A Tour of Maya

In This Chapter

It's time to start Maya and learn how to use it. Before we start to discuss how to make anything, though, this chapter introduces you to Maya's structure and design. You'll learn all the interface elements and start to get a feel for getting around in the panels. You'll also look at playing back animation and the Shaded and Wireframe modes of viewing objects. These are the primary parts of any 3D program, and after you gain some comfort with these *true* fundamentals of Maya, you'll be poised to move on to specifics:

- **The Maya interface**   Take a tour of each feature as we describe it and name the parts.
- **Manipulating views**   Learn how to tumble, track, and dolly your 3D view.
- **Detail and shading**   See how any 3D panel can be displayed in several different modes.
- **Changing your interface**   Learn how to quickly change the Maya interface to suit the task at hand by resizing and reassigning the panels and minimizing or maximizing any single panel.

Key Terms

Attribute Editor   The primary interface for changing objects and such in Maya, available as a floating window or docked at the interface's right side.

Channel Box   Used to view and edit the variables of your currently selected item, usually accessed at the interface's right side.

Key Terms

Hotbox   A workflow speedup that many Maya animators love—an overlaid menu triggered by holding down the spacebar.

tumble   The official term for spinning or rotating around in a view.

track   The official term for panning or moving linearly across a view.

dolly   The official term for zooming into and out of a view (technically, the term for moving the camera into or out of a scene).

zoom   Used for actions in which you draw a window to magnify or reduce.

LMB   The left mouse button, the primary action-taking button.

MMB   The middle mouse button, often a secondary or alternative action-taking button.

RMB   The right mouse button; usually provides options to select with the LMB (as with most Windows applications).

Wireframe mode   Viewing a 3D scene as lines that make it look as though the objects are made from a wire screen mesh. Until the fairly recent advent of higher powered 3D graphics cards, the only interactive way to work with 3D scenes.

Shaded mode   Lets you view geometry in a crudely rendered interactive way (not to be confused with the high-quality renderer). Any 3D view panel in Maya can be in Wireframe or Shaded mode.

Gouraud shading   A crude form of smooth shading that adds highlights to polygonal objects by averaging the polygon corners. It renders quickly and is the method used for interactive shaded mode in Maya panels.

Hotkeys to Memorize

Alt+LMB   orbit

Alt+MMB   pan

Alt+LMB+MMB   zoom

Ctrl+Alt+drag window with LMB zoom window

Ctrl+A   activate the Attribute Editor

f   use the Frame Selected Object option (zoom in or out to the boundaries of the current object)

a   use the Frame All Objects option (zoom in or out to the boundaries of the scene)

spacebar tap   toggle full-screen mode of selected panel

spacebar hold   open Hotbox

1   NURBS at low detail

2   NURBS at medium detail

3   NURBS at high detail

4   Wireframe mode for selected 3D view panel

5   Shaded mode for selected 3D view panel

6   Shaded and Hardware Textured mode for selected view panel

7   use scene lights

q   Select mode - pointer

w   Move mode

Hotkeys to Memorize			
e	Rotate mode	**F3**	Modeling mode
r	Scale mode	**F4**	Dynamics mode
t	Manipulator mode	**F5**	Rendering mode
F1	Help	**Ctrl+z**	undo
F2	Animation mode		

Maya Overview

In Maya's original design, the approach taken was called the *dependency graph*. The idea is that everything in the scene—every curve, object, link, image, texture, keyframe, and so forth—and every tweak made to those items would be considered one "thing." Actually, not "thing"; the name they use is *node*, but it means about the same. It's one building block of the scene. These building blocks link to create ever more complex things. For example, when a profile line is drawn in Maya, it becomes a node. When the line is revolved to create, for example, a vase, the underlying line is still there. Further, the revolve operation creates a "revolve" node, placed in history, thus letting you modify the original curve and the revolve parameters independently.

Modifications made to the line immediately affect the vase's shape, and the modifications themselves create a node so that you can undo or modify anything you've done before. This flexibility underlies the entire Maya product, and includes the option to disable or delete history, which animators often use for efficiency.

The dependency graph architecture is simple to understand and allows tremendous flexibility. Maya allows the animator to view a scene file with every dependency revealed by using a view called the Hypergraph. There, links can be broken and reconnected so that any variable can control virtually any other variable. This feature illustrates one reason for Maya's popularity with Hollywood: A technician can set up dependencies so that the animator's work is minimized. When a character tilts her head back, the skin stretches, the muscles appear to move and bulge—and this all happens automatically because it has been set up to work that way in Maya. Naturally, setting up complex dependencies takes time, but the investment is easily justifiable for a character that will be used often. Programming skills are rarely required, however. It's simply a matter of learning what's possible and becoming proficient in setting up these dependencies. As Maya becomes more popular with animators of all types, this type of "TD work" (named for the technical directors of projects that typically perform this work) is becoming something everyone does, so long as it saves time and effort overall.

Hand Positioning

Most of the time when you animate with Maya, your right hand controls the three-button mouse, and your left hand is at the left side of the keyboard. This puts your left hand in position to operate the primary hotkeys, the spacebar, the Alt and Ctrl keys, and other keyboard shortcuts that get heavy use. Left-handed users who keep the mouse at the left of their keyboard need to reprogram the default hotkeys that put all the primary keys at the keyboard's left side.

Using the Three Mouse Buttons

Maya uses all three buttons of the mouse constantly. The left mouse button (LMB) is used to select and pick things, and often it's used to take actions such as moving or rotating an object. The right mouse button (RMB) usually brings up a selection list (which you might be familiar with in other programs as a pop-up menu or a context-sensitive menu) for you to pick from with the LMB. The middle mouse button (MMB) is used for adjusting interim things—for example, dragging and dropping materials to the scene or moving part of an object with snapping temporarily engaged.

Using the Spacebar

The spacebar has two functions. The first is the full-screen window toggle, where a brief tap of the spacebar causes a window to toggle to full screen. The window that switches to full screen is always the one that the mouse cursor is currently hovering over. When a fresh install of Maya starts, it's in the typical Four View mode, with Top, Side, Front, and Perspective views; however, the Perspective view is maximized. If you briefly tap the spacebar, the four screens appear. You can then maximize any of the other views.

The other function of the spacebar is to open the Hotbox by holding down the spacebar. The Hotbox is described in detail near the end of this chapter.

Manipulating a View

As you build and manipulate objects, you need to be able to quickly adjust your viewpoint interactively. A primary part of knowing Maya is its window manipulation method. You can position yourself anywhere in a scene by using tumble, track, and dolly controls.

Tumble

With the tumble control, also known as *orbit* or *spin*, you move your orbital position in relation to the scene. Hold down the Alt key with your left hand while you click and drag with the LMB in a perspective viewport.

Track

With the track control, also known as *pan* or *move*, you laterally move your view of the screen. That is, without changing angle or zoom level, the viewpoint moves up, down, left, or right. Hold down the Alt key with your left hand while you click and drag with the MMB in any viewport.

Dolly

With the dolly control, also known as *zoom*, you can interactively zoom in and out of a scene. Hold down the Alt key with your left hand while you click and drag with both the LMB and MMB pressed. You can also zoom into or out of a drawn rectangle by using these methods:

- **Zoom window**   You can click-drag a window that outlines an area you want to zoom into, a technique that CAD users are particularly fond of. To zoom into a window, hold down the Ctrl and Alt keys with your left hand while you drag a window with the mouse holding down the LMB. Drag the rectangle from the upper-left corner to the lower-right corner.
- **Zoom out window**   If you perform the same steps for a zoom window but drag the rectangle from the lower-right corner to the upper-left corner, the window is zoomed back. The smaller the window, the greater the zoom outward.

Saving a View

Every panel has its own Bookmark Editor so that you can save your views. This can be a big timesaver when you have perfectly aligned some objects in a panel and then need to adjust the panel to edit something else. To add a bookmark for a panel, open the Bookmark Editor with View | Bookmarks | Edit Bookmarks. You can type in the bookmark name and even include a description. Now the bookmark will appear above the Edit Bookmarks item under View | Bookmarks in that panel.

trap

You cannot tumble an orthogonal view because Side, Top, and Front views by default do not rotate (orthogonal camera settings are discussed in Chapter 11, "Cameras and Rendering"). These views are locked in place. The term *orthogonal* means the views have no perspective or vanishing point.

tip

All these tools except the tumble work throughout Maya. That is, every graphical Maya dialog box that appears, from Render windows to Hypershade and even the Paint Effects palette, can be tracked and dollied and zoom-windowed. You will use these tools constantly to focus your work area and also to avoid eye strain. Don't forget this when a dialog box appears with text so tiny that it's unreadable!

trap	Each panel has its own bookmarks, exclusive of the others. If you can't find a book-mark you made, you are probably looking in the wrong panel or originally made the bookmark in the wrong panel.

The Maya Interface

When you start Maya for the first time, it looks like the window shown in Figure 2.1. We'll take you on a tour of the interface now and explain what it all means. Some elements of the interface are explained in more detail in the sections that follow. If the need or use for some features seems hard to fathom, just file it away for future reference. As you get the bigger picture, the logic of this layout will make more sense.
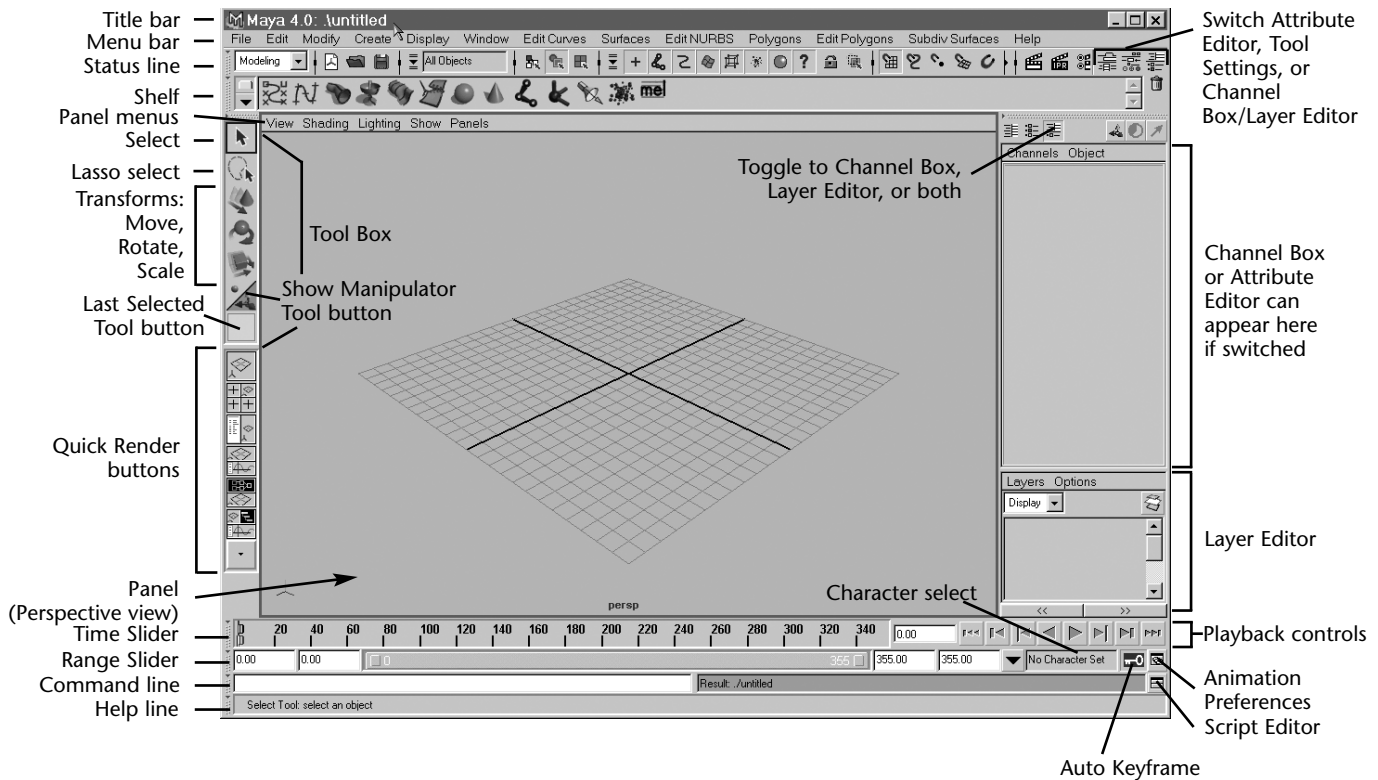
FIGURE 2.1   *The Maya interface.*

Coming down the left side of Figure 2.1, at the top is the title bar, followed by the menu bar—features common to all computer applications. The Status Line contains most of the toggles and buttons used for object manipulation and frequently used functions, such as the Quick Render button (the director's clapboard icon). Below the Status Line is the Shelf, a Maya innovation that lets you easily add customizable quick buttons. Depending on the project you are working on, you might have several custom "macros" you keep visible in the Shelf to speed up your work.

Moving down the left side, next is the vertical dialog box called the Tool Box. The top half of the Tool Box consists of the select and transform tools, which are used constantly to move, rotate, and scale things (collectively, the position, rotation, and scale of an object is known as its *transform*). The Show Manipulator Tool and the Last Selected Tool buttons round out this section. The Show Manipulator Tool button lets you adjust the "history" of an operation, such as when you previously applied a texture to an object and now need a manipulator to change where that texture is applied. The Last Selected Tool button is just that—a quick way to get back to the last tool you used. It's helpful for speeding up your workflow. The icon in this box changes to match the last tool used.

The bottom half of the Tool Box consists of a set of Quick Layout buttons, which adjust the panel layout to several popular configurations. Below those buttons is the Time Slider, which serves several functions: first, to show the current time point of the animation, and second, to allow the animation to be *scrubbed* (that is, click in the Time Slider and drag the mouse left and right to see the animation move forward and backward).

Next down is the Range Slider, which allows the animator to focus on a specific part of the animation. Numerical entries at either end of the Range Slider set (from left to right) the overall animation start frame, the focus range start frame, the focus range end frame, and the overall animation end frame. If you were working on a cartoon scene for TV that lasted one minute, you would probably set the overall start and end to 0 and 1800 because there are 30 frames per second and 60 seconds in a minute. If a problem occurred at the 12-second point, you would want to look at frame 360 and would probably set the range to frames 300 and 420; this makes it much easier to see what's going on. Below the Range Slider is the Command Line and the Help Line. The Command Line is helpful because it's where Maya talks back to you, confirming whether things are working or letting you know when it's detecting errors with what you're asking Maya to do. The Help Line also gives you feedback, letting you know what Maya expects you to do next.

On the right side of the interface, at the far right of the Status Line, are three toggle buttons for picking what will appear at the far right of the interface. You can also choose to have nothing at the right side of the panel, for maximum 3D panel space.

The toggle choices are Attribute Editor, Tool Settings, or Channel Box/Layers, from left to right. In earlier versions of Maya, it was always the Channel Box, and many users will probably favor that mode. Here's what these features are used for:

- The Attribute Editor is another, more detailed way to adjust the settings for an object. Most of the time you use the Attribute Editor as a floating window.
- The Tool Settings window is where you adjust such things as angle snaps for the Rotate mode.
- The Channel Box has a toggle at the top for adding the Layer Editor to the bottom or switching entirely to the Layer Editor. There are two types of layers in Maya: display and render (accessed with the Layers pull-down at the top of the Layer Editor). Display layers are used for organizing your work; for example, you might put your guidelines for a model in one layer so that they can be hidden or locked (Template mode, in Maya's terminology) while you build based on the lines. Render layers let you easily set some objects to be renderable or non-renderable, often useful in complex scenes when you want to render only certain objects.

At the lower right are the playback controls for animation. The outermost buttons rewind to start or fast forward to the end. The next buttons in move the time one frame backward or forward. The next buttons in go to the last or next *keyframe*, the adjacent point in time where the animator has set a "pose" for the object in question. In computer animation, the computer handles all the interim motion, and the animator sets only the most extreme or "key" positions. The two innermost buttons (the simple triangles) are the play forward and play backward buttons. The speed of playback is adjustable, set by clicking the Animation Preferences button. Two other buttons in this area enable Auto Key mode and the Script Editor, which are discussed later (Auto Keyframe mode is covered in Chapter 10, "Animation," and scripting is described briefly in Chapter 14, "Your Next Steps: Efficiency and Artistry").

The Menu Bar

A few things are useful to note about the menu bar. First, the six leftmost entries in the menu bar—File, Edit, Modify, Create, Display, and Window—always stay the same, but the others change based on the mode you are in. The mode is set in the list box at the far left in the Status Line. The four modes in Maya Complete are Animation, Modeling, Dynamics, and Rendering (see Figure 2.2). The hotkeys for these four modes are F2, F3, F4, and F5. Also, you can *tear off* any menu item that has double lines above it to create a customized mini-Tool Box, so that frequently used tools can float on your desktop, as shown in Figure 2.3.
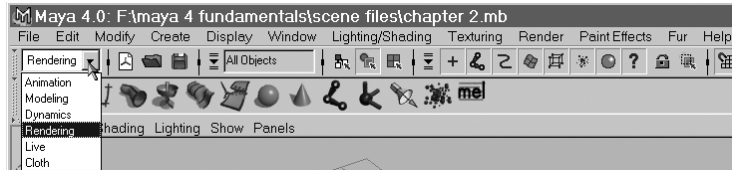
FIGURE 2.2   *Changing modes. Compare this to Figure 2.1 and notice that the first six menu items are the same, but the others have changed.*
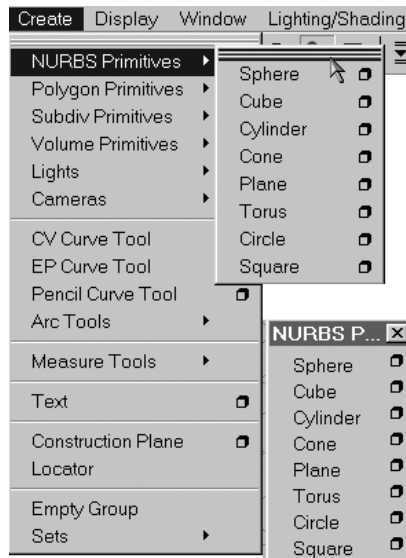

FIGURE 2.3   *Click on the double lines to tear off a dialog box. Note the floating dialog box at bottom right.*

The Option Box

Many menu items have a small box to the right of the command name (see Figure 2.4). This is the *option box*, which you click to open a dialog box containing all the creation settings for the command. Whenever the option box is used, the settings become the new defaults for that tool.
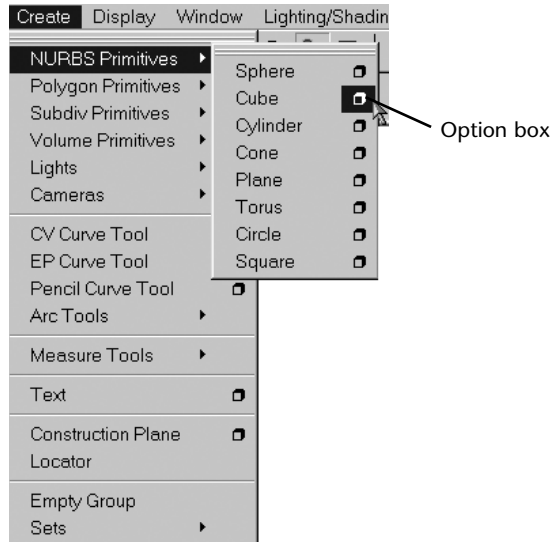
FIGURE 2.4   *Choosing the option box.*

tip

When in doubt, you should always choose the option box and then reset it when you're following tutorials in this book because Maya remembers option box settings even after restarting. That means you won't get the result you expect if the tool has been adjusted before by anyone using your copy of Maya! Simply choose Edit | Reset Settings from the menu bar in the option box to put it back to factory-installed values (see Figure 2.5). In the long run, you'll customize the tools you use frequently so that you don't need to always reset the option box. As a beginner, however, it's easy to forget that you previously changed the settings, and the tutorial you're following in this book might assume they remain in their default settings.
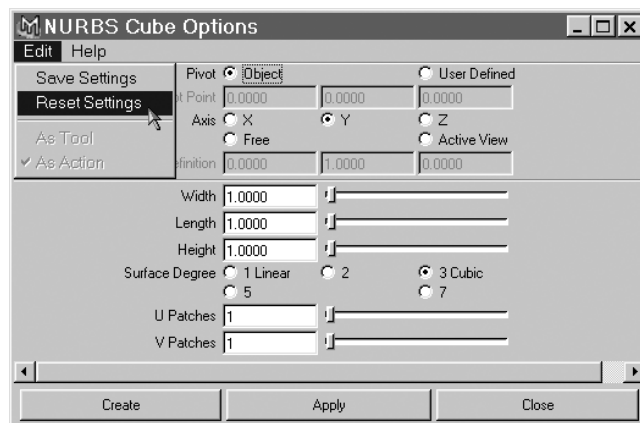

FIGURE 2.5   *Resetting the option box.*

The Status Line

Let's take a closer look at the Status Line shown in Figure 2.6 and explain a few of its alien-looking controls. At far left is the mode selector, described previously in "The Menu Bar" when we explained changing modes.
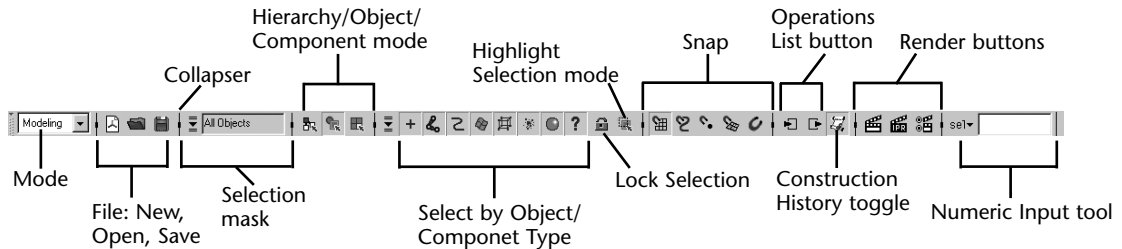

FIGURE 2.6 *Maya's Status Line, a collapsible bar of buttons.*

Next is an arrow bar—a collapser that is a clickable switch used to hide a section of the Status Line. These collapsers let you display what you need and hide items that clutter the Status Line for your current work. When the vertical line has a rightward-pointing arrow in it, something is hidden within it. Next are the typical File icons for New, Open, and Save.

After the File icons is another list box that controls masking "presets" for object selection, which enables you to ignore certain types of objects when trying to select them. The icons to the right of the list box show the masking selections that have been made. Because animating with Maya relies on selecting the right things in the right order, switching off the ability to select only certain types of items makes the process much easier. The selection mask list box acts as a preset for the buttons in the Select by Type area farther to the right. For example, in Animation mode, only joints and handles can be selected (the character's "pull points" for animation) in the Select by Type area; you wouldn't want to select anything else when posing and keyframing. The three buttons to the right of the selection mask enable you to switch between three modes: Hierarchy, Object, and Component mode.

At the beginning, you usually remain in Object Selection mode. Here, you can select whole objects and mask your selection to pick only certain kinds of objects—lines, surfaces, lights, and so forth.

Component Selection mode allows you to adjust subcomponents of an object, such as pulling a sphere into a capsule shape by picking just the top half of the sphere and stretching it out.

Hierarchies are the animation term for linking one object to another. For example, you link the car's tires to the car body so that you need to animate only the motion of the car body—the tires follow automatically. In this case, you say that the tires are children of the body, and the car body is the parent to the tire objects. Maya also uses a tree metaphor with the words *root* and *leaf*. In Hierarchy Selection mode, selection masks let you pick only the parent ("root") or only the children ("leaf")—most helpful when you're setting up object hierarchies, which are discussed in more detail in Chapter 10, "Animation."

The range of buttons to the right of the Hierarchy/Object/Component switches changes depending on which of these three modes you have chosen. When a button describing a type of entity such as curves, surfaces, lights, or cameras (when in Object Selection mode) is pushed in, it can be selected. When it's not pushed in, it cannot be selected. For example, you might want to pick a vase object that was created from a profile spline, but you could accidentally pick the spline instead of the vase object because both coexist, even after the spline has produced the vase. One solution is to hide objects not being edited. However, it's usually more expedient to set the selection mask so that you can pick only surfaces, not curves. If there are many different kinds of objects cluttering the scene, selection masks can become invaluable.

tip

Some selection mask buttons cover several things; for example, the Select by Object Type-Rendering mask covers lights, textures, and cameras. If you right-click over the button, you get the option to enable or disable each of these subtypes. When some subtypes are on and some are off, the button turns brown. For example, if you keep lights selectable but not cameras or textures, the little sphere icon on the button has a brown background to indicate a partially enabled selection.

Next is the Lock Selection button, handy for avoiding accidentally clicking off an object and deselecting it. When you know you want to work on something for a while, you lock it. Next is the Highlight Selection Mode button, a toggle to highlight the selected object in the display, which is on by default. Next are the snap tools, which ease modeling and modifying objects by making it seem as though an object or part of an object is drawn toward another; when the mouse approaches within a certain distance, the entity being moved by the mouse jumps to the nearest snap-to element. The snap-to element could be curves, points, view planes, the grid, or any combination of them. The rightmost snap icon (the big U magnet by itself) makes an object "live," thus turning the object itself into a building template. With this mode, you might use a human face mesh to create a Lone Ranger mask; curves would automatically snap to the face surface.

You use the Operations List buttons to view upstream and downstream connections and enable or disable them. The Construction History toggle is next, and Maya uses it to record construction. All the parameters used to make an object are stored with

the object, allowing you to change them later. Having it on can make files large and slow to load, however, so you might opt to turn it off sometimes. More often, the animator deletes an object's history when the object has been built successfully, instead of turning off all history with this button.

tip

History is not related to the Undo operation. You can have history off and still use Edit | Undo to undo anything. History only embeds the construction history in an object, such as how many divisions are used to create an extruded object. With history on, the animator can return to the project at any time and set more or fewer segments.

The hotkey for undo is Ctrl+z, as in nearly all Windows programs. By default, the Undo option records your last 10 edits, but it can be set to any value, including indefinite, by using Window | Settings/Preferences | Preferences | Undo.

Next are the Quick Render and IPR (Interactive Photorealistic Renderer) rendering buttons. Clicking them pops up a window, and the computer then takes a few seconds to a few minutes (or even hours) to compute a full-quality render. IPR rendering is slower, but when finished, it can update the rendering in near real time as you adjust lights and materials in a scene. The size of the rendering and many other parameters are controlled by the Render Globals window; a button to open this window appears to the right of the IPR button.

Finally, at the rightmost side of the Status Line is the Numeric Input tool. It can operate in four modes:

- **Selection by name** Used to type in a prefix or common letters and select all the objects you want quickly. For example, typing in `*Torus*` would select any object with the letters *Torus* anywhere in the name.
- **Quick rename** Used to rename the currently selected object.
- **Absolute entry** Used to enter an exact value for the current highlighted transform. For example, you can select the Y move arrow when in Move mode, and it turns yellow. Entering a value then forces it to move immediately to that value for the Y-coordinate.
- **Relative entry** Similar to absolute entry, but in this case, the amount entered is added to the current value.

Panel Menus

Every view panel you work in has a common set of pull-down menus listed above it, as shown in Figure 2.7.
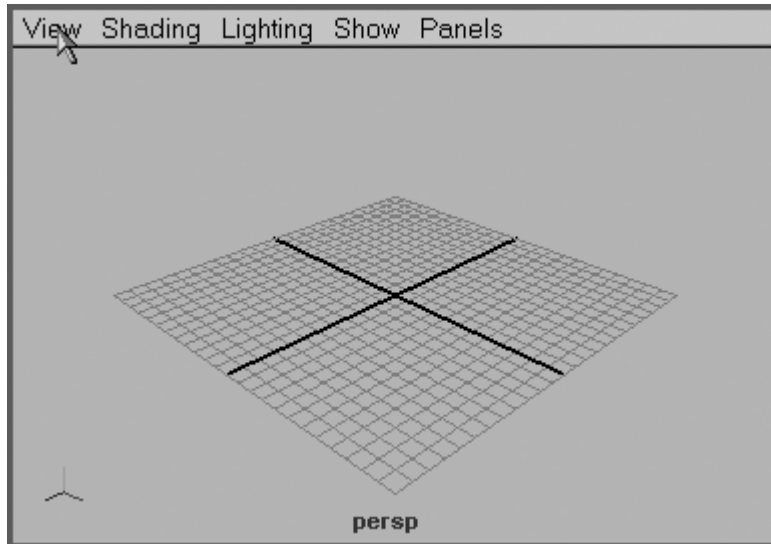
FIGURE 2.7 *The panel menu that appears in any view of the 3D scene.*

tip

If the panel pull-downs are not appearing, you can enable them in Window |
Settings/Preferences | Preferences, and then click the Interface entry under the
Categories list on the left side of the dialog box. Make sure there's a check mark in
the Show Menubar – In Panels check box.

A few of the more important panel menu items are described in the following list:

- Under the View pull-down, you'll see options for Look At Selected, Frame
  Selected, and Frame All. These options are helpful for finding an item and focus-
  ing on it. The Look At Selected option centers the selected object in the view.
  Frame Selected (hotkey: **f**) centers the object and zooms to the object's extents.
  Frame All (hotkey: **a**) centers and zooms the extents of all displayed objects in
  the currently active panel. These same hotkeys apply in other types of Maya
  panels, such as Hypershade.

trap

All hotkeys are case sensitive. If you have your Caps Lock toggled on, it will seem as
though the hotkeys aren't working or aren't doing what you expect them to.

- Under the Shading pull-down, the first two entries are Wireframe (hotkey: **4**)
  and Smooth Shade All (hotkey: **5**). These options toggle a viewport between
  viewing objects as lines only or as Gouraud-rendered real-time shaded images.

An important option to note is the NURBS detail mode. When you're working with NURBS, you can display them in three detail levels: low (hotkey: **1**), medium (hotkey: **2**), or high (hotkey: **3**). These hotkeys work only with NURBS.

■ The Lighting pull-down has an option for using the lights in the scene (hotkey: **7**) with this panel's Shaded mode. Normally, Shaded mode uses default lights, which are minimal and serve to get some light in the scene when you just need some fast calculating light.

■ The Show pull-down lets you selectively hide all entities of a certain type. For example, you often use it to hide cameras and lights, just to clean up the view so that you can focus on the objects. At the bottom of this pull-down is an option to hide the grid, which is useful when you want simplicity in the view.

■ Under the Panels pull-down (see Figure 2.8), the top three options allow you to select what the panel is seeing in a 3D view. The first option is for Perspective, with the option to use any predefined Perspective view or add a new one. If you do add a new one, you'll see it listed the next time you look at the Perspective view options. The second option is similar; for orthographic views, you have the option of existing Top, Side, or Front views, but you can create new ones. The third option, Look Through Selected, works with Directional and Spot lights so that you can see exactly where they are pointed. It also works with nearly any object type, merely placing you at the pivot point of the entity, looking in the negative-Z direction.

The next three options let you change the entire layout of the panels. The Panel item displays options that let you switch the selected panel to some other window, such as a rendered view or the Graph Editor. Note that all these other panel types can also be activated as floaters under Window on Maya's main menu bar. However, any panel that's already open as a floater is unavailable in a fixed panel position and will be grayed out in this dialog box. Next is Layouts, used to determine how the view area is split into windows. Below it is Saved Layouts, which is similar to the Quick Layout buttons below the Tool Box. Ten popular layouts are listed, as opposed to the six that appear as hot buttons below the Tool Box. You can create your own custom layouts, too.
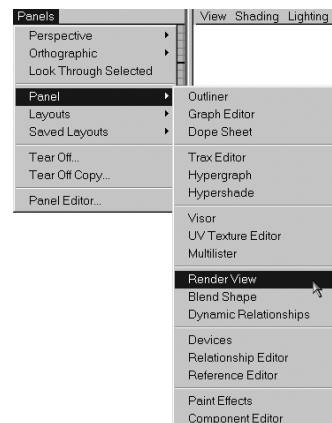

FIGURE 2.8   *The Panels pull-down on the panel menu.*

tip   You can LMB-click and drag at the dividing line between any two or more panels and move it to favor one panel over the other. You can also do this at the center point of four panels.

Tutorial: Interacting with Maya

The following tutorial gives you a chance to try out some of these hotkeys and key combinations. Because these actions are the most fundamental ones in Maya, run through this tutorial a few times so that it becomes more of an internalized skill, like typing or playing a musical instrument. As any typist or musician knows, repetition is the key!

1. Load the scene file called ch02tut01.mb from the CD-ROM. It has some NURBS and polygon primitives already created for you to interact with.

   On the CD

   Chapter_02\ch02tut01.mb

2. Hold the cursor over the Perspective view and tap the spacebar. The view should toggle to full screen.

3. Hold down the Alt key and use the LMB, MMB, and both mouse buttons together to navigate around the objects. Try to get a good view of the NURBS torus.

   On the CD

   Chapter_02\movies\ch02tut01.wmv

4. Select the NURBS torus. It should become outlined in green. Press **2** and notice the improvement in detail. Then press **3** to see it improve again (see Figure 2.9). To put it back into its original state, press **1** again. Leave it in "3" mode—the highest detail.
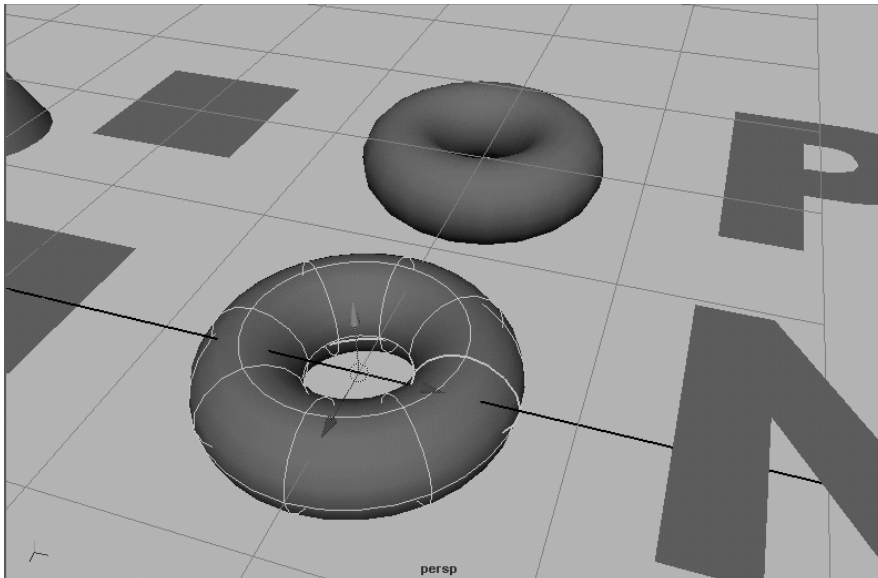

FIGURE 2.9   *A NURBS torus in high-detail mode.*

5. Use the Alt key with the MMB to pan to other NURBS objects and adjust their display detail. Note that the plane and the cube do not gain detail despite the added divisions because they have no curved edges. Also note that the NURBS cube is created as six separate NURBS planes.

6. Press **4** to switch the panel to Wireframe mode. Press **a** to use the Frame All (also known as Zoom Extents for All Objects) option. Hold down Ctrl+Alt and drag a window to zoom in on the six leftmost objects.

7. Click on the polygonal cylinder to select it, and press **f** to use the Frame Selected (Zoom Extents of Selected Object) option (see Figure 2.10).
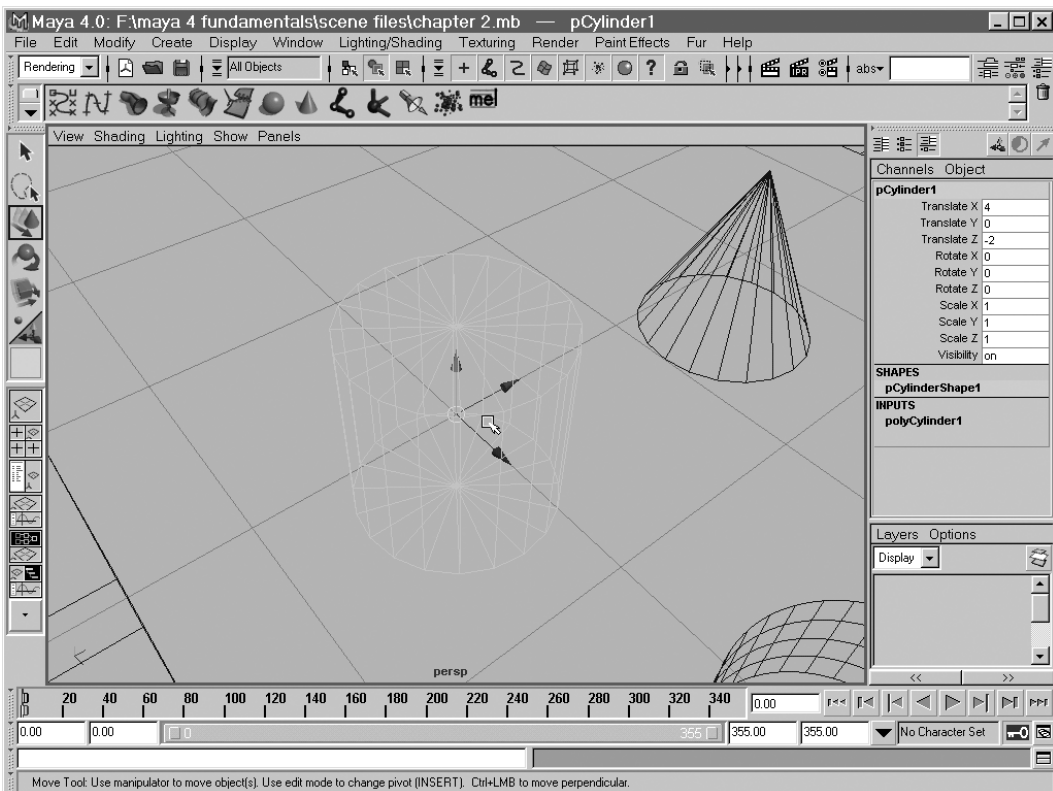

FIGURE 2.10 *Wireframe mode, zoomed into the polygonal cylinder.*

8. Tap the spacebar with the mouse cursor placed over the perspective panel to reveal the four views. Go to any of the four panels, and in the panel menu, choose Panels | Layouts | Three Panes Split Top.

9. Place the cursor on the horizontal split point of the panels, and LMB-click and drag downward to make the bottom panel smaller. Set the bottom panel to view the front orthogonal view by choosing Panels | Orthographic | Front in the panel menu.

10. Right-click in the Top view to activate it. Notice that right-clicking enables you to activate a view without deselecting a currently selected object. LMB-click and drag a rectangle around the letters at the right of the geometric primitives (see Figure 2.11).
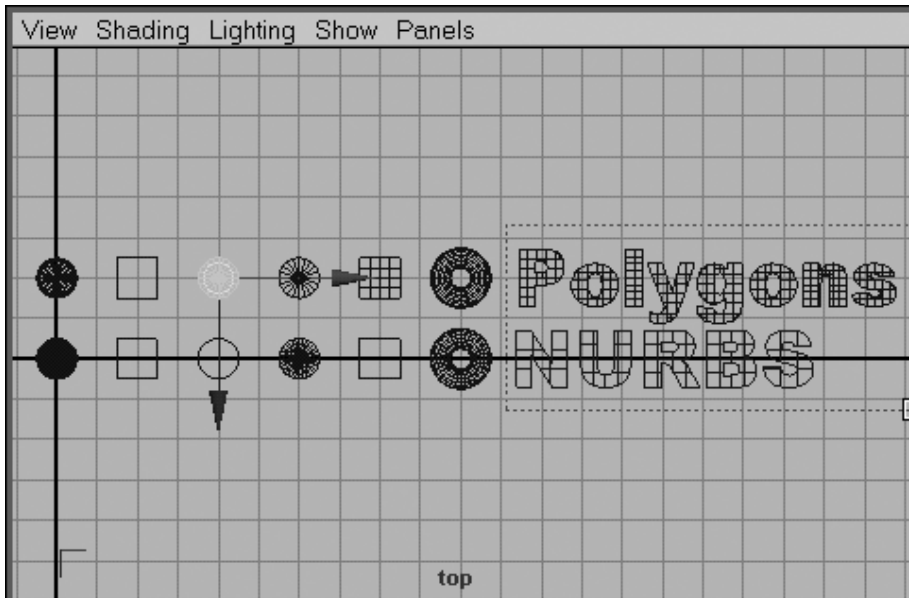

FIGURE 2.11   *Dragging a rectangle to select multiple objects.*

11. In the Top view's panel menu, choose View | Look At Selection. The text items will be centered. Tap the spacebar with the mouse cursor placed over this panel, and the view will switch to full screen. Press **5** to switch this view to Shaded mode. Press **1**, **2**, and **3** to watch the NURBS text display different detail levels. Notice that the polygonal text is unaffected.

12. Click on the number 0 in the Range Slider, and while holding down the LMB, drag the mouse slowly to the right. You should see the polygonal torus move. This object had animation applied to it when you loaded the scene. Drag the Range Slider back to the far left, and the torus should return to its original position. Now select the torus by clicking on it. In the Time Slider, vertical red lines should appear to indicate the frames at which keys have been created (see Figure 2.12).
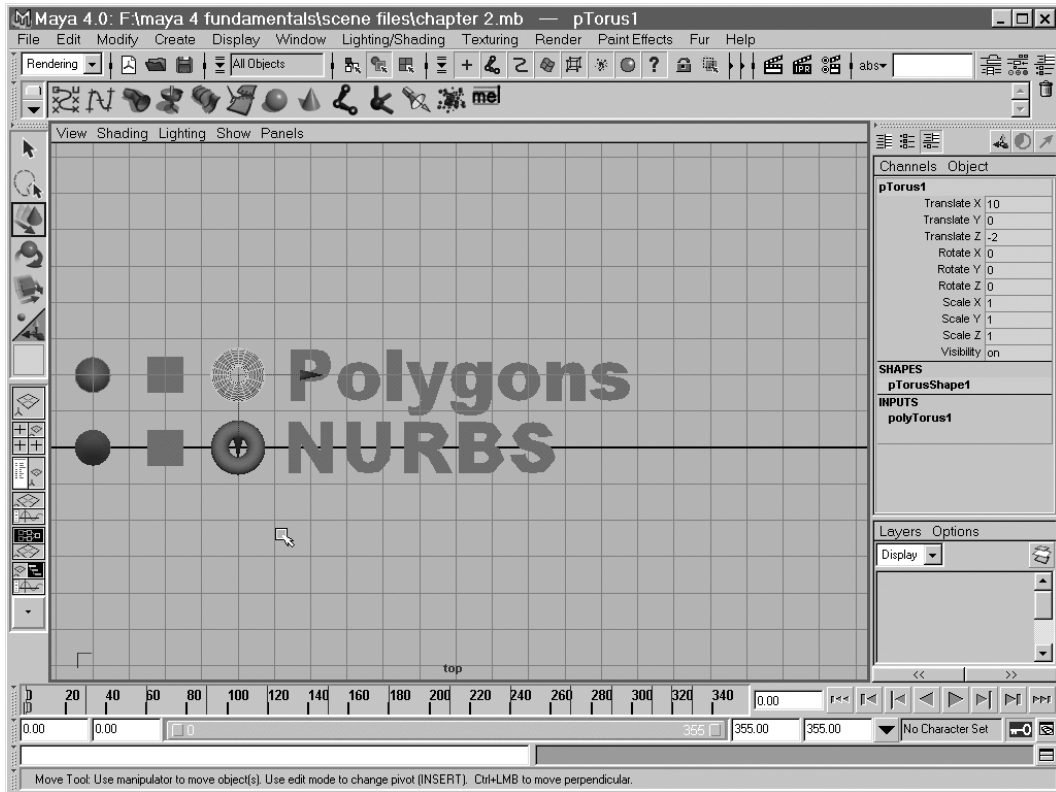
FIGURE 2.12   *The Time Slider displays keyframes for the selected object with a vertical line.*

13. Click the next key button at the lower right: the play button pointing right, with the vertical red line at the point. This hops you forward in time to the next key point. Repeat to see the jumps. Then click the play button, the right-pointing arrow. View the animation playing back. The play button becomes a red square during playback—the stop button. You must click it to stop playback.

14. Change this view to the Perspective view by choosing Panels | Perspective | Persp from the panel menu. Play the animation again. Tumble, track, and dolly the view as the animation plays to center the action and get a good idea of what's going on. Stop the animation playback.

tip   You can stop playback with the Esc key or by clicking the stop button (the same button clicked to begin play).

15. Press **f** to zoom to the polygonal torus. Now bring in the time ranges to 250 to 320; to do that, type those numbers in the two inner number fields below the Time Slider, or LMB-click and drag the little boxes in the Range Slider. Scrub the Time Slider to see what happens by LMB-clicking and dragging left and right. Begin playback again, and adjust the view during playback. Figure 2.13 shows what the scene should look like when you're done. If you like, load the file noted next to the CD icon to compare it to your work.
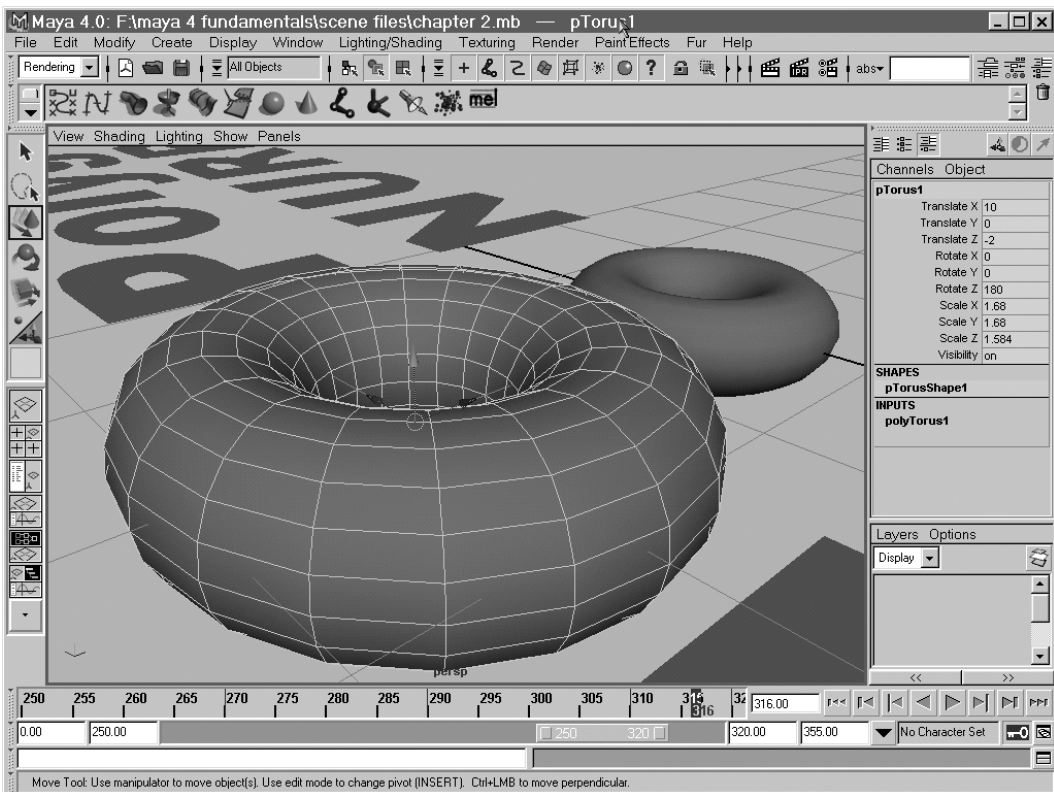
On the CD

chapter_02\ch02tut01end.mb

FIGURE 2.13　*The scene at the end of the tutorial.*

Going Further

Repeat the tutorial several times, and each time try to manipulate things differently. Explore the zoom-window option for zooming in and out of a rectangular selection window you've drawn. Try some of the different panel layouts (in any panel, choose Panels | Saved Layouts), including Hypershade and Hypergraph, and note how you can zoom and pan these panels the same as with 3D view panels.

The Hotbox

Maya's Hotbox is another way of getting to the same pull-downs as in the menu bar. To activate it, hold down the spacebar. The Hotbox is centered over the mouse cursor's position at the time the spacebar is pressed, so you'll want to be somewhat in the center.

To see the entire Hotbox, click in the Hotbox Controls section on the right-hand side of the window, and drag the cursor over the Show All option (see Figure 2.14).
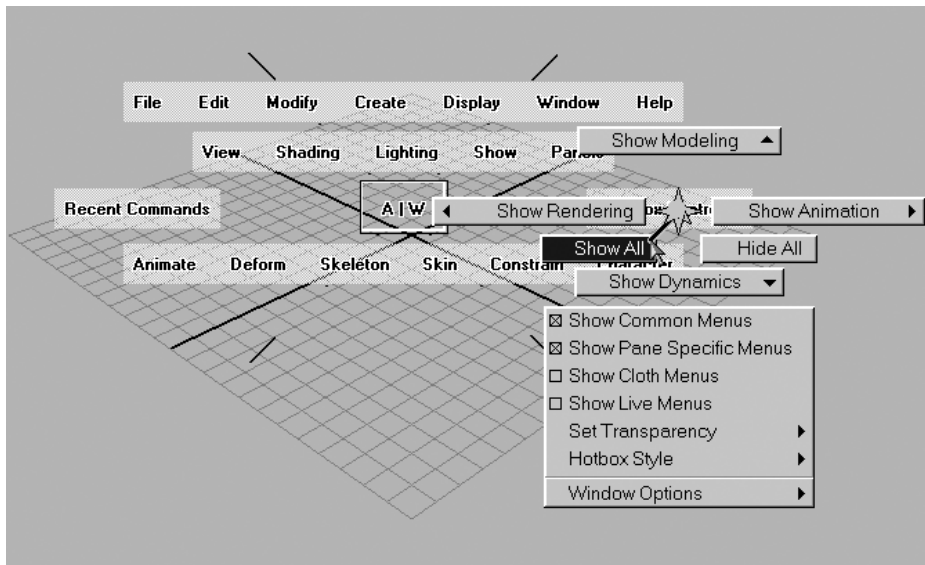

FIGURE 2.14   *Turning on all Hotbox options.*

Now the Hotbox displays every option. Here, in one panel, is every single Maya command. In addition, there are five zones with special options. To see them, click on the top, bottom, right, left, and center (the A|W logo box) of the Hotbox. New menus will appear, as shown in Figure 2.15.
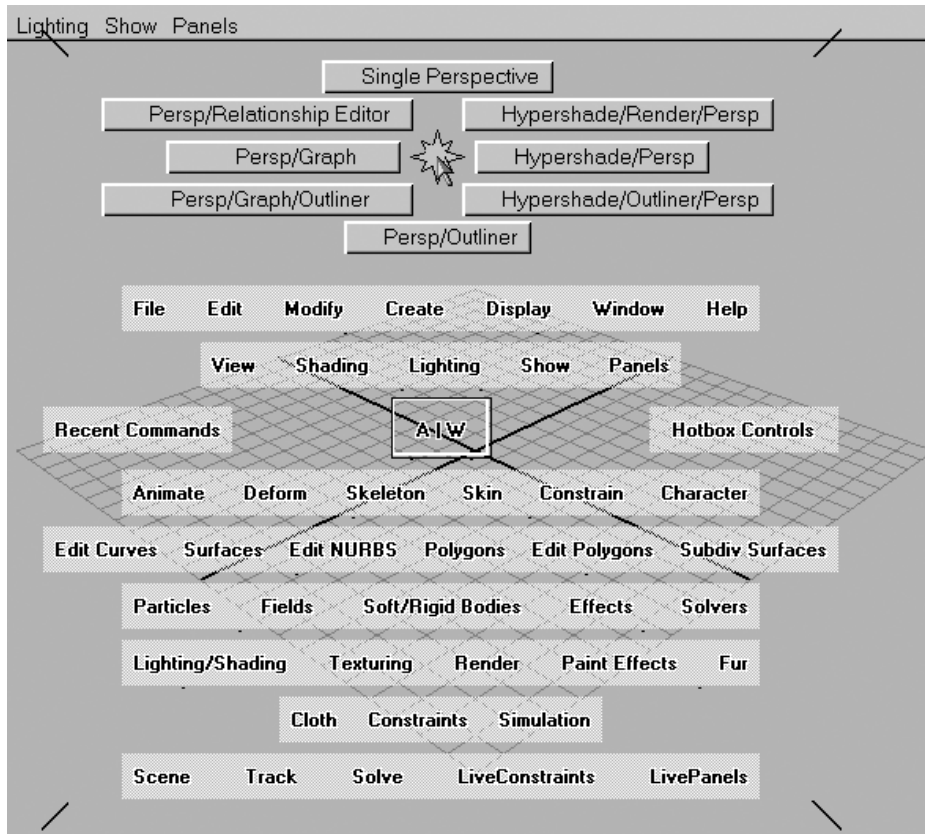
FIGURE 2.15 *Clicking in the top Hotbox zone.*

Going Further

We have only touched on the Hotbox in this chapter, but use this opportunity to explore it more. Try each of the five Hotbox zones, and activate the modes that appear there. You can change panel layout, panel view, and enable and disable parts of the user interface, among other things.

Summary

Having toured the interface, you have learned to interact with Maya's virtual world so that you can see the things you want to see, from the angle you want to see them, and shaded the way you want. We have also begun to develop a common language for the parts of Maya so that you can tell the Tool Box from the Channel Box. Here's a short list of what you've been exposed to and, we hope, have begun to internalize:

- **3D manipulation with Alt+mouse button**   A core skill you will need every time you want to change the view in a Maya panel.
- **The Hotbox**   Even if you aren't using it yet, you can begin to explore what it does and see how it can make working with Maya more efficient.
- **Playback, scrubbing, and time range**   Essential skills for creating, editing, and viewing your animation.
- **The names**   A common language for the Maya interface components so that you can understand the rest of this book.
- **Zoom windows, zoom extents**   When you get lost in a 3D view panel, these actions bring you back to your work quickly and easily.
- **Panel layouts**   You'll use them to quickly reset the interface to one that's optimal for the task at hand.

These are truly the fundamental tasks and concepts of Maya. The key point to take from this chapter is 3D view manipulations. After practicing the Alt+mouse movements for a few hours, they should start to become second nature, and you'll benefit from a more instinctive use of the Alt+ manipulations as you move on to learn new things. From this point, you're ready to learn how to create and modify scene elements, such as objects, lights, and cameras, and to round out your knowledge of Maya's pull-down menus.