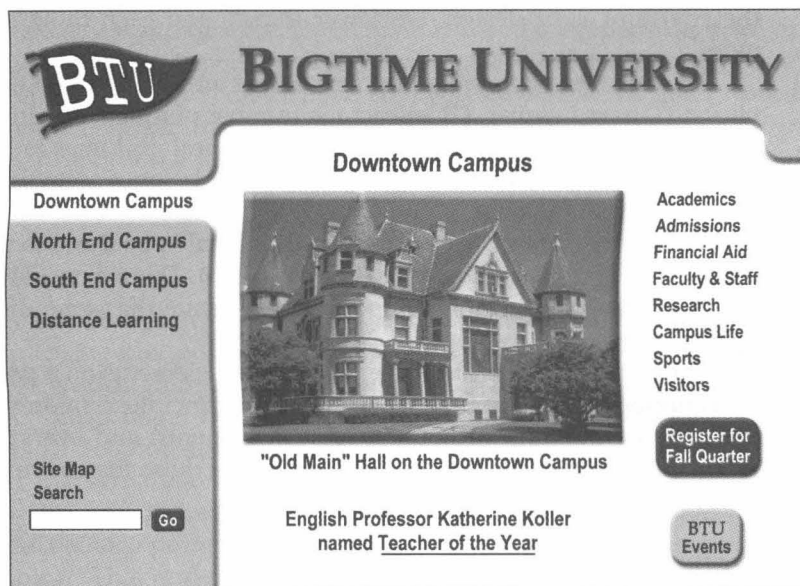ize that the links in the right nav column pertain to the
Downtown Campus.

Figure 11.11. Improving the navigational interface through grouping by
similarity. The light color visually ties the right nav col-
umn and main content area to the Downtown Campus
link on the left nav column.

This visual subordination should correspond to the text semantics. In the case of online stores, two or more product descriptions are often grouped and subordinated by means of a heading expressing the product category. Similarly, a designer will group two related news stories under a single "spanner" headline to make clear that both stories deal with the same news event.

Note that subordination is not identical to emphasis. In a drawing of a bouquet of roses, one rose might be shown catching the direct rays of the sun. This rose has been given visual emphasis over the rest of the roses, but the other roses are not logically subordinate to this rose.

Simplicity

Simplicity means restricting the amount of visual data that the user's eyes must process. This is how to achieve simplicity:

1. Use relatively few visual elements.
2. Establish strong visual resemblances among these elements (similarities in size, color, shape, etc.).
3. Arrange these elements in a visually consistent pattern.

There are many benefits to simplicity. First, simplicity is one of the most reliable means of achieving aesthetic appeal. Second, your efforts at emphasizing an element, grouping elements, and subordinating elements will be more likely to succeed when the overall design is simple. Simplicity, in other words, concentrates the effects of your design. Do fewer things, and each thing you do will count more.

Several other important design guidelines are variations on the principle of simplicity: (1) avoid clutter, (2) restrict the number of fonts you employ, and (3) align page elements on the same horizontal and vertical grid lines rather than scattering them on the page. (The use of grid systems in design was explained in Chapter 3, "Designing and Building.")

Simplicity certainly contributes to the visual appeal and to the calm, dignified mood of the Steinway home page (Figure 11.5). There is visual complexity *within* the five graphical buttons, but the buttons have the same dimensions and are fully aligned.

Often it is necessary to place many visual elements on a page. When simplicity is impossible, strive for a closely related principle: economy. Economy means reducing the number of lines, shapes, alignments, and everything else that the user's eyes will need to process, retaining only those that serve a purpose.

Proportion and Scale

Proportion refers to pleasing relationships of dimension and size. For example, certain ratios of the line lengths making up rectangles and other shapes are thought to result in inherently pleasing proportions. Other ratios may be unat-
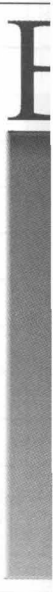
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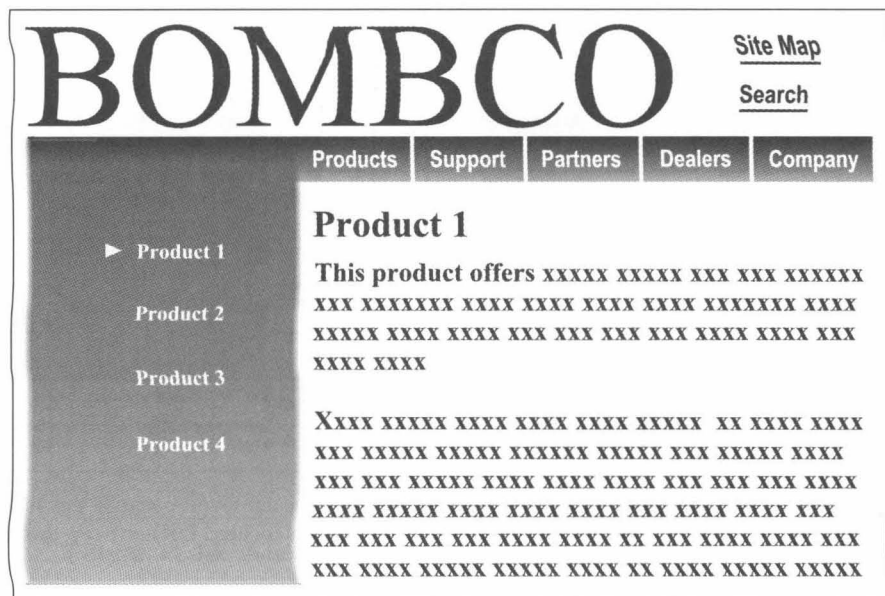other shapes are
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Figure 11.12. A Web page with an unattractively wide navigation column.

tractive. Closely related to proportion is scale. Scale pertains specifically to rela-
tionships of size. When something seems too big or too small for its role in a de-
sign, we say it is out of scale. Often scale is based on expectations we draw from
the physical world. If you are designing the website for a company that rents bi-
cycles in the downtown district of a city, you should have a good reason for scal-
ing a bicycle larger than a building. The nav column shown in Figure 11.12
violates proportion and scale because it is both unusually wide and out of scale
with the nav bar.

Balance

*Balance is a design principle through which we create interesting and aesthet-
ically pleasing compositions.* Much as we judge the weight of objects in the
physical world, elements in a composition are perceived as having "visual
weight." Each page, furthermore, has a balance point (like the fulcrum of a
seesaw) in relation to which the visual elements on one side are balanced
against the visual elements on the other. Larger objects are weightier as are
objects that are darker or more visually complex. Furthermore, an object far
from the balance point has more visual weight than an object closer to the bal-
ance point. (This is akin to the extra "weight" a person exerts sitting at the far
end of a seesaw.)

Some compositions are balanced symmetrically; the two halves of the page
are mirror images (or nearly so). Symmetrical balance is a traditional design idea;
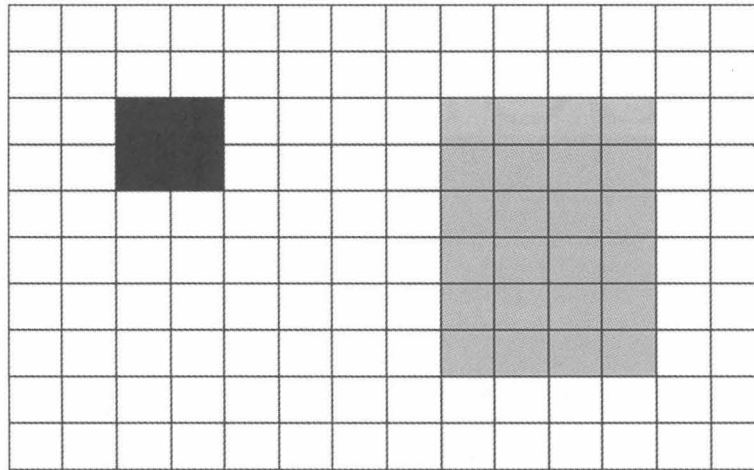
Figure 11.13. Asymmetrical balance achieved because the smaller shape is darker and is located farther from the balance point.

it tends to evoke a mood of formality, stability, and repose, as we can see in the highly symmetrical Steinway home page.

More often designers try to achieve an approximate visual balance without symmetry. These more complex forms of balance add informality and energy to a design. Figure 11.13 illustrates "asymmetrical balance by value and position." In other words, the shape on the left side of the page balances the much larger shape on the right side because the left shape is darker and is farther from the balance point.

Sometimes designers try to achieve a visually effective imbalance among the elements on a page. On the other hand, visual imbalance is often a result of unskillful design, as shown in Figure 11.14.

Judgments regarding balance, other than symmetrical balance, are complex and involve the interplay of numerous factors. You may well find these kinds of judgments to be difficult, and you will likely find differing opinions when you solicit evaluations of your design.

Unity

Unity is the perception that all the visual elements of a composition fit together into a unified whole. The Steinway, Gongfu Club, and Ragú pages all exhibit unity. Unity is threatened by too much variety in shape, color, line attributes, fonts, and other aspects of a design. There is considerable disunity in the frog training home page (Figure 11.14), stemming from too many fonts, a juxtaposition of the smooth lines on the frog drawings with the irregular lines of the frog photograph, and other flaws as well. There are many ways to add unity to a design. Recall how a designer can colorize three disparate graphics to achieve unity among them.

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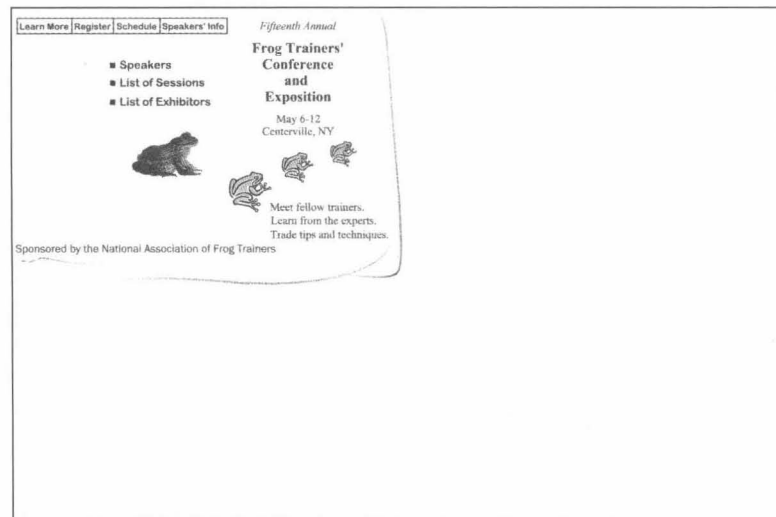
Figure 11.14. A home page with dysfunctional visual imbalance.

Unity also implies that all aspects of the design contribute to the theme. The Steinway home page would exhibit disunity (as well as poor legibility) if the background were changed to lime green with orange speckles. Finally, unity pertains to unity among all the pages of a website taken as a whole. We've referred to this as continuity.

Page Layout

Page layout refers to placing core content elements on the pages of a website. Web pages always have some kind of layout, good or bad. We've been looking at various page layouts throughout this chapter and throughout this book; now page layout becomes our focus. First we consider the ways in which shape forms the basis of page layout. Then, we consider how page layout changes between the home page and deeper levels of the website hierarchy.

Page Layout and Shape

When page layouts divide pages into regions, they create shapes. From the opposite perspective, we can say that various kinds of shapes underlie page layout. Broadly speaking, the universe of shapes gives us three kinds of layout: rectilinear (grid-like) layouts, geometric layouts (other than those that are rectilinear), and free-form layouts.

Rectilinear layouts are by far the most prevalent. For a wide range of purposes, designers choose to divide Web pages into vertically and horizontally oriented rectangles and into squares, a special form of rectangle. This is also true of newspapers, magazines, and many other kinds of print documents. The prevalence of
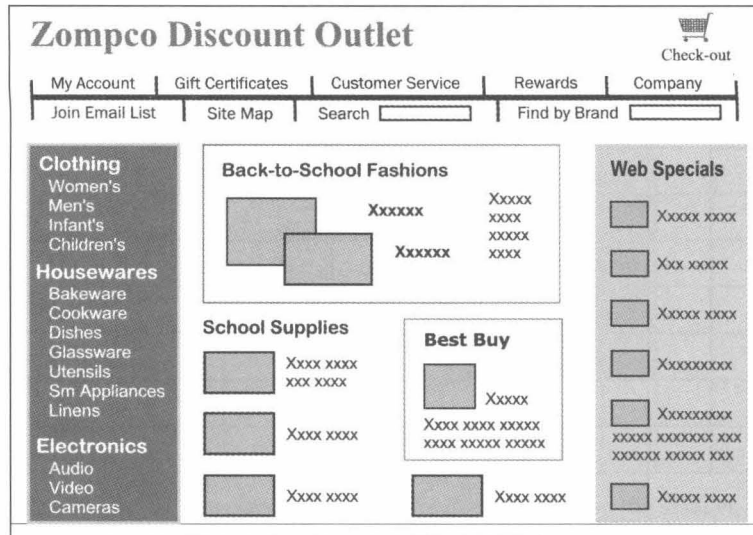
Figure 11.15. A highly complex page layout.

rectilinear designs is reflected in the examples we have used in this book; for example, the Asthma Horizons home page (other than the initial concept sketch) and all the Zompco designs are rectilinear.

The rectilinear designs we have shown exhibit only a moderate degree of complexity. But websites such as portals, news websites, and many online stores often employ the kind of highly complex layout shown in Figure 11.15.

Why should rectilinear page layouts be so prevalent? First, columns of text and very often graphics as well are best framed within vertical and horizontal lines. At the very least, we benefit from a consistent left margin when reading text. Also, rectangles make for an orderly and economical way to divide a page into separate regions and to show subordination among them. Finally, rectangles, especially when the horizontal dimensions are greater than the vertical, are thought to be inherently pleasing because in the physical world such shapes are stable (e.g., a brick lying on its side won't tip easily) and provide a good foundation for the placement of other objects.
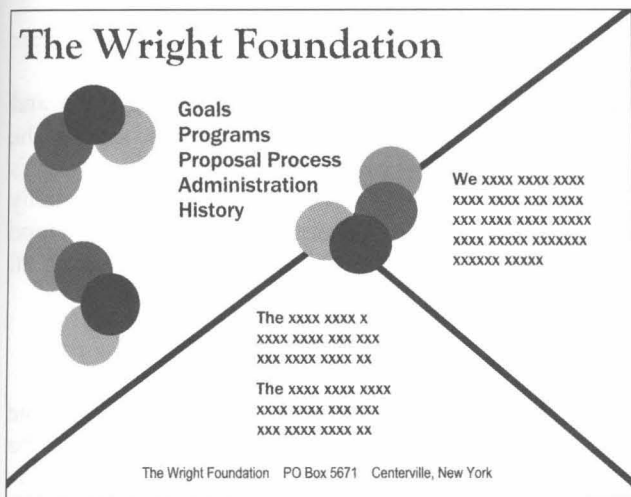
Certainly designers should not overlook alternatives to rectilinear design, such as those shown in Figure 11.16a–c. The triangle-based geometric design shown in Figure 11.16a has the energy of diagonal lines and divides the page in an interesting and pleasing manner. It is often difficult to show logical relationships with triangles and other geometric shapes, but in this case it is clear that the large triangle is super-ordinate to the two smaller ones below it. Geometric designs include those based on circles, as shown in Figure 11.16b. Here the page is divided by two bold semicircles of about equal size and status.

The category of free-form layout covers a large territory, but we can say that free-form layouts don't exhibit any obvious division into regular shapes. The design shown in Figure 11.16c features three large irregular areas defined by sweeping curves and a rhythmic repetition of soft lines (the raked gravel of the Japanese rock garden).
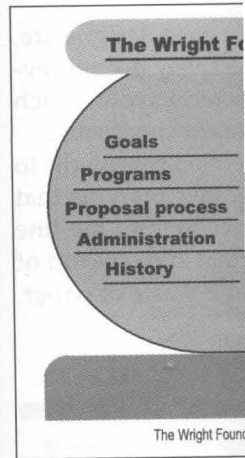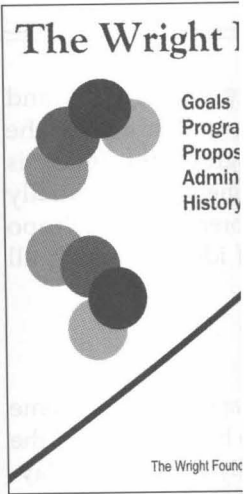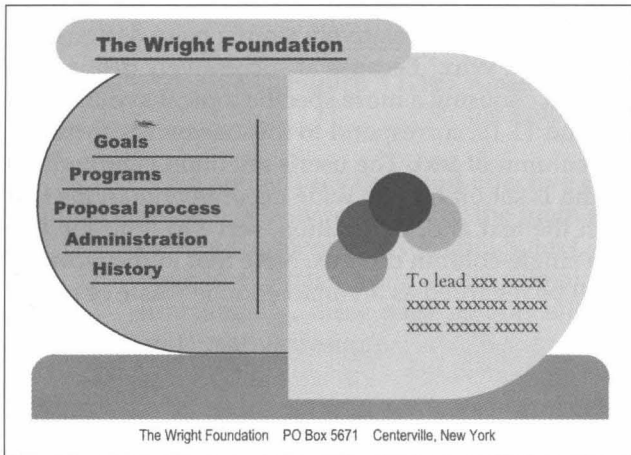
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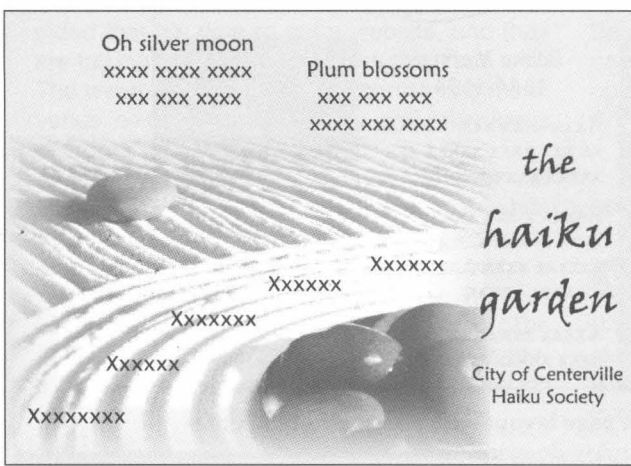
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Figure 11.16. A geometric layout based on triangles, a geometric layout based on circles, and a free-form layout.

Figure 11.16c is interesting for another reason. Usually photographs and other core content elements are integrated into the page layout. But because the Haiku Garden home page is designed around a single photograph, this image is both a core content element and the means by which the home page is spatially divided. Although written for print designers, Leonard Koren and R. Wippo Meckler's *Graphic Design Cookbook* (1989) is a rich source of ideas for using all kinds of shapes in the page layout of websites.

From the Home Page to Deeper Levels

When there's a home page that is attractive and professional in appearance, a theme that strikes a responsive chord, and content that promises to be worthwhile, the user is motivated to enter a website. Now the designer especially wants a page layout that exhibits a logical, orderly visual structure and makes text elements easy to read. For this reason interior pages are especially apt to adhere to a rectilinear layout, even when the home page is geometric or free-form.

Furthermore, at the third level and below relatively simple page designs are, with good reason, especially prevalent. Why? Because at successively deeper levels of the hierarchy, the user is often choosing a more specific topic. Layouts, such as those shown in Figures 11.17 and 11.18, correspond to this narrowing focus.

Figure 11.17 shows a single column of text. The user's attention is brought to bear on a single topic. The column is set off by two wide decorative margins that provide a pleasing contrast with the text and, in addition, serve to limit the line length, a potential problem with single-column designs. Note that in the world of print, designs like this might well be regarded as an unacceptable waste of paper. Online, this issue disappears.

Figure 11.17. A page layout with a single column of text and wide margins.

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Figure 11.18. A page layout with a right column containing supplementary elements.

Another prevalent and effective design, shown in Figure 11.18, is a left nav column, a wide column for the main content, and a narrower right column containing supplementary graphics, text, and links. Even with the supplementary elements, the page has a single primary focus. Although simple and designed for functionality, these page layouts still leave plenty of opportunity for attractive and creative design.

Profile: The Starfish Café

The owners of Homer's Starfish Café have decided that it's time to get a website, and they are talking to Hank, who knows the place well. The weathered, ramshackle Starfish is a major venue in Homer for blues, folk, and other kinds of "roots" music.

The owners hope that more tourists will show up if they learn about the Starfish when they plan their trip. Also, they want to give locals and tourists alike an easy way to find out who is playing and who is scheduled to play. They tell Hank that they want to convey this theme: "The funky, famous Starfish is the home of roots music in Homer, Alaska." They give Hank a rough idea of the main branches of the hierarchy.

Hank produces three design sketches. Before meeting with the Starfish owners, he pays a call on Peter and Annie to get their opinions, and he lays the sketches out on Annie's kitchen table.

"One of them really sucks!" says Annie.

"I'd have to agree," says Peter. "But the other two have possibilities."

Question

What is your judgment about Hank's design sketches (Figures 11.19–11.21)? Analyze and evaluate them using everything you've learned in this chapter and in the book.
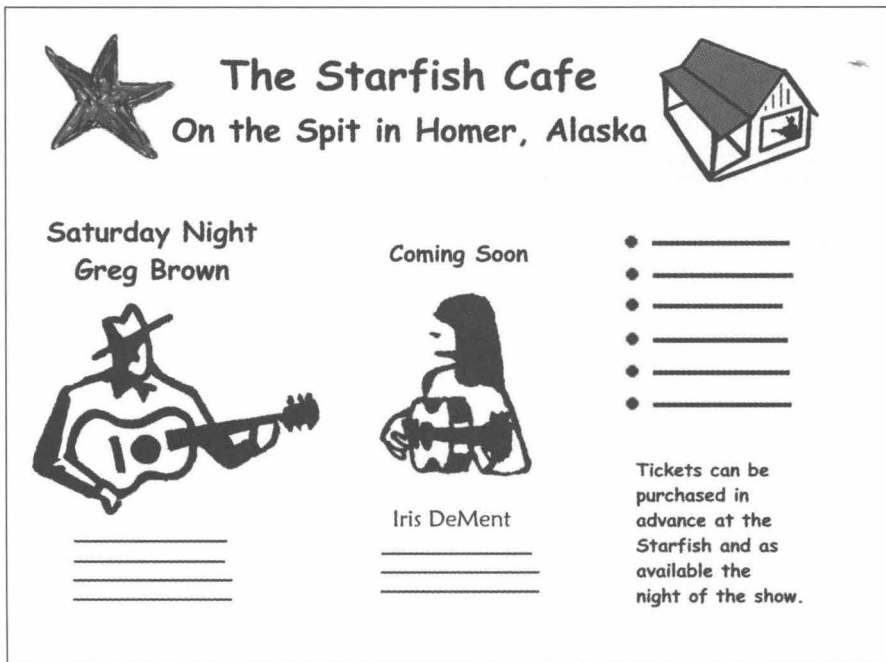
Figure 11.19. Version A.

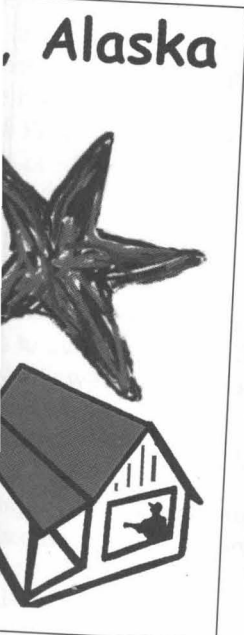**Figure 11.20.** Version B.

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Figure 11.21. Version C.

Summary

1. Graphic design for the Web encompasses a very wide range of decisions about the visual dimension of a website. Graphic design is broad and integrative but also entails highly specific design decisions.
2. These are the main goals of graphic design for the Web: (1) adding aesthetic appeal, (2) helping to express the theme of the website, and (3) helping to show the logical relationships among all elements that appear on the page, both core content elements and elements of the interface.
3. Skill in graphic design does not come quickly or easily. Non-professionals should follow well-established design principles and exercise patience as they work. Even if you do not wish to practice graphic design, you should be able to communicate with a graphic designer and evaluate designs.
4. Aesthetic appeal need not evoke the response, "How beautiful!" Done well, even a bus schedule will be perceived as visually attractive. Also, grim or somber content can most certainly be aesthetic.
5. Line, shape, and color are resources, or "raw materials," for graphic design. Lines connect two or more points. Designers utilize these attributes of line: straightness, curvedness, jaggedness, a hand-drawn appearance, dots and dashes, low or high contrast, hard and soft edges, degrees of thickness, and orientation.

6. Shapes are formed (and implied) by lines. Shapes and lines make up the objects that appear as core content elements. We can overlap shapes and use reverse-outs to suggest multiple planes.

7. Colors are defined in terms of hue, value (luminance), and saturation with gray. Although the computer's combinations of hues, values, and saturation give us 16 million colors, designers often limit themselves to the 216 browser-safe colors.

8. Colors are perceived as warm and cool. Colors have numerous other associations, many of which are culturally dependent. A significant number of people, mostly males, have some kind of difficulty in interpreting colors ("color blindness").

9. There are five important kinds of color harmony: monochromatic, complementary, analogous, triadic, and split complementary.

10. Use image editing software applications such as Photoshop and Paint Shop Pro to enhance graphics. You can, for instance, brighten or colorize an image.

11. Graphic design includes specifying the visual appearance of text. Body fonts, serif or sans serif, must have good screen legibility; you can take greater liberties with display fonts. Avoid excessive line length, too many fonts, and backgrounds that provide inadequate contrast. Recognize that users may not be able to display the font you've specified on their machines.

12. The term "mood" describes emotions, attitudes, or associations that users experience when they view and read the pages of a website. The appropriate mood helps to establish the theme. Because moods are general responses rather than specific messages or statements, we use single words or phrases to describe moods—for example, joyful, dignified, and somber. Moods are highly individual. Designers can only *attempt* to evoke a particular mood in their users.

13. Splash pages and splash animations precede the home page and provide an opportunity to convey the theme and mood in a compelling manner. Users, however, may object to the extra click that is required.

14. The squint test is a useful technique for assessing the relationships among the main visual elements in a design. Blur your vision to eliminate semantic meaning and obscure minor visual features.

15. Here are seven fundamental principles of composition that apply both to highly artistic home pages and to straightforward interior pages:

   - *Emphasis.* Use stylistic attributes such as size and location to emphasize certain parts of the image and thereby exert some control over the user's gaze.
   - *Grouping.* Use proximity and similarity to establish logical relationships among elements on the page.
   - *Subordination.* Very often a set of grouped elements is also subordinated to a more dominant element to establish a hierarchical relationship among them.
   - *Simplicity.* There are numerous benefits to restricting the amount of visual data that the user's eyes must process. Achieve simplicity by employing a relatively small number of similar visual elements arranged in a consistent pattern.
   - *Proportion and scale.* Certain relationships of dimension and size result in pleasing proportions. Scale refers to appropriate or inappropriate relationships of size.

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- *Balance.* Because elements in a composition are perceived as having "visual weight," they are usually positioned in some kind of balanced arrangement. Designers may balance a composition symmetrically, achieve approximate balance without symmetry, or achieve an effective imbalance.
- *Unity.* Unity is the perception that all the visual elements of a composition fit together into a unified whole. Unity also implies that all aspects of the design contribute to the theme. Finally, unity, or "continuity," pertains to unity among all the pages of a website taken as a whole.

16. Page layout refers to placing core content elements on the pages of a website. Rectilinear layouts are by far the most prevalent. The major reasons are that columns of text and very often graphics are best framed within vertical and horizontal lines and because rectangles make for an orderly and economical way to divide a page into separate regions and to show subordination among them. Do not, however, overlook possibilities for geometric layouts (that are not rectilinear) and free-form layouts.

17. Interior pages are especially apt to adhere to a rectilinear layout. At deeper levels in the hierarchy, designers often favor a single content column with wide margins. Also prevalent is a left nav column, a wide column for the main content, and a narrower right column containing supplementary graphics, text, and links.

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Discussion and Application

Items for Discussion

1. Visit www.websitesthatsuck.com or another website that calls attention to bad design on the Web. Examine some of the featured websites and, when available, the criticism that is offered. Do you agree with the criticism? To what degree do the shortcomings of these websites pertain to graphic design? What other kinds of shortcomings are present?

2. Visit www.cwd.dk, www.worldbestwebsites.com, or another website that showcases good design. Examine some of the featured websites and, when available, the commentary that is offered. Do you agree with the commentary? To what degree are these websites being praised for their graphic design?

3. Examine the display fonts in Figure 11.4 and try to imagine each font as a major part of the opening title sequence for a movie or movie genre (e.g., romantic comedy). What movie or genre might work well with each font? If you know of other expressive fonts, associate these with a particular title sequence.

4. What legibility problems can you identify in Figure 11.22?

5. Go Ask Alice! (www.goaskalice.columbia.edu) is a website that provides information about health and well-being especially for young adults. Originally intended for Columbia University students, it is now widely visited by young people throughout the world.

   The layout of the Alice home page, shown in Figure 11.23, bears some resemblance to the Steinway home page, but the theme and style are entirely different. Formulate what seems to be the theme of this website and explain how the style expresses the theme. Also, how does the name of this website contribute to the theme?

   Note: The page has a white background, the identity element and the eight square buttons are predominantly red (transitioning into dark blue), and the three rounded buttons are dark blue.

6. Although there is a great deal of diversity among the websites of North American colleges and universities, certain themes are very prevalent. The following might be called standard themes:

   a. Come to Lockwood. Students here enjoy a warm, supportive environment with small classes and close ties with faculty.

   b. Come to Lockwood. Learn amid our magnificent campus setting and spectacular scenic location.

   c. Come to Lockwood. We offer the best combination of education, personal growth, and campus fun. Take part in campus activities. Root for our championship sports teams.

   d. Come to Lockwood. We are a major research institution with the best and newest facilities. Our faculty are leaders in their fields. You can take part in cutting-edge research.

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Zompco Designs

WHO   What kind of people work at Zompco?
            We have snowboarders, hikers, bikers,
WE   paddlers, and a singer/songwriter. They
            bring diverse opinions and an
ARE   adventurous spirit to their work as
            designers.

John Abbot

John is a PhotoShop guru and all-around graphics expert. He has
been designing since he was 6. His tool of choice has changed
over the years from a stubby colored pencil to charcoal to a tablet
and stylus. If he's not at his computer, you can find him playing
volleyball.

Aruna Gupte

ARUNA, THE NEWEST MEMBER OF THE ZOMPCO
TEAM, IS AN EDITOR/WRITER. ARUNA HAS
WORKED ON WEBSITES FOR LARGE AND SMALL
ORGANIZATIONS BOTH IN THE UNITED STATES
AND IN BANGALORE, INDIA. SHE IS ALSO A

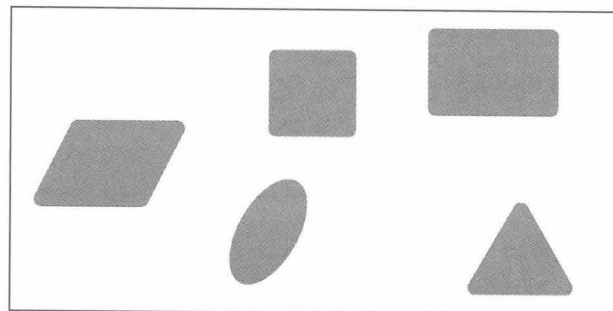**Figure 11.22.** A Web page that presents legibility problems.

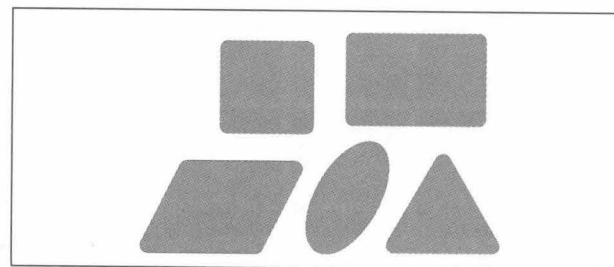**Figure 11.23.** The home page of the Go Ask Alice! website.
(www.goaskalice.columbia.edu)
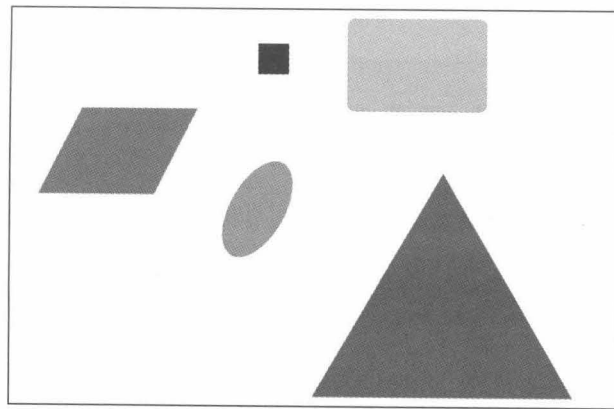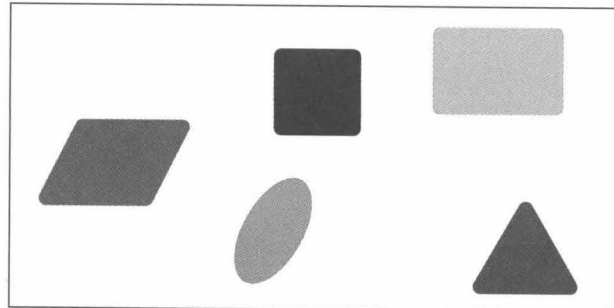
Figure 11.24. A series of images showing increased unity.

e. Come to Lockwood. We represent tradition and prestige. Lockwood dates back to the Colonial era. Lockwood graduates have been leaders in business and government for many generations.

These themes may be expressed strongly and explicitly or just subtly. There are often combinations of these standard themes. Visit the websites of six different North American colleges or universities, identify the themes, and analyze how these themes are expressed. Try to get a representative sampling of schools. For example, look at a large state university, a small regional state university or college, a small private university (possibly an "elite" school), and a community college.

7. The images shown in Figure 11.24a–d represent a progression from disunity to strong unity. Trace the succession of images noting the changes and how these changes contribute to greater unity.

8. Expand upon the analysis of the Ragú home page presented in this chapter. Be sure to visit the website so that your analysis can include interior pages.

9. Comment on this intriguing statement about design: Innovate, but only as a last resort.

Application to Your Project

1. Review the theme you initially developed for your website. Is this theme still appropriate for your website? How well is the theme expressed? Are there stylistic elements that don't seem to fit? Does the design evoke appropriate moods?

2. Can you give a reason for each design decision you have made on your home page and on the interior pages? If certain pages depart from your grid system, can you give reasons why this is so?

3. Have you checked to see that your text, colors, layout, and core content elements display properly on a wide range of computers? This includes different platforms (Macintosh, Windows, Sun), different operating systems, different browsers, and different versions of a browser.