Design Concepts with Code

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Design Concepts with Code: A Developer Approach

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CHAPTER 1

Introducing Interface Design

What is ultimately important in the text and in the work of art in general is not the object which it depicts but the world that it generates.

—Paul Ricoeur in an interview to Charles E. Reagan[1]

The way we have traditionally communicated for thousands of years, through spoken and written text, is changing. In spoken and written text, communicative roles usually follow the pattern of speaker and hearer or of author and reader. The Internet provides a living, interactive text where interaction between the author and the reader transforms communication from the physical sending and receiving of data to the building of relationships and expanding of new horizons. Online, meaning and understanding take place in a model not predetermined by the speaker or author.

Your role as a developer is to combine the design of style and the functionality of code to enable a relationship to build between the client and the user. A *client* is the company or organization you work for or contract with to build the Web site or Web-based application. A *user* is the current, past, and potential users of the client's product. Web-based products that look good but don't work well bring in users once to look and a second time to explore, get lost, and then give up. Products that work well but look bad never capture the audience their functionality supports.

The best interface is so simple and clear that the user isn't aware of its existence. When you make a phone call, do you think of the keypad design or are you intent on the conversation? When reading email, can you almost "hear" the voice of the person who sent the mail? Whether you're talking on the phone or working in email, your primary area of interest is the relationship.

1. *Paul Ricoeur*: *His Life and Work* by Charles E. Reagan (University of Chicago Press, 1996)

Most likely, you're already knowledgeable in the areas of user analysis, human-computer interaction, and requirements specifications. This chapter describes how to utilize the data available in user analysis reports and requirements documents for designing and implementing visual products that meet client and user expectations.

Users don't want to look at a Web site; they want to do something with it. The days of Web pages are over; Web-based products and applications that allow users to interact and control meet current user expectations. Web sites that are more complex require markup languages with data manipulation capabilities such as Extensible Markup Language (XML) and, in some cases, Extensible Hypertext Markup Language (XHTML). However, these complex sites create style issues with browsers for several reasons:

- Sliced images from Photoshop/ImageReady can vary in positioning between browser versions, resulting in small gaps in the layout.
- Sliced graphics combined with XHTML and HTML (from editors such as Dreamweaver and GoLive) aren't always well-formed and are rarely validated, thus limiting data modification possibilities.
- Incorporated layouts and graphics that were not, at the outset, modelled to output with Extensible Stylesheet Language Transformation (XSLT) or even Cascading Style Sheets (CSS) create several debugging problems.
- Validation tools seem to vary from month to month in determining which CSS properties are supported.
- Learning and keeping current with various graphics applications is typically not of interest to developers.

These and other issues—including the wait for Extensible Stylesheet Language: Formatting Objects (XSL-FO) to be uniformly supported (outside of creating Portable Document Format, or PDF, files)—bring developers more and more into the design process.

Because a bad interface can't communicate the benefits of a product to the user, a better interface must be created. If a product is more complex than a typical Web site, developers may need to code both the design and the functionality; few designers code beyond CSS. Good designers remain a critical part of the process; their layouts are always a little better. Design decisions related to how a product works, however, move closer to the developer's responsibility as the implementation of design becomes more complex in Web-based applications.

User Analysis: On the Way to Design

Making the most of user analysis clarifies and simplifies interface design. User analysis typically begins with the following:

- The purpose of the product
- The audience for the product
- The user goals

The first rule of transforming user analysis data to good interface design is to forget about the computer. Don't start by thinking about which tools to use, what your color choice is, which graphics to select, or how many buttons to create until you or your team talk with the client and with potential product users.

User expectations of a Web-based product aren't much different from their expectations of traditional products. Your job is to discern, from the data, what the user priorities are and to apply those priorities to modelling, designing, and developing a product. Follow these guidelines:

Do ask the client if you should incorporate an existing logo, concept, or color scheme into the Web-based product.

Do ask the client if there's an existing product or site they like. This site shouldn't guide your design; however, it can give you an idea of the client's preference of conceptual ideas such as the use of space.

Don't ask the client what they want the site to look like, how many buttons they want, what the buttons should say, or how they want the navigation set up. You're inviting delays if the client gets too involved in the design in the same way that you probably hesitate to give a client your code, schema, or Document Type Definition (DTD) to review.

Do ask for stakeholder feedback at the prototype stage. Redesign can be as expensive and time consuming as recoding. A *stakeholder* is all the people working for or associated with the client who have a stake (a vote) in the decision-making process. Stakeholders on some projects have different goals. For example, a director of sales may see the purpose of the project differently than a director of technical support. All stakeholders need to sign off on the design to reduce the risk of time-consuming redesign and recoding.

Do adjust the selected prototype to better serve the user.

At the beginning of the design process, clients like to talk about layout, type, and color ideas given to them from a relative, a magazine article, or a popular Web site. A "too-many-cooks-in-the-kitchen" approach to design muddles things

up even more than it does with code. Clients feel more comfortable talking about how they think something should look rather than how its code should function.

Talking with Clients and Users

Clients like to have conversations about who they are and what they offer. Be open to discussing how the company and project got started—many people want to share their stories with you. Watch for what's important to the speaker. Listen for priorities, hopes, and disappointments. These verbal cues signal how the client views the world, what the story will be, and what you shouldn't pursue. Trust yourself. Language is critical at this stage; determining shapes and space is more of a matching process than you may think. Getting the words right sets the context for self-driven design. The following seven questions offer ideas for talking with clients:

- How would you describe the strengths of the company?
- What are some great things about your product(s)?
- What are your hopes for how customers understand and appreciate your company and your product(s)?
- If your company and product(s) revolutionize the market, what will people understand about what you offer?
- When in conversation within your company, do you compare yourselves or your products with other great inventions, innovations, or accomplishments?
- If you could sit down, for five minutes, with each of your customers, what would you say that helps them get to know and appreciate you, your company, and your product(s)?
- What three or four words would you use to describe how you want your family, friends, and the community to view your company and your product(s)?

TIP Keep in mind that these aren't interview questions. You won't get a good response with written or spoken surveys. In other words, engage in conversation.

As people, it seems we're always in conversation about films, sports, politics, art, technology, or the weather. We have opinions, ideas, and complaints, and we love to share them. Think of conversations you recently participated in regarding the economy, the media, or a recent event. It's likely that much of what you said includes what you think, hear, know, wonder, hope, hate, or don't understand at

all. This respectful, yet casual, approach to conversation with users works well in user analysis and interface design. You're not selling anything; you simply want to know what they think, what they need, and what they hope to accomplish in the relationship with your client. Although we all tend to think of ourselves as individuals, you'll find there is a pattern to user responses. Out of 10 users, seven are so similar that descriptive words are easy to capture and categorize. The following are a few questions to help you get started:

- What kinds of things do you want to know about our product or company?
- What could we do well to keep you coming back to our company to make you a loyal customer?
- What do we do well now? What do we do poorly now?
- Describe an ideal purchase or project with our company.
- How would you describe our company and products, as you currently understand us?
- What two or three things can we offer you that would really help you to succeed or to save time? What do we offer that has value for you?

TIP Be ready for good and bad news about your client. Both help you prepare to visually present the client's identity the way users anticipate.

Moving from Language to Initial Sketches

The words you hear in conversation translate from client and user expectations to initial sketches. In conversation with users, note the priorities of the purpose, audience, and goals of the product. In addition, note the specific language used to describe the "look and feel" of the site. If possible, record conversations with potential users and play them back as you begin the design process. If there's no available transcript, locate five or six potential users for the product. People you know who fit the user profile can help in this capacity if actual or potential users aren't available. Conversations centered on how users want to access information, what their priorities are for the product, and how they use the product produce adjectives that reduce design time.

No one outside of the development team sees the initial sketches you develop as a result of interpreting and understanding the needs and expectations of the client and users. As such, don't spend time making them anything other

than shapes and notes to yourself. You can lose too much time in concern, frustration, or embarrassment over how the drawings look.

Do not skip the sketch step in the design process; moving directly to the keyboard and screen results in an important missed element of the communication process. Probably more than most people in this industry, you know that the simple things created with a pencil and paper can be the most complex to implement with code. Sketches can help you identify and play with shapes that directly connect the client and the user.

If you pass the sketch process and go directly to the computer, it's tempting to design a slightly different version of the standard top and left bar design (see Figure 1-1).

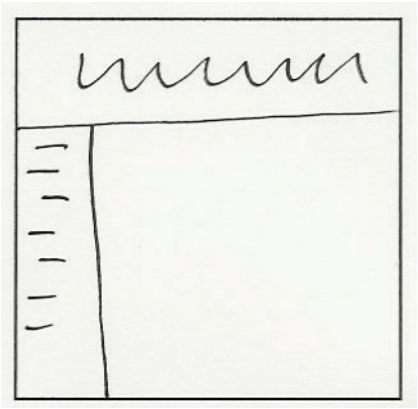

FIGURE 1-1 *A sketch of a standard design*

If, however, you take the time to sketch, how often does your best idea of shape look like Figure 1-1? Imagine you're talking with a client excited about their company or product. The purpose of the site is to communicate the story of their organization and the benefits of their products. They have poured their ideas, time, and money into the project. Is this the best design? It may be in some cases, but it's probably not for the millions of sites where you see it now.

There are times when the traditional layout of Figure 1-1 works best. For example, say you build a page for a poison control center. Users at this site are, many times, in a hurry to find a specific piece of information. A site that needs a plug-in or that requires two or three clicks to find out what to do in the event of a poisoning has no place here. A traditional layout is perfect when the client needs "familiar, comfortable, safe, secure, fast access to data."

Your experience with code enhances your ability to deliver good design. Listening to user language, creating initial sketches, and building small examples of the sketches in code allows you to maneuver between concept and implementation. Your approach should be to gather the language, complete a few sketches, key the code, and then look back to the language for code adjustments that better clarify your intent. This three-step process allows you to access the ideas you envision and the browser issues you'll encounter. Imagine spending a week on sketches only to have positioning problems with CSS. Imagine creating an image in an application only to have it display poorly on the screen. Your willingness to work back and forth between language, sketches, and code supports quick variations, multiple versions, and better design.

Getting Initial Sketch Ideas

In this book, you'll see several sketches accompanying suggested Scalable Vector Graphics (SVG) code. This process saves time and frustration. The drawing process accesses one part of the brain, and keying code to represent that sketch accesses another. Ideas evolve in coding that fine-tune the original sketch. Simple sketches, simple code, and an understanding of how the two can result in a design that meets client and user needs always works.

For example, which of the adjectives in Figure 1-2 best "fit" with its sketch?

Which word best describes the shape? ▶

a) quiet

b) earthy

c) abstract

d) bold

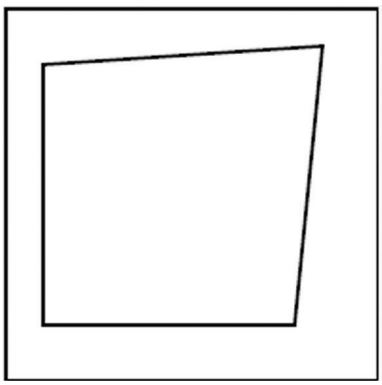

FIGURE 1-2 *Adjectives and shapes*

Your first impression of the shape in Figure 1-2 was probably more *abstract* or *bold* than *quiet* or *earthy*. Your first impressions of a shape don't come from studying design; they connect your mind, eyes, and memory to familiar objects for an immediate interpretation. (Chapter 4 describes how simple shapes reflect the personality of a company or a product.) Listing 1-1 generates the Figure 1-2 shape.

LISTING 1-1 *An Abstract, Bold Shape*

```
<?xml version='1.0'?>
<svg width="250" height="250">
<rect x="50" y="50" width="200" height="200"
style="fill:none; stroke:black; stroke-width:2;" />
<polygon points="70 80,70 220,205 220,220 70"
style="fill:none; stroke:black; stroke-width:2" />
</svg>
```

The shape in Figure 1-3 more closely resembles available Web pages. How does your impression change with this shape?

Which word best describes the shape? ▶

a) wild

b) international

c) playful

d) conservative

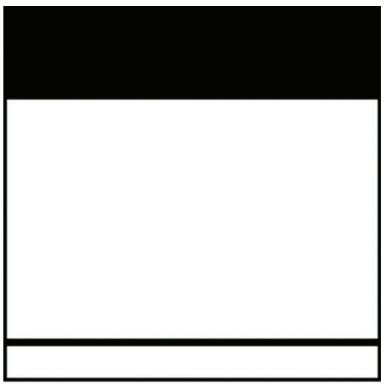

FIGURE 1-3 *A familiar shape*

Conservative best describes the Figure 1-3 shape yet millions of sites use this approach for products that want to be viewed as *wild*, *international*, or *playful*. The shapes seem so solid they look cemented in place. It's difficult to begin with this layout and make it interesting. Some have tried to throw in color or lighten the look with good graphics. If you're absolutely stuck with this as the only design option the client wants, either run in the opposite direction or focus all of your energy on creating interesting content. Listing 1-2 generates the Figure 1-3 shape.

LISTING 1-2 *A Conservative Shape*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200"
style="fill:none; stroke:black; stroke-width:2;" />
<line x1="50" y1="230" x2="250" y2="230" style="stroke:black; stroke-width:4;" />
<rect x="50" y="50" width="200" height="50" style="fill:black;" />
</svg>
```

The shape of Figure 1-4 starts taking risks. Does your impression of this shape vary slightly or significantly in comparison with Figure 1-3?

Which word best describes the shape? ▶

a) boring

b) sleek

c) directional

d) whimsical

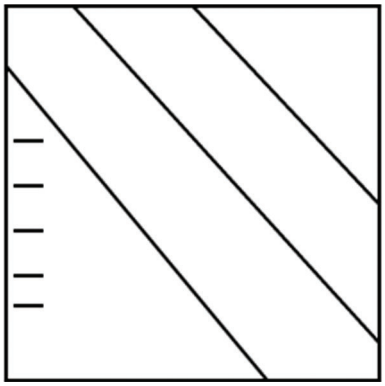

FIGURE 1-4 *A slightly risky shape*

The angled lines of Figure 1-4 imply the word *directional*. With color and texture, the site may present the word *sleek*, as well. Variations of the code include stroke-width or line placement. Changes in button shape or position convey an organized or *whimsical* approach to its *directional* nature. Listing 1-3 generates the Figure 1-4 shape.

LISTING 1-3 *A Directional Shape*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200"
style="fill:none; stroke:black; stroke-width:2;" />
<line x1="50" y1="82" x2="190" y2="250" style="stroke:black; stroke-width:2;" />
<line x1="86" y1="50" x2="250" y2="230" style="stroke:black; stroke-width:2;" />
<line x1="150" y1="50" x2="250" y2="156" style="stroke:black; stroke-width:2;" />
<line x1="54" y1="122" x2="70" y2="122" style="stroke:black; stroke-width:2;" />
<line x1="54" y1="146" x2="70" y2="146" style="stroke:black; stroke-width:2;" />
<line x1="54" y1="170" x2="70" y2="170" style="stroke:black; stroke-width:2;" />
<line x1="54" y1="194" x2="70" y2="194" style="stroke:black; stroke-width:2;" />
<line x1="54" y1="210" x2="70" y2="210" style="stroke:black; stroke-width:2;" />
</svg>
```

The shape of Figure 1-5 moves away from most developers' understanding of Web design and starts to become a shape that conveys something other than simply "this is a Web page." Do you see how this may evolve into a Web layout?

Which word best describes the shape? ▶

a) geometric

b) avant-garde

c) quiet

d) humorous

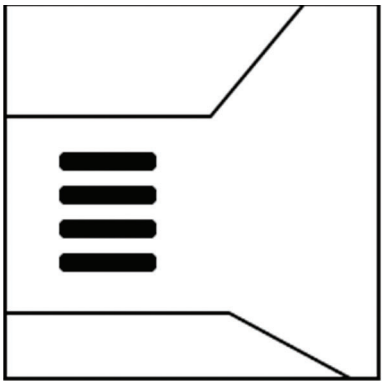

FIGURE 1-5 *An unusual shape*

Avant-garde best describes the Figure 1-5 shape. The shape can easily transform to *geometric*, especially if the angular lines are reduced to a slightly more conservative approach with repetitive rectangles. Interestingly, at the outset of a job, many clients use words such as *unique* and *avant-garde* to describe how they envision their site. Typically, unless the client is a conceptual artist or haute couture designer, what they really want is something different from the typical sites that blanket the Web. Listing 1-4 generates the Figure 1-5 shape.

LISTING 1-4 *An Avant-Garde Shape*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200"
style="fill:none; stroke:black; stroke-width:2;" />
<rect x="80" y="130" width="50" height="8" rx="2" ry="2"
style="fill:black; stroke:black; stroke-width:2;" />
<rect x="80" y="148" width="50" height="8" rx="2" ry="2"
style="fill:black; stroke:black; stroke-width:2;" />
<rect x="80" y="166" width="50" height="8" rx="2" ry="2"
style="fill:black; stroke:black; stroke-width:2;" />
<rect x="80" y="184" width="50" height="8" rx="2" ry="2"
style="fill:black; stroke:black; stroke-width:2;" />
<polyline points="50 110,160 110,210 50"
style="fill:none; stroke:black; stroke-width:2;" />
<polyline points="50 215,170 215,235 250"
style="fill:none; stroke:black; stroke-width:2;" />
</svg>
```

Listing 1-4 contains rectangular shapes and a couple of lines. Changing the buttons to circles or changing the positioning and degrees of the angles completely alters the design. Adjustments to the stroke-width either emphasize or downplay the background shape.

The shape in Figure 1-6 looks nothing like a typical Web layout. Sometimes a company product or logo demands a completely different approach to Web site design. Figure 1-5's *geometric* adjective has no relevance to Figure 1-6. A different shape completely changes the perspective and interaction of the user with the product.

Which word best describes the shape? ▶

a) serious

b) comical

c) focused

d) rolling

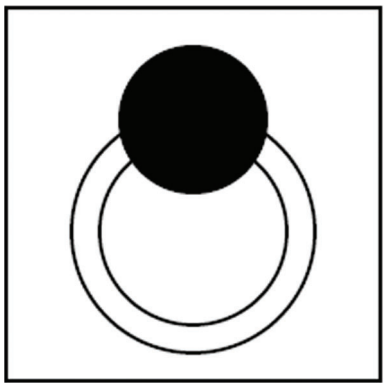

FIGURE 1-6 *A product-driven shape*

Comical or *rolling* describes the Figure 1-6 shape, depending on the color and tilt balance of the two circles. Listing 1-5 generates the Figure 1-6 shape. Try moving the circle around or changing its size. Try enlarging the diameter of the circle and lightening its weight. This design can work as an icon, as a background element, or in a set of shapes with different angles.

LISTING 1-5 *A Comical or Rolling Shape*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200"
style="fill:none; stroke:black; stroke-width:2;" />
<circle cx="150" cy="110" r="40" style="fill:black;" />
<circle cx="150" cy="170" r="65" style="fill:none; stroke:black;
stroke-width:2;" />
<circle cx="150" cy="170" r="50" style="fill:none; stroke:black;
stroke-width:2;" />
</svg>
```

The shape in Figure 1-7 utilizes rectangles in a less conservative manner. At first glance, does it appear the shape is stable, or do you think it's about to tip over?

Which word best describes the shape? ▶

a) futuristic

b) clean

c) interesting

d) balanced

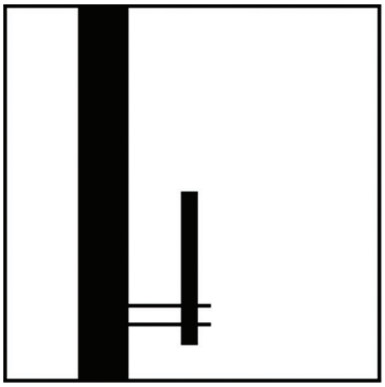

FIGURE 1-7 *Using rectangles as lines*

Figure 1-7 can be described as *futuristic*, *clean*, and *interesting*. If the shapes don't appear ready to topple to one side, then your impression is that the shapes are balanced. Design that's balanced without being glued in place is interesting. If the column on the left was duplicated on the right, no one would notice what you're trying to say. Designs that are so balanced they don't catch the eye are boring, and users tend to gloss over them. Listing 1-6 generates the Figure 1-7 shape.

LISTING 1-6 *A Futuristic, Clean, and Interesting Shape*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200"
style="fill:none; stroke:black; stroke-width:2;" />
<rect x="90" y="50" width="25" height="200"
style="fill:black; stroke:black; stroke-width:2;" />
<rect x="145" y="150" width="7" height="80"
style="fill:black; stroke:black; stroke-width:2;" />
<line x1="115" y1="220" x2="160" y2="220" style="stroke:black; stroke-width:2;" />
<line x1="115" y1="210" x2="160" y2="210" style="stroke:black; stroke-width:2;" />
</svg>
```

Playing with line density, line placement, and the small bridge between the shapes results in a different perspective for this design. The most interesting element in the sketch, however, is the space. Do you see how well it supports the shapes?

Interpreting Initial Sketch Shapes

Creating sketches takes a little practice. After a few minutes, however, you realize it's interesting and fun to design with such a simple, quick approach. You may draw 30 or more sketches before you select two with which you can work. Each sketch takes only one or two minutes to draw. Furthermore, design doesn't necessarily have to take place in an art studio. The edge of a computer desk, a little paper, a ruler, a pencil, and a felt pen results in several ideas in a short time. Of course, that's not to say sitting in a park with a portable easel and looking at a pond of ducks is a bad thing for design. The point is that drawing shapes and lines that represent words somehow directly connects your presentation to the user. The interaction that results has been studied for years. How do people interpret design? What do they think of, experience, remember, and bring to an exploration of your product?

Start with a sketch as though it's a personal letter to your client's customer. Which sketch in Figure 1-8 conveys a conceptual layout for the words *earthly*, *natural*, and *holistic*?

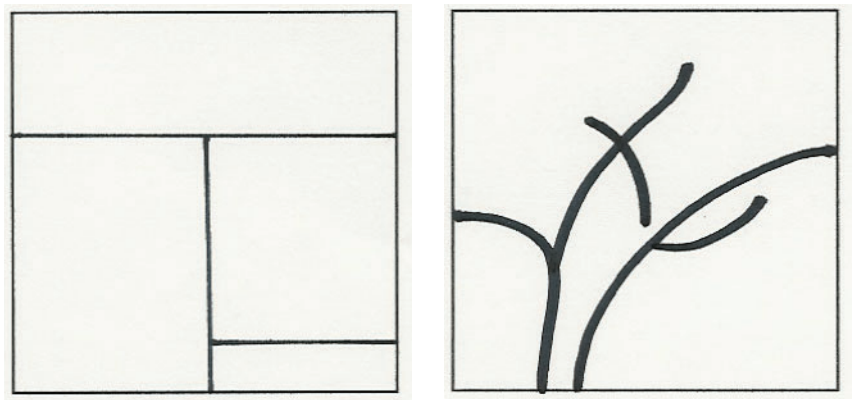

FIGURE 1-8 *Which sketch conveys the words* earthly, natural, *and* holistic*?*

The sketch on the left is a simple division of space with a top bar. Splitting a screen in half typically results in a static design. This attempt to change the height of the top bar and to split one side demonstrates a slight variation of a traditional layout. On the other hand, the sketch on the right is reminiscent of a tree. Curvilinear lines often represent the natural world.

Which sketch in Figure 1-9 conveys a conceptual layout for the words *familiar*, *modern*, and *smooth*?

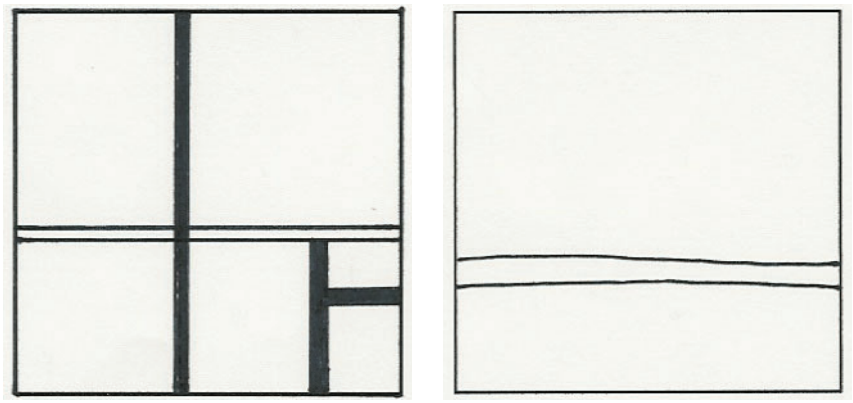

FIGURE 1-9 *Which sketch conveys the words* familiar, modern, *and* smooth*?*

The left sketch in Figure 1-9 is reminiscent of artist Piet Mondrian's *Composition with Blue and Yellow* (1932). The right sketch in Figure 1-9 is reminiscent of a simple horizon sketch from any beginning drawing class. Either one may or may not be *familiar*; however, one is more *modern*. What about *smooth*? Some words have multiple meanings. Is the word *smooth*, in this context, smooth to the touch or smooth as in sophisticated, classy, and unique? The sketch on the left is a better fit for the combination of words *familiar*, *modern*, and *smooth*. Be careful to not base your sketch on only one word that can be interpreted in multiple ways, especially by an international audience.

Which sketch in Figure 1-10 conveys a conceptual layout for the words *fast*, *changing*, and *technical*?

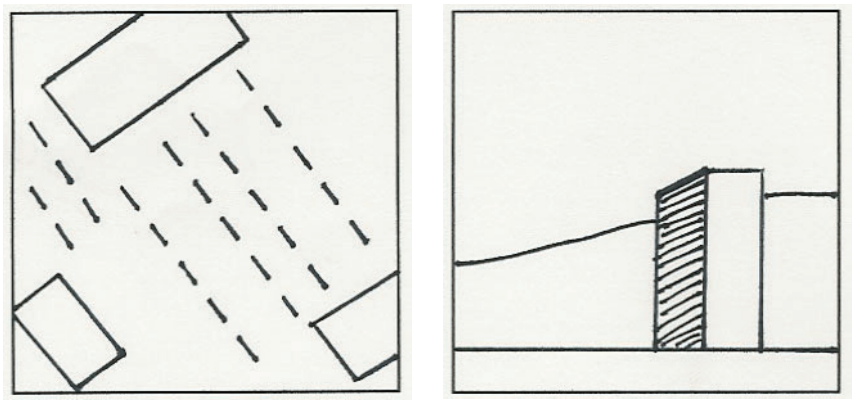

FIGURE 1-10 *Which sketch conveys the words* fast, changing, *and* technical*?*

The sketch on the left of Figure 1-10 intends to remind you of traffic moving between buildings. In contrast, the sketch on the right represents an office building that stands in one place for a long time. The hill in the background has been there even longer. Both sketches speak of technology, but the sketch on the left better communicates *fast* and *changing*.

Which sketch in Figure 1-11 conveys a conceptual layout for the words *global*, *cultural*, and *flexible*?

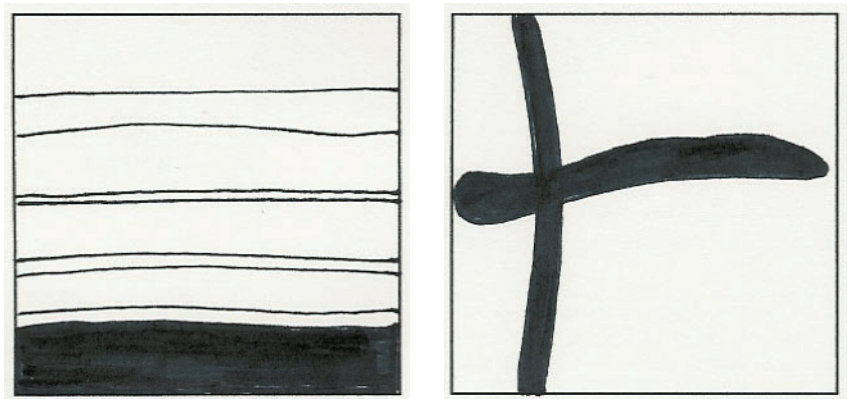

FIGURE 1-11 *Which sketch conveys the words* global, cultural, *and* flexible*?*

The sketch on the left of Figure 1-11 is a variation of horizon lines with a possibly of the sea on the bottom. Sketches such as this typically don't end up looking like the sea and the sky; these shapes often quietly convey a horizon with final colors and use density or the placement of lines to communicate an environmental metaphor. The sketch on the right could be a close-up of a tree. A cross-like figure often represents something inner or spiritual. Here, the curvilinear shape also conveys a natural simplicity. Both may work to communicate the words *global*, *cultural*, and *flexible*, but the one on the right probably conveys the client's story better. It's common to have more than one design to work with at this stage. As you move closer to layout, a final decision may hinge on which design works best with the addition of site content.

Transitioning Initial Sketches to Layout Sketches

Capturing the language of the client and user and then translating the meaning of their words into shapes also allows you to build conceptual diagrams for eventual layouts. In other words, start with language and create a shape. When the shapes evolve to a visual representation of the client and user language, start thinking about how the shapes can combine, with space, to form a layout for

your site. You can use shapes as icons or as background. The term *layout* implies the design of the page including shapes, lines, space, and content.

It's interesting how people tend to understand themselves differently from the way others view them and how they believe a design layout does or does not tell their story. For example, you may assume that members of a technical organization want their site designed with red, black, and chrome colors and linear, geometric shapes. In conversation, however, you learn that the members realize outsiders may stereotype them as linear thinkers, but within the organization they see themselves differently and, as such, want the site to promote their association's self-image of warm, welcoming, and inviting.

Do red, black, and chrome colors and linear, geometric shapes translate to the words *warm*, *welcoming*, and *inviting*? No.

Once you understand how the client hopes to build a relationship with the user and what the user expects in return, you can begin to sketch your shapes as the theme for your layout.

Flexible steps of this process include the following:

1. Select four or five words that best describe how the client and stakeholders see themselves and how they want to communicate their story, mission, and plans to users. These four or five words are a little different from the language you collected for your initial sketch shapes. At this point, you're determining how you can meet the stakeholders' goals with your layout. Examples include an *aggressive law firm*, a *fun kids' center*, or a *sexy lingerie shop*.
2. Select four or five words from users who communicate what their expectations are from the client. Again, this is different from the words you used to create your initial shapes. In this case, words help in developing the navigation portion of a site layout. For example, clients often like to see an About Us button as a primary navigation option. Users, however, typically want to access products and at some point later they may want to know more about the company. The About Us button may be primary for the stakeholder, but it's of secondary importance for the user.
3. Remember to not limit these words to an online environment. Typically, client and user needs and expectations are the same in an online relationship as they are in a face-to-face relationship. Users often describe their interaction with products and the client using geographic terms such as *department*, *aisle*, *section*, *home*, and *area*. These words help you determine how to structure the layout and navigation of a site.
4. Often, it can be constructive to have the client tell you a couple of stories about their most significant accomplishments. Truer words seem to come out of this type of conversation.

5. Look for a pattern in the words. Some may be similar. Some may convey ideas that remind you of something such as the sea, a mountain, a quiet place, a festive occasion, and so on. These metaphors can help you to later determine layout details such as space and color (explained in Chapters 4 and 8).

Evolving Layout Sketches

These ideas then allow you to transition from your initial sketches toward layout. The next group of sketches begins to look more like the conceptual idea of a Web page. Keep in mind that you need space for content. At the outset, however, think about what you want to communicate. Find one or two potential concepts that support your language and then think about how you might begin to incorporate content and space. This process results in working toward a layout that supports your entire process up to this point.

Does Figure 1-12 communicate *warm*, *welcoming*, and *inviting* for the technical organization?

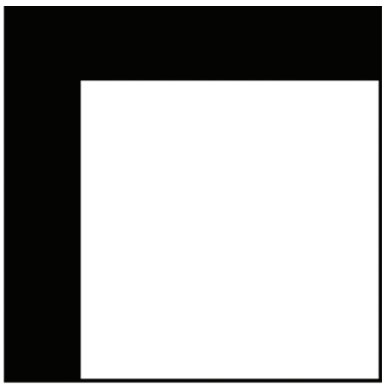

FIGURE 1-12 *A shape and language match?*

If Figure 1-12 doesn't communicate *warm*, *welcoming*, and *inviting*, why does it represent the majority of available pages on the Web? Listing 1-7 generates the Figure 1-12 shape.

LISTING 1-7 *Same Ol' Shape*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200" style="fill:none; stroke:black;
stroke-width:2;" />
<rect x="50" y="50" width="200" height="40" style="fill:black;" />
<rect x="50" y="90" width="40" height="160" style="fill:black;" />
</svg>
```

Getting rid of one of the rectangles in this code begins to open things up. Replacing the block with simple shapes and lines lightens things up even more.

Basic shapes can communicate interesting layout ideas. Figure 1-13 speaks of an international flag-like shape. The shapes begin a concept that may be realized as an overall layout, as a small logo, or as visual cues throughout the site. The audience for this shape can range from a governmental travel advisory site to a Ché Guevara manifesto.

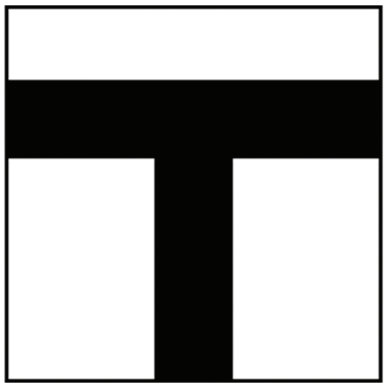

FIGURE 1-13 *A flag-like shape*

Layout sketches represent possible concepts to be incorporated at varying levels of size and significance. A final decision isn't made until later in the process. It's important to try any kind of sketch that helps you to see how the story may or may not be effectively told to users. The total work involved in 20 layout sketches you throw away is only an hour. The purpose of 20 unusable sketches is to clear uncertainty from your mind and help you begin to see the possibilities in the sketches you choose to keep.

Listing 1-8 generates the Figure 1-13 shape. Try moving the shapes around to suggest different layout options.

LISTING 1-8 *An International Shape*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200" style="fill:none; stroke:black;
stroke-width:2;" />
<rect x="130" y="130" width="40" height="120" style="fill:black; stroke:black;
stroke-width:2;" />
<rect x="50" y="90" width="200" height="40" style="fill:black; stroke:black;
stroke-width:2;" />
</svg>
```

A simple use of a line can take a concept from words such as *flag-like* or *balanced* to completely different words such as *sexy* or *voluptuous* with two strokes of a pen, as in Figure 1-14.

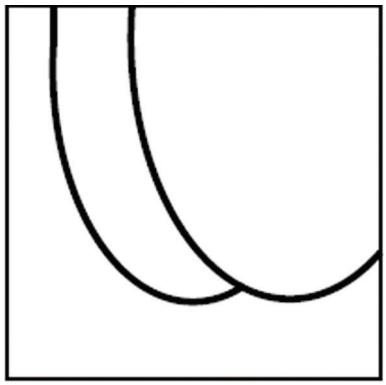

FIGURE 1-14 *Natural, full shapes*

How does Figure 1-14 communicate differently with curved lines than with geometric rectangles? Listing 1-9 generates the Figure 1-14 shape.

LISTING 1-9 *A Voluptuous Shape*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200" style="fill:none; stroke:black;
stroke-width:2;" />
<path d="M 75,50 L75,70 A 75,125 0  0 0 177,200" style="stroke:black; fill:none;
stroke-width:4;" />
<path d="M 117,50 A 85,140 0  0 0 250,182" style="stroke:black; fill:none;
stroke-width:4;" />
</svg>
```

Patterns of curved lines communicate differently than single or paired lines. Repetition adds depth, density, and an awareness of space. Moving the paths of the Figure 1-14 code or increasing the stroke-width changes the volume of the design. The repetitive lines of Figure 1-15, with less of an angular curve, convey volume but at a different level than those in Figure 1-14. Figure 1-15 creates space and bars that seem tangible and yet not as full as in Figure 1-14.

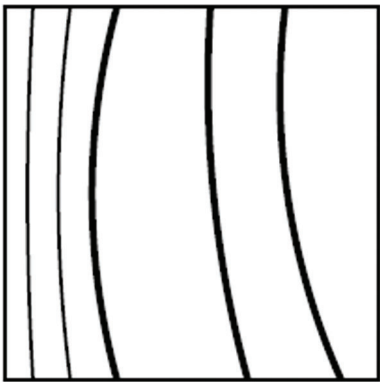

FIGURE 1-15 *Patterns of lines*

Repetition and repetition with variation change the ways users interpret shape, line, and space. Placement contributes to words such as *crowded*, *motion*, *open*, or *still*. Try changing the stroke-width and line placement in Figure 1-15. Does your impression of the space change? Listing 1-10 generates the Figure 1-15 shape.

LISTING 1-10 *Repetition and Shape*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200" style="fill:none; stroke:black;
stroke-width:2;" />
<path d="M 65,50  A 400,825 0  0 0 65,250" style="stroke:black; fill:none;
stroke-width:2;" />
<path d="M 85,50  A 500,625 0  0 0 85,250" style="stroke:black; fill:none;
stroke-width:2;" />
<path d="M 110,50  A 350,365 0  0 0 110,250" style="stroke:black; fill:none;
stroke-width:4;" />
<path d="M 160,50  A 350,465 0  0 0 180,250" style="stroke:black; fill:none;
stroke-width:4;" />
<path d="M 200,50  A 350,365 0  0 0 230,250" style="stroke:black; fill:none;
stroke-width:4;" />
</svg>
```

Moving from Layout Sketches to Layout Examples

Layout sketches don't have to be complicated to convey purpose and interest users. A simple focal point and block area of interest resulted in the Figure 1-16 sketch. This particular site is for a digital portfolio. The designer, Jean McIntosh, wanted to convey *strong*, *abstract*, *interesting*, and *clean*. The entry page changes a couple of times a year when Jean gets tired of it, but the concept remains the same because her intent doesn't shift. This simple design allows for minor modifications in content even as the theme remains intact.

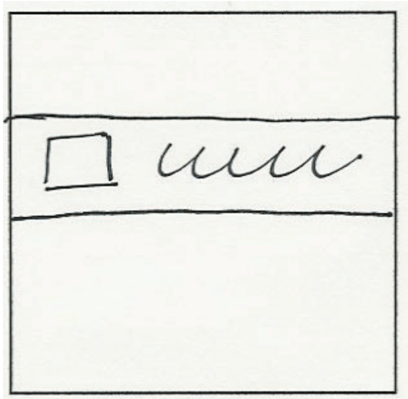

FIGURE 1-16 *The sketch for* `jrmacks.com`

One version of the `jrmacks.com` entry page, as shown in Figure 1-17, incorporates Figure 1-16's simple sketch into a layout that meets Jean's intent.

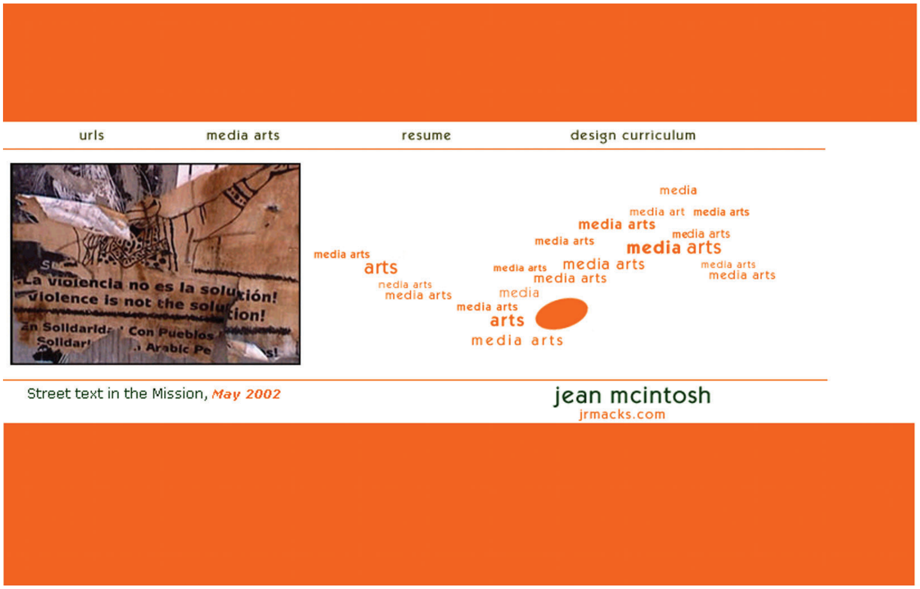

FIGURE 1-17 *The splash page from* `jrmacks.com`

The design concept continues through the subpages of the site, as in Figure 1-18.

FIGURE 1-18 *A subpage of* `jrmacks.com`

It also continues through the content pages of the site, as in Figure 1-19.

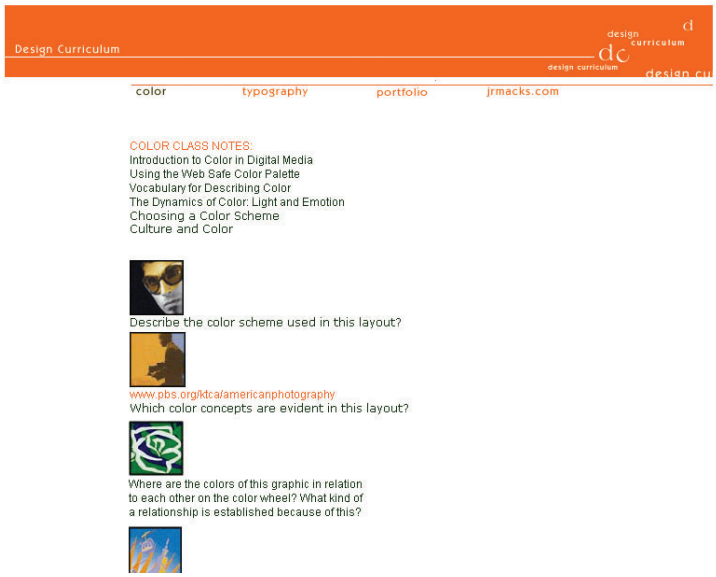

FIGURE 1-19 *A content page from* `jrmacks.com`

Beginning the development process with a sketch prevents you from designing only to your current design level of interest and ability with code. In other words, a sketch changes your perspective from "I'll use this code and fit the content in" to "I'll find a way to make the code work to this design." There are always browser issues, and, in some cases, design concepts will need revision to run on the Web. However, the hours spent trying to make CSS or XSL work to the design can result in a product that does a much better job of telling the client's story.

As an example, Steve Contreras is a freelance Web mechanic. Steve has a knack for getting things to run. He doesn't want to market himself as a designer or a developer, but he sometimes works as both. He's great at identifying problems and finding ways around the limitations of applications and the Internet. Steve wanted to create a simple marketing site that shows his work and his personality. At a glance, which of the shapes shown in Figure 1-20 best conveys Steve?

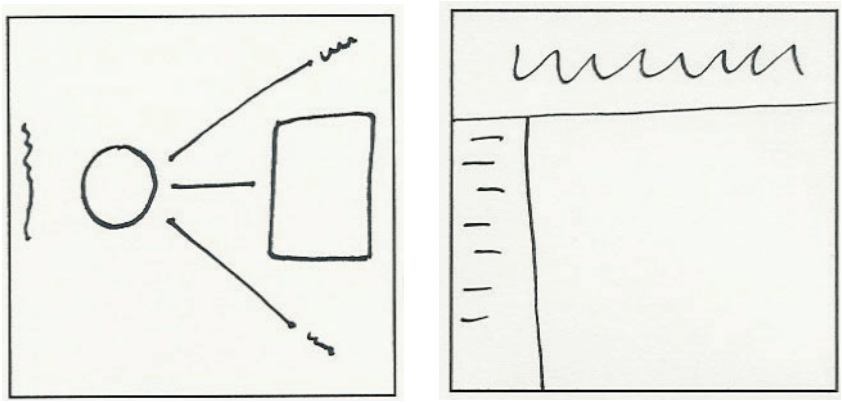

FIGURE 1-20 *Sketches for* `contreras.tv`

Figure 1-21 shows one version of Steve's entry page.

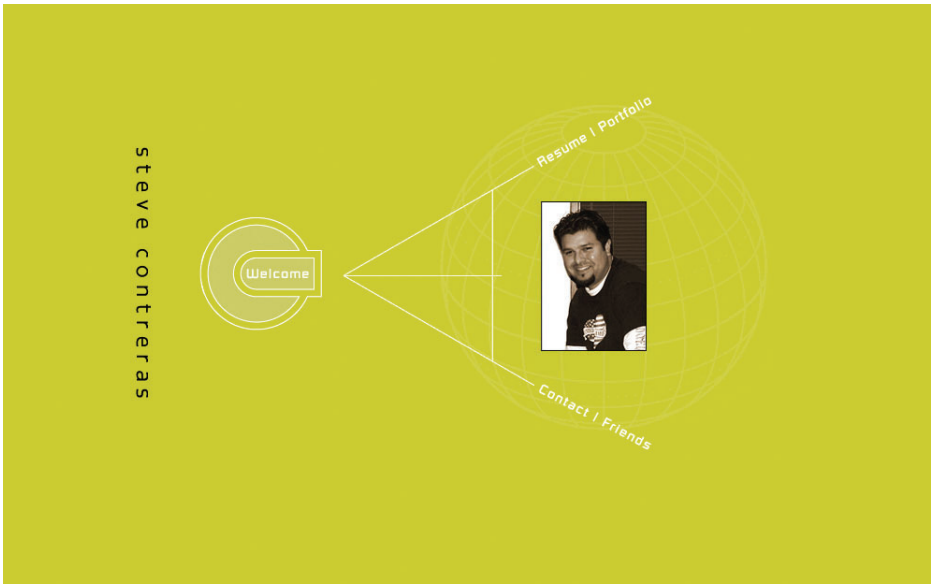

FIGURE 1-21 *The splash page for* `contreras.tv`

The design concept continues through the subpages of the site, as in Figure 1-22, which is an example of Steve's portfolio work.

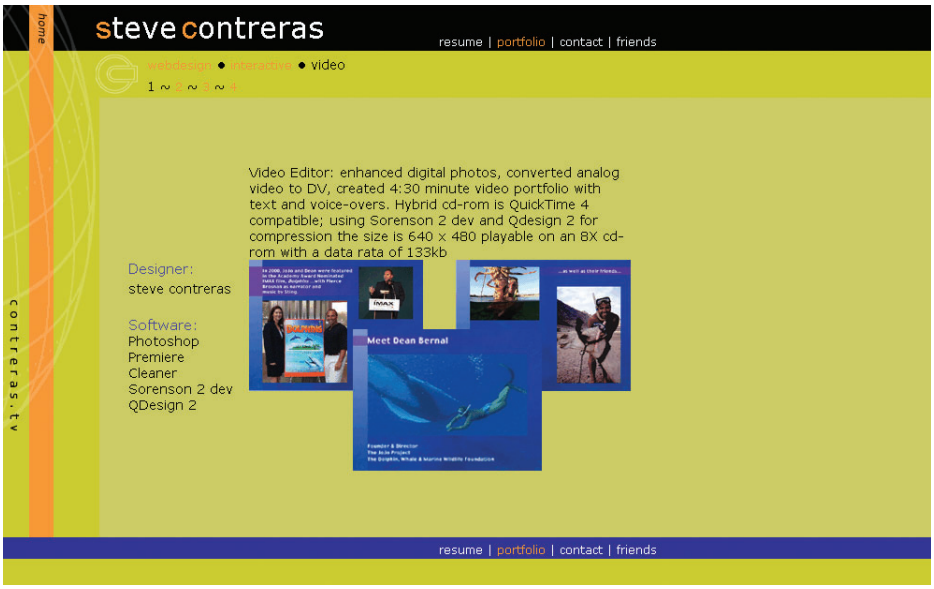

FIGURE 1-22 *A subpage of* `contreras.tv`

It also continues through the content pages of the site, as in Figure 1-23, Steve's résumé.

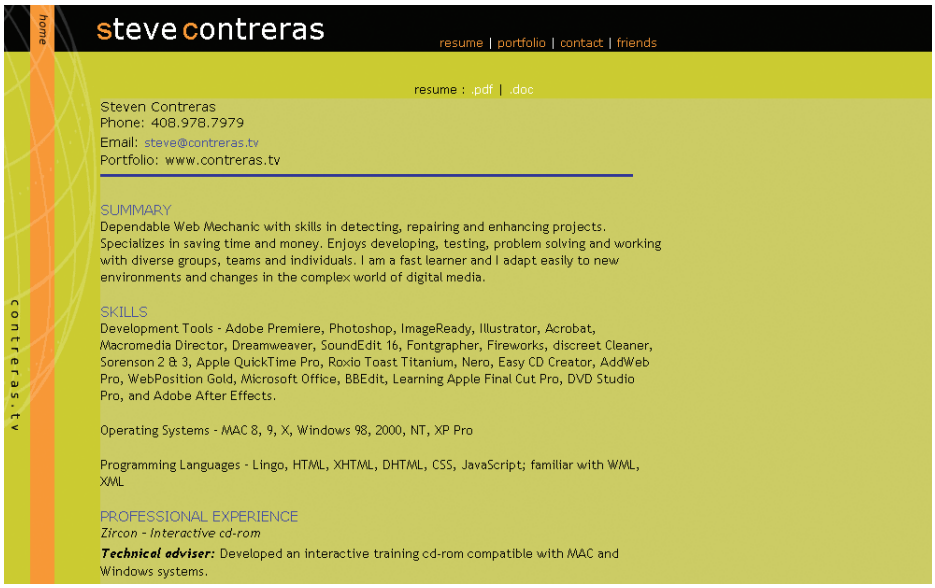

FIGURE 1-23 *The résumé page of* `contreras.tv`

The steps from language to layout also incorporate design principles (Chapter 2) and design elements (Chapters 4 and 5). As you work with clients and users, consider creating a mini-requirements specification to clarify design and technical criteria for the job. The combination of creating and organizing pulls ideas and information together toward innovative design and a well-run, profitable project.

A Parallel Design Consideration: Requirements Specifications

Web design and development jobs succeed more often and with fewer problems with a requirements specification. Although much has been written about requirements specifications in the context of software development, many developers either avoid requirements whenever possible or ignore them for the Web. Differences between software and the Web include development time and client expertise. With software, not tracking requirements or not taking the time to develop use case scenarios slows a project down with recoding. However, most of the

stakeholders in a software product are project, system, or development professionals. With the Web, you may work with one developer, one nephew studying Web design on the weekends, one contact person representing the company who hopes eventually to move from marketing to Information Technology (IT), one director of sales who wants the site yesterday, and one intern who thinks the whole site should be in animated Macromedia Flash. This mix of perspectives, attitude, and experience can bog down a Web job in a short time. Consider a mini-requirements specification process as a clarifying point you use to develop and you show to stakeholders to keep them on task.

A good set of requirements specifications helps with design as much as it helps with development. A good requirements specification is, however, found even less often in Web development than in software development. If you're on the team of a project with plausible requirements, or if you prepare the requirements yourself, utilize the specification data to shortcut the design process. The following sections describe the parts of a requirements specification. (A similar approach, without requirements, is described in the "Skipping the Requirements Specification" sidebar.)

NOTE The requirements model used to describe this process is Suzanne and James Robertson's Volere model (`atlsysguild.com`) reduced to the sections common to Web design and development. You can learn more about the Volere model in *Mastering the Requirements Process* by Suzanne and James Robertson (Addison-Wesley, 1999).

The Purpose of the Product

The purpose section covers the user problem or background to the project and the goals of the project. The narrative of the purpose section may follow the data of the user analysis. Look for keywords that describe what problems were associated with previous products/projects, what worked, and which goals/ideas need to be developed in the new project. The wording of this section is typically for all stakeholders, not only developers, and offers language that helps to transition goals to visual elements. For example, the document may state the new design should be "simple and clean" or it should "reflect the company's history and long-term commitment to the community." These two phrases transition toward different conceptual ideas of a Web site. The narrative may say the product introduces "change and motion" or that it "maintains tradition." Translating these words into visual communication results in clients who say, "That's exactly what I wanted to convey."

Which sketch in Figure 1-24 conveys the words *change* and *motion*?

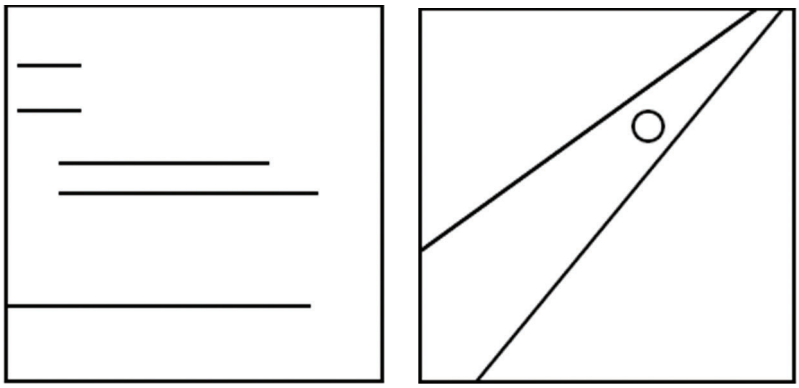

FIGURE 1-24 *Which sketch best conveys the words* change *and* motion*?*

Listing 1-11 generates the shape on the left in Figure 1-24.

LISTING 1-11 *A Simple, Calming Shape*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200"
style="fill:none; stroke:black; stroke-width:2;" />
<line x1="56" y1="82" x2="90" y2="82" style="stroke:black; stroke-width:2;" />
<line x1="56" y1="106" x2="90" y2="106" style="stroke:black; stroke-width:2;" />
<line x1="78" y1="134" x2="190" y2="134" style="stroke:black; stroke-width:2;" />
<line x1="78" y1="150" x2="216" y2="150" style="stroke:black; stroke-width:2;" />
<line x1="50" y1="210" x2="212" y2="210" style="stroke:black; stroke-width:2;" />
</svg>
```

Listing 1-12 generates the shape on the right in Figure 1-24.

LISTING 1-12 *Change and Motion*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200"
style="fill:none; stroke:black; stroke-width:2;" />
<line x1="50" y1="180" x2="230" y2="50" style="stroke:black; stroke-width:2;" />
<line x1="50" y1="180" x2="230" y2="50" style="stroke:black; stroke-width:2;" />
<line x1="80" y1="250" x2="244" y2="50" style="stroke:black; stroke-width:2;" />
<circle cx="172" cy="113" r="8" style="fill:none; stroke:black; stroke-width:2;" />
</svg>
```

Both sketches in Figure 1-24 consist of simple lines. The sketch on the right includes a small circle. Change and motion, however, are related primarily to line placement. Diagonal lines convey direction or motion. Horizontal lines convey stability. The circle acts as a focal point; change and motion are emphasized by the circle's ability to draw eyes and move them toward the top-right corner. The lines, however, determine the majority of the change and motion interpretation.

Which of the following two concepts in Figure 1-25 conveys *maintains traditions*?

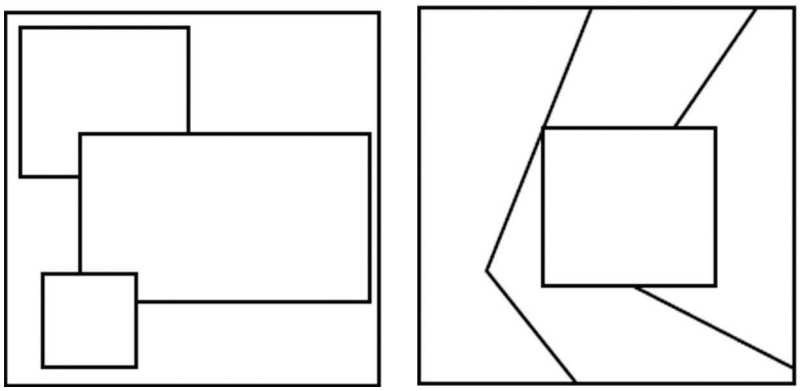

FIGURE 1-25 *Which sketch conveys the phrase* maintains traditions*?*

Listing 1-13 generates the shape on the left in Figure 1-25.

LISTING 1-13 *Maintains Tradition*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200"
style="fill:none; stroke:black; stroke-width:2;" />
<polyline
points="90 190,90 115,245 115,245 205,120 205"
style="fill:none; stroke:black; stroke-width:2;" />
<polyline
points="90 138,58 138,58 58,148 58,148 115"
style="fill:none; stroke:black; stroke-width:2;" />
<rect x="70" y="190" width="50" height="50"
style="fill:none; stroke:black; stroke-width:2;" />
</svg>
```

Listing 1-14 generates the shape on the right in Figure 1-25.

LISTING 1-14 *Strays from Static Rectangles*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect x="50" y="50" width="200" height="200"
style="fill:none; stroke:black; stroke-width:2;" />
<rect x="116" y="114" width="92" height="84"
style="fill:none; stroke:black; stroke-width:2;" />
<path d="M 142 50, 86 190,134 250" style="fill:none; stroke:black;
stroke-width:2;" />
<path d="M 230 50, 186 114" style="fill:none; stroke:black; stroke-width:2;" />
<path d="M 164 198, 250 242" style="fill:none; stroke:black; stroke-width:2;" />
</svg>
```

The shape on the left in Figure 1-25 is conservative and suggests tradition. Rectangles convey traditionalism although their placement can vary to make the design a little more interesting. The shape on the right keeps a rectangle/square; however, its overall presentation with diagonal lines conveys a less traditional approach. Content often requires the use of rectangles or squares although placement and support shapes can help to convey a more modern approach.

Client, Customer, and Other Stakeholders

This section includes all the people who have a vote or influence in the design and development approval process:

- The client is the person(s) paying for the development and is the owner of the delivered system.
- The customer is the person/s who buys the product from the client.
- Other stakeholders.

The stakeholder section is critical to the design process. Imagine this scenario: You have a contact person, say, from marketing. You talk on the phone a few times and meet. When you meet, a second person attends, the director of marketing. You're comfortable because the director seems to have approval responsibility. You make a couple of sketch prototypes, create a digital prototype of your best two designs, and schedule to meet for design approval. At the meeting, however, two more people show up: the director of Information Systems (IS) and someone from finance. The director of IS is "concerned" that a product that the marketing department likes can't be supported. The finance person wants to talk about all of the costs involved. During the meeting, the director of sales drops in and says, "We're the ones who sell the product, we know what people want, and marketing knows what the company wants to sell."

This story can grow to include customer service, human resources, and various other stakeholders who can snag the approval process. Understanding this section of the document speeds up the design process by allowing you to understand who needs to see the prototypes. Delivery dates for code and testing cycles are based on the design approval date, rather than on a contract date. Stakeholders are sometimes hesitant to slow the code process because they don't completely understand it; however, they love to talk about what can happen to make something "look better." The key is to design to the user and the relationship. Everyone involved has an opinion such as "I like this one" or "I don't like it." If you're in the position to say, "This prototype best supports what the company wants to communicate and it meets the users' expectations," then the discussion moves away from personal taste and toward accomplishing a goal.

Users of the Product

This section includes information about the following:

- The users of the product
- The priorities assigned to users
- User participation

Address the user needs clearly and you're not in the position of participating in conversations centered on artist name-dropping or comparing college degrees to prove your design is worthy. Simple is better. Shapes can convey a theme, a feel for a site. Space (addressed in the next chapter) is critical. Other considerations such as color and type can come a little later. For now, the priority is your understanding of the user and translating the client and user ideas into words that transition into shapes.

A young, teenage audience, for example, has a different viewpoint of itself and different priorities than does a group of adult clients who remember being a teenager. An older-than-65 audience sees itself differently than does other people's sometimes stereotyped assumptions of "senior" interests and needs. Furthermore, audiences don't follow generic international design criteria for Asians, Hispanics, or Europeans. If you design a site for an audience of Mexican American professionals, don't design for the broad Hispanic market; talk with professional Mexican Americans to identify and prioritize their expectations. Do this well, and the designs will always work because the link between the client and the audience is established.

Will the shapes shown in Figure 1-26 draw a young, teenage audience (13–15 years old) for a product that teaches algebra? Do you know, or are you guessing? How can either shape evolve to accept content?

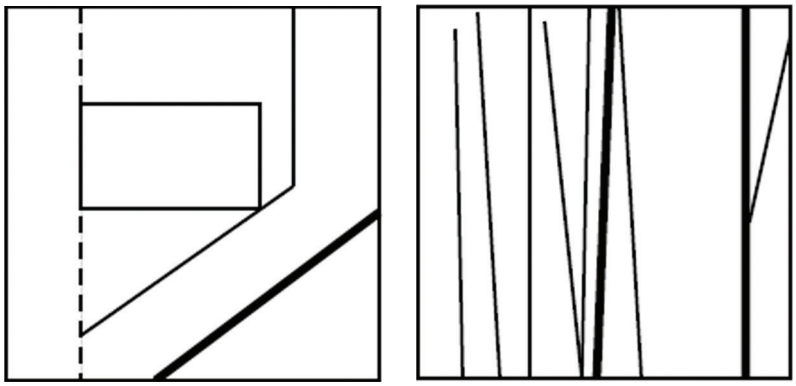

FIGURE 1-26 *Target audience perspective*

Listing 1-15 generates the shape on the left of Figure 1-26.

LISTING 1-15 *Offbeat, a Little Out of Balance*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect style="fill:none; stroke:black; stroke-width:2;"
x="50" y="50" width="200" height="200" />
<rect style="fill:none; stroke:black; stroke-width:2;"
x="90" y="102" width="96" height="56" />
<line x1="90" y1="50" x2="90" y2="250" style="stroke:black; stroke-width:2;
stroke-dasharray: 9, 5;" />
<line x1="204" y1="146" x2="90" y2="226" style="stroke:black; stroke-width:2;" />
<line x1="130" y1="250" x2="250" y2="160" style="stroke:black; stroke-width:5;" />
<line x1="204" y1="50" x2="204" y2="146" style="stroke:black; stroke-width:2;" />
</svg>
```

Listing 1-16 generates the shape on the right of Figure 1-26.

LISTING 1-16 *Vertical Lines in Alternative Combinations*

```
<?xml version='1.0'?>
<svg width="300" height="300">
<rect style="fill:none; stroke:black; stroke-width:2;"
x="50" y="50" width="200" height="200" />
<line x1="70" y1="62" x2="74" y2="250"
style="stroke:black; stroke-width:2;" />
<line x1="82" y1="53" x2="94" y2="250"
style="stroke:black; stroke-width:2;" />
```

```
<line x1="110" y1="50" x2="110" y2="250" style="stroke:black; stroke-width:2;" />
<line x1="118" y1="58" x2="138" y2="250" style="stroke:black; stroke-width:2;" />
<line x1="142" y1="50" x2="138" y2="250" style="stroke:black; stroke-width:2;" />
<line x1="158" y1="50" x2="170" y2="250" style="stroke:black; stroke-width:2;" />
<line x1="154" y1="50" x2="146" y2="250" style="stroke:black; stroke-width:5;" />
<line x1="226" y1="50" x2="226" y2="250" style="stroke:black; stroke-width:5;" />
<line x1="250" y1="66" x2="228" y2="166" style="stroke:black; stroke-width:2;" />
</svg>
```

Talking with a young, teenage audience and determining what they like, use, buy, and enjoy suggests language that translates to shape, line, and space. Don't make assumptions; instead, ask and explore so that your designs emerge from a confident perspective rather than a hopeful supposition.

Mandated Constraints

Design and development converge at mandated constraints. For some reason, clients always seem to think a Web-based application needs an "innovative design" and a database. Maybe there's truth in their assumption, but what they're really looking for is a product that visually communicates their purpose and offers data manipulation capabilities. Your experience as a developer (knowing which components or tools to use and knowing which languages to model and how) is an important part of this process. How you incorporate the design element is also a critical decision. Browsers remain weak in the combination of code and positioning. Existing client materials such as printed matter and intranet data often don't translate well to commercial projects. Months of archived press releases about a company are of little interest to the user. Streaming media and full-screen video continue to have issues with download time.

How can you as the designer and developer of the site translate all of this information into a viable product? Include elements in the project that add significant value; leave the rest out. If a pet project of the client needs incorporating, simple solutions that focus on the major priorities look good, work well, and can grow later. Constraints are everywhere. Think "clean, simple, and focused on the user." It's not always possible, but in most cases, it works.

Naming Conventions and Definitions

Never skip over this section until you're sure stakeholders understand what you mean by *user analysis*, *prototype*, *test cycle*, *mirror site*, *go live*, and other terminologies that can slow the project down or result in extra meetings.

Relevant Facts and Assumptions

Watch out for assumptions about browsers, platforms, plug-ins, language, and documentation in addition to your typical developer concerns. Remember, the largest consumer audience uses America Online. These assumptions affect design and need clarification.

Look and Feel Requirements

The look and feel of the site link back to the language issues discussed earlier in the chapter. You also need to incorporate existing client assets, especially those that establish branding of a product or of the client organization. The style of the product reflects the personality of the product and client. The interface reflects the relationship between the client and the user. Chapter 5 discusses navigation and layout. In the meantime, understand that navigation doesn't have to be unique for a product to be innovative. If buttons on the left meet the needs of the user, then use them; it's important not to overload the user with too many options. Users tell you the categories of content because they want to access them. Ironically, companies typically think an About Us button that tells of the company's history and management should be a priority button; users always view it as a secondary interest. Users who go to a site want to be in a relationship with the people and the product of the company. They logically understand the ratio of the relationship may be 1 to 500,000. However, they still want to "feel" like it's 1 to 1. For example:

- Users at Oprah Winfrey's site want to visit with Oprah, even though the site may draw more than a million visitors a day. They don't want to feel they're in a huge money-making Oprah factory site.
- Users at eBay want to find a great product or a great bargain. Their expectations are the same as in a physical store: good information, easy-to-find merchandise, plenty of products on hand, and a quick checkout.
- Users playing WarCraft or StarCraft quickly move in and out of groups. Their expectations are to play individually or in small groups with fast response times regardless if there are more than 100,000 players.

Usability Requirements

This section is the simplest and most obvious requirement. Somehow, though, it often misses inclusion in the design. Profitable products are purchased, used, and reused. Take the time to create a usability requirement that defines user needs. A simple use of icons for a multilanguage site can mean the difference between success and failure.

Skipping the Requirements Specification

If you work on a project/product design with no requirements specification, utilize user analysis data and talk to six additional potential users who fit the target group portfolio. If there's no user analysis, you must make the time to do some on your own. People are fickle about design. You can easily lose your profit margin trying to satisfy design ideas that were never the best fit for the product. Talking to users and clarifying their priorities creates a map for design. Translating the data to language and again to visual representation tells their story. Determining shapes in simple conceptual drawings begins the transformation from user analysis and requirements data to a visual interface.

Performance Requirements

What is the project's priority, speed, or accuracy? Is the bold, new design with plug-ins or graphics supposed to run on a Commodore (just kidding)? Is there a large amount of content, simple navigation, or both? How can the design be incorporated throughout the project and support the requirements?

The Volere model includes several other important sections. This text offers examples directly related to a product's conceptual design.

You must address several functional requirements from the Volere model or your own model for the purpose of a complete build. This chapter presented a small sampling for design purposes only.

Interface Design Axioms

Determine a product's design concept by understanding client and target audience expectations.

Clients and users can help in the design process by communicating their purpose, goals, and expectations of a site. Don't have clients and users tell you how to design the product. Do have clients and users tell you how they like to interact with each other. Have a conversation with the client about the story they want to communicate and about how they like to do business with the user. Have conversations with potential users (or friends who meet the target group profile) to evaluate how they want to interact with the client. Listen for keywords that describe the priorities and expectations of both parties. Adjectives do a great job of expressing ideas that can transition to shapes and themes for a site.

Initial sketches tap your imagination for concepts and shapes that can become eventual layouts. Don't skip the sketch step in the design process. Moving directly to

the keyboard and screen misses an important element of the communication process. Furthermore, beginning development with a sketch stops you from designing to your current level of interest and ability with code.

A good set of requirements specifications helps with design as much as it helps with development. Look through a requirements document for priorities and keywords that help in the creation and delivery of the design. Think about code in the back of your mind, but design to needs and expectations. There's time in the process to adjust for functional requirements.

The next step is to consider a set of basic design principles that help to solidify the balance, emphasis, rhythm, unity, and contrast of your conceptual shapes.