

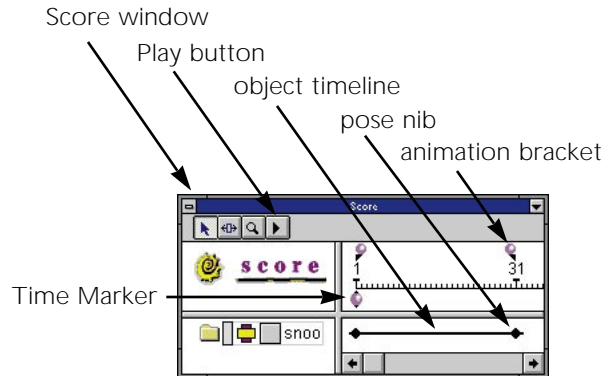
# 13

## animation

### A short animation



Let's make a short animation. Here are the names of the things you'll be using this time around — you can find a complete chart at the end of this chapter.



1. Get a word into Pixar Typestry and position it at the left side of the project window.

2. If the Score window's not showing, select Score from the Windows menu, or click on the Score icon in the Toolbar. Make the Score window wide enough to see the rightmost animation bracket.

3. Drag the animation bracket to the "31" tick mark.

4. In the Score window, drag the pose nib (little black diamond box to the right of the double line) over to the tick mark just before the "31" tick mark.

You've just set the length of the animation to 30 frames, or one second.

5. Double-click on the pose nib you created. This moves the Time Marker to where the nib is, letting you set what's happening at the time represented by the position of the nib.

6. Move the text to the right side of the project window. Now the text will start out at the left and end up at the right.

Remember this: move the Time Marker first, then move the text. Whenever you do something in the



project window, you do it only at the time represented by the Time Marker.

7. Move the Time Marker about halfway in between the two nibs.

8. In the project window, move the word to the bottom of the screen. You'll see a new nib appear on the word's timeline.

- Wherever you see a nib on an object's timeline it means "the object has an appointment at this time to be somewhere."

9. Using the Rotate tool, rotate the word a bunch.

If the word gets in a weird position, just use Undo, or Reset Orientation from the Edit menu.

10. Click on the Play button at the top of the Score window. You should see a box moving around the screen where the word would be, twirling as it moves down and across the screen from one side to the other, over and over. Click anywhere to stop the animation.

That's it. It would be a simple step to render all the frames and make an AVI movie, but we just wanted to show you how easy it is to set up a simple animation.

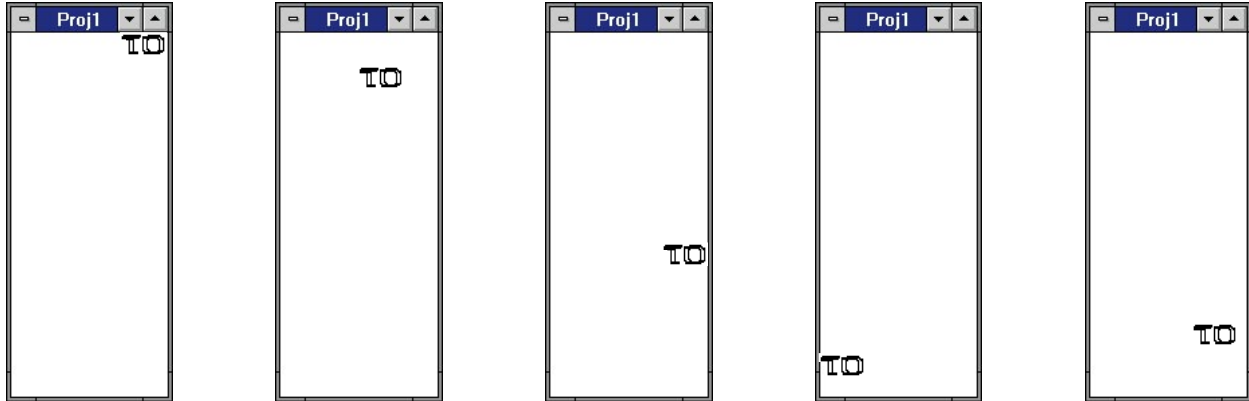
Now if you're the type who's ready to plunge ahead expecting to be the next Walt Disney without further ado, hang on just a little while longer.

So, class, what have we learned in our introductory lesson?

- Use the Time Marker to show you where you are in time.
- Using one of the tools on an object freezes it in space (in the project window), and in time (as a nib in the Score window).
- Use the Play button to play a rough version of an animation.

What you did was to pick a few points in time, and then determine where an object should be at those times. Typestry then calculated where the object should be in between those times. This is called "tweening" (or "interpolation" if that makes you feel better).

As you can see, you can create simple animations of your text with the controls in the Score window. A finished animation consists of a series of rendered frames, which can be used either as the raw material for an AVI movie, video, or for some other animation software.



## The Pose

Each pose nib (little black box) in an object's time-line implies four things about the object, corresponding to the four tools that allow you to change an object:

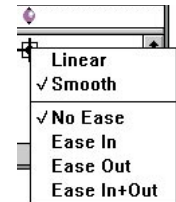
- position
- orientation
- size
- slant (skew)

These four characteristics define an object's *pose*. The way poses change over time defines an animation.

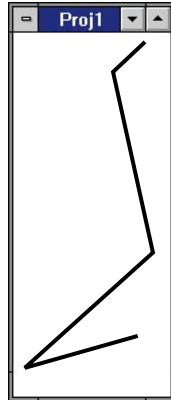
- In the Score window, each pose nib on a time-line represents a pose.

The path an animated object takes is defined by its position in some number of poses. Let's say you have five poses, equally spaced in time, that look like the ones above.

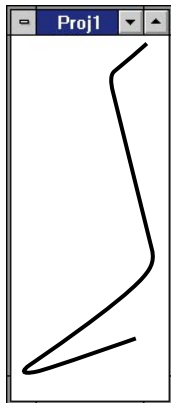
The object will follow a path that passes through all five of the object's poses. The *shape* of this path is determined in a popup menu. To get this menu, click and hold on a pose nib.



**Linear.** This moves the object in a straight line from pose to pose, creating sharp corners where it changes direction.



**Smooth.** This moves the object in a tight curve as it changes direction. The shape of the curve is affected both by where the object is coming from, and by where it's going.



The four bottom items on the menu control not the shape of the path, but an object's *speed* near a pose.

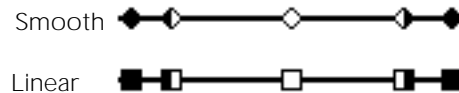
**No Ease.** This moves the object at a constant speed as it passes through the pose.

**Ease In.** This decelerates the object as it arrives at the pose. At the moment of the pose it speeds up to its previous speed (before the deceleration). As it leaves the pose, the object moves at a constant speed. This is often useful when an object arrives somewhere (so you never see the speed jump as it leaves).

**Ease Out.** This moves the object at a constant speed approaching the pose. At the moment of the pose the object slows down, and is accelerated back to its previous speed as it leaves the pose. This is often useful when an object is leaving somewhere (so you never see the speed jump as it arrives).

**Ease In&Out.** This decelerates the object as it arrives at the pose, and accelerates it leaving the pose.

Each pose type has its own nib shape. Below, the nibs shown are, from left to right: No Ease, Ease Out, Ease In&Out, Ease In and No Ease.



When would you want to ease in or out? Well, easing is often perceived as a more “natural” motion for many things. It’s impossible, for example, for things to reach some speed without accelerating to get there. But, as usual, in computer graphics the impossible is not only possible, it’s all too easy. Similarly, unless you’re trying for a crash effect, decelerating to a stop is often desirable. However, there is a place for everything — if you’re simulating the billiard ball effect, you’ll want no easing and linear motion. For this situation, those settings will make for a more “natural” motion. Be sure to play around with different types of motion when you create your animations. They can add subtle effects that heighten the sense of motion.

While it’s quite easy to make an object move in Typestry just by changing its position in some poses, you can also change the other characteristics of the object’s pose. Resizing it in another pose will make it grow or shrink, and rotating it will make it twirl. In any pose you can change any or all of the object’s characteristics.

Don’t forget that since you can move a light’s position in the Lights window, you can animate lights, too. You can make them track objects, or make the sun seem to rise.

- Note: Typestry provides a good way to get started doing simple animations. If you’d like to do fanci-

er animations, you may need to look at packages designed specifically for animation. Also, if you would like to get an animation into video, you’ll have to think about a number of issues Typestry was not intended to address, for example NTSC vs. PAL formats, NTSC “forbidden” colors, and so on.

Before we move on, there’s something you must remember as you start to make animations, or you will surely curse yourself. You must *first* move the Time Marker to where you want it, and *then* set the object’s pose (move the object). So now repeat this mantra:

- “First move the Time Marker, then set the pose. First move the Time Marker, *then* set the pose.”

A common mistake to make when doing animation in Typestry is to move something, then move it somewhere else, then somewhere else, all the while leaving the Time Marker in one place. Nothing will animate unless an object changes position *over time*. The way to go to a new time is to move the Time Marker, or to select Jump Forward from the Motion menu.

Jump Forward skips ahead by the number of frames set in the Animation Settings dialog, available by selecting Animation Settings from the Motion menu. Naturally, you can go back the same number of frames by using Jump Backward, also under the Motion menu.



## Poses and groups

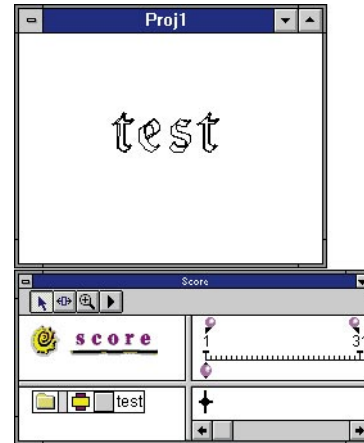
As we said before, an object's four characteristics define its pose. Well, the fundamental thing to understand about a pose is that *it defines a relationship*.

Let's look at the characteristic of position. Perhaps the most obvious way of describing a word's position is by saying something like, "It's in the middle of the window." But if we're talking about a letter in a word, you might say something like, "It's at the end of the word." In the first case the description was relative to the window; in the second it was relative to the word. This is exactly analogous to the way Typestry keeps track of things.

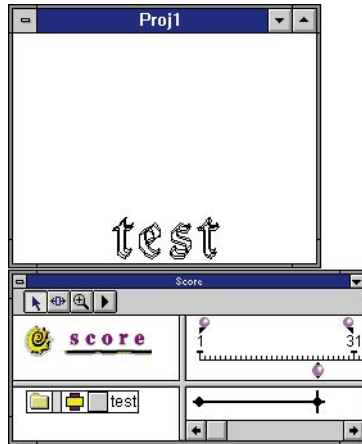
Now let's do a little experiment. This will prove that:

- Objects that are members of a group move relative to the *group*.
- Objects that are *not* members of a group move relative to the *window*. (For example, a word that's the only group in the scene isn't a member of another group, so it moves relative to the window.)

1. Get the word "test" into Typestry, near the middle of a squarish project window.



2. With the Score window showing, move the Time Marker about 3/4 of the way to the “31” mark, then move the word down to the bottom of the project window.



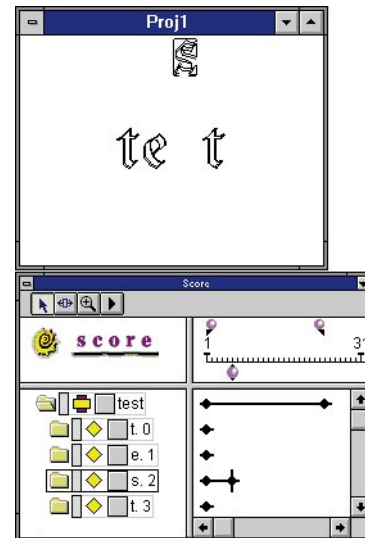
3. Run the animation by clicking on the Play button at the top of the Score window. (Make sure the animation brackets are placed appropriately.) You should see the word move from its initial position down to the bottom of the window.

4. Now open the word group by clicking on its folder icon in the Score window.

Notice that although you created a new pose for the group, there are no new poses for the individual letters. You don't see new poses for the letters because their position, orientation, etc. *relative to the group* haven't changed — they're all still in their proper place within the word.

5. Move the Time Marker most of the way back to the first frame.

6. In the project window, select the “s” by double-clicking on it, and move it up to the top of the window.



7. Run the animation again. As the word moves down you should see the box representing the “s” shoot upwards, then drift down as the rest of the word does.

Rather than thinking you moved the letter higher in the window, since it's a member of a group you should think that you made that part of the group higher than the rest of the group. You changed the letter's position *relative to the group*, not relative to the window. That's why when the letter finished its own motion, the word's motion affected it.

If the word were twirling in place instead of falling, the “s” would be twirling too, of course — it's part of the word. It would just be higher than the rest of the word.

Leave this project window as it is — you'll need it in a minute.

So, to review:

- The characteristics (pose) of an object that is not a member of a group are relative to the 3-dimensional “space” inside your project window.
- The characteristics of an object that is a member of a group (e.g., a letter in a word) are relative to those of its group.

## Grouping and ungrouping

Now that you know about the motion of groups and their elements, the next step is to realize that you can:

- separate an element from its group to allow the element to move independently;
- control two objects at once by combining them into a group.

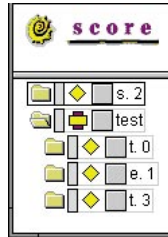
In addition to the above, in this section you'll learn a handy trick:

- how to delay movements

So, what if we wanted the “s” to stay at the top of the window? Well, we could just move it there in the very last pose, but how could we be sure it wasn't just a little too high or too low in that pose? Instead, let's just remove it from the word and treat it as a separate object:

1. Take it out of the word group by dragging it (by its gray drag bar) up above the “test” group in the Score window. Now there are two objects at the highest level: the “s” and the “tet.”





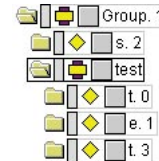
2. Run the animation.

The “s” moves up and stays there. Its movement is no longer relative to the rest of the word. But if we ever want the “s” to be part of the word again we’re hosed — there’s no connection between the two. So let’s say we want to twirl the whole word when the “te t” reaches the bottom. What do we do?

Here’s where the tricky part comes in. We can’t just stick the “s” in the word again, because it will fall along with the word, after it reaches the top. We already know that. The trick is to have everything, all the letters, really be parts of one object again — one group. All we need to do is create a new group that contains both the “s” and the “tet” group, and twirl *that*:

3. In the Score window, select the “s,” then select Group from the Edit menu. This creates a group with just the “s” in it.

4. Move the “tet” group into the new group by *slowly* dragging it to the right, and slightly upward until the purple cursor is under the drag bar of the “s.” (If you’d like to review how to reorganize groups, and the behavior of the cursor, see the section on “Using the tree” in the *Group Therapy* chapter.)



5. Move the Time Marker all the way to the “31” mark.

6. In the project window click on some empty space to ensure that you have nothing selected, then click on any of the letters to select the new group and twirl it some using one of the Rotate tools.

7. Run the animation again.

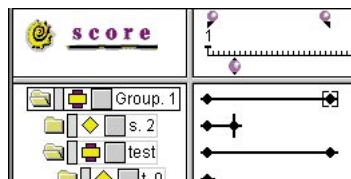
Uh-oh! We wanted the group to twirl *after* the “te t” reached the bottom, not while it was on its way there. We need to keep the *group* stationary until the right time. How do we delay it’s rotation until later?

Remember, the group isn’t moving relative to anything but the space in the window. And at time 0



the *group* was just the way we want it to be when the rest of the word reaches the bottom of the window. All we need to do is copy that first pose over to the time when the rest of the word reaches the bottom of the window. That will prevent the group from twirling until that point:

8. In the Score window, hold the Ctrl key down and drag the group's initial pose even with the last pose of the "tet" group. This makes a copy of that pose.



9. Run the animation again.

So don't forget, when you need to change relationships for a while, ungroup an element, and then create a group that contains both the element and old group.

Save or close your project now.

## ***And now for the “really big shew...”***

Ok, now that you're warmed up, let's try making a more complete animation using a combination of tools and poses. Then you'll *really* be the next Walt Disney. First, get a new project window and make it wider than it is tall. Then:

1. Click on the Text tool to bring up the Details window, and type in and Add the word “Fly.”
2. Use the Scale tool to make the word about half an inch high on your screen.

Let's have the large-scale movement be from upper left to middle bottom to upper right. And let's have the word get bigger as it nears the bottom. After all, you can have more than one kind of motion at once:

3. Using the Move tool, move the word into the upper left quarter of the window.
4. In the Score window, move the Time Marker halfway to the “31” tick mark.
5. In the project window, scale the word so it's about twice as big, and move it to the bottom in the middle of the window.

6. Now move the Time Marker all the way to the “31” mark, and move the word into the upper right quarter of the window.

7. Run the animation by selecting Run Animation from the Motion menu. You should see the word move down as it grows, and then move up to the upper right.

You with me so far? Good. Now let’s take advantage of the ability to move things at different levels and overlay some movement by individual letters. We’ll have the “y” get lost and catch up with the word, while the “F” twirls on its way down. Let’s do the “F” first:

1. In the Score window, open up the word by clicking on its folder. Now you can see the timelines for the individual letters.

2. Slide the Time Marker halfway between the word’s first and second poses.

3. In the project window get the Rotate tool and double-click on the “F.” This selects the letter.

4. Click on it using the second mouse button. This brings up the Rotate dialog. Type “180” in the dialog and click on the left-most axis, then on OK. This rotates the letter forward so it’s upside down.

To get the “F” to twirl the rest of the way we could rotate it 180° again when it reaches the bottom (where the word’s middle pose is). But there’s a more elegant way. Did you notice that what we want is for the letter to have the same *relationship* it had with the rest of the *group* at the beginning — same position, size, and orientation? I knew you did. Same relationship = same pose:

5. In the Score window select the “F’s” first pose. Holding down the Ctrl key, drag the pose directly underneath the word’s middle pose. This copies the pose, restoring the letter’s original (right-side up) relationship with the word.

Run the animation (Ctrl-L) to check this out. Now for that poor “y.” Like the “F,” let’s have the “y” be back to normal by the time it reaches the bottom:

6. Drag the “y’s” initial pose out to, oh, just before the word’s middle pose. This way it will rejoin the word just before it reaches bottom.

7. Set the Time Marker about where the “F’s” middle pose is.

8. In the project window use the Move tool to move the “y” near to the upper left corner of the window.



9. Move the Time Marker so it's halfway between the "y's" last two poses, and move the "y" so it's just above and to the right of the "l."

Run the animation again to view the fruits of your labor. And now for the finishing touch. After the word arrives at the upper right, let's have the "y" fall on the floor. We'll build in a pause before the fall for dramatic effect:

1. The final position of the "y" will be on the floor. This is the end of the animation. Since it's some time after the arrival of the word in the upper right, set the Time Marker about halfway between the "31" and "61" tick marks.

2. Move the "y" straight down (using the Shift key to constrain its movement) to the bottom of the window.

3. Using the Rotate tool and the second mouse button, rotate the "y" forward 90° (use the left-most axis in the Rotate dialog again).

4. Now take a look at the scene from the Left View — pull down the View menu, then select From Left (or Ctrl-2).

(Don't let those camera views go begging to be used. Use them with abandon!)

5. The letter is *underneath* the word. This is because an object rotates around its center, not its base.

6. Using the Move tool move the letter to the right so it's just barely out from under the rest of the word. You'll have to sort of eyeball this. (But you might be able to use the Top View to check it — Ctrl-3.) When you're done go back to the Front View (Ctrl-1).

Run the animation again.

Surprise! We forgot to make sure that the "y" doesn't start to fall until *after* the word arrives on the right. Instead, it starts when it rejoins the word halfway through. What to do, oh *what* to do?

Well, remember, we want its *relationship to the word* to continue unchanged until sometime after the "31" mark. So we'll copy the pose where it's joined up with the word (currently the word's next-to-last pose) over to around 40:

7. Select the "y's" fourth pose; holding down the Ctrl key, drag it to around 40, just a couple of frames before the very last pose.

Now. Run the animation, sit back with a cold one and survey your work. Ahhh, a job well done! What?! The pause before the "y's" fall is too long?

Piece of cake — moving a pose along the timeline adjusts the timing of the move:

1. Select the “y’s” last two poses (using the Shift key to add the second one), and drag them to the left some.

Why not render it to a wireframe movie? It’s only about 45 frames. Or...

You could change the length of the animation! It’s easy — you can use the pose scaling tool to resize the length of all the lines at once:

2. In the Score window, drag a selection box around all the poses *except* for the initial ones.
3. Set the Time Marker to the very first frame.
4. Select the Score window’s pose scaling tool (to the left of the zoom tool).
5. Click and drag the last pose to the left or right. Dragging right lengthens the animation, left shortens it.

For extra credit you could:

- Add eases (in and out) where appropriate — at the beginnings and ends of movements. Click and hold on a pose nib to bring up the ease popup menu.

- Adjust the path of the “y” as it catches up to the word by adding poses. You could make it travel in a circle by positioning the letter at a few key points evenly spaced in time. Don’t forget — move the Time Marker, then move the letter.

- Adjust the timing of the various segments. Select the group of poses associated with a segment by dragging a selection box around them, or by holding down the Shift key while clicking on individual pose nibs. Then drag them left or right, earlier or later in time.

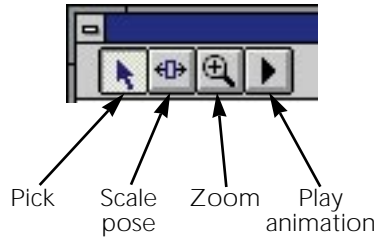
- Delay the scaling of the word until it reaches the bottom. Hint: use Reset Scale from the Edit menu on the pose at which the word reaches the bottom.

## Organizing poses

Most of the time you’re dealing with poses you’ll need to have the Score window’s Pick tool selected. If you have the Zoom tool selected, the more you click trying to select a pose, the more you’ll zoom in! To zoom back out, hold down the Ctrl key while zooming.

Whenever you need to alter poses, you’ll have to click and drag *on* a pose, not *near* it.





### Creating a new pose — “freezing” an object

There are two ways to create a new pose for an object:

- In the Score window, set the Time Marker to a time in the timeline, then select the object and adjust it in the project window.
- In the Score window, select the object, then hold the Ctrl key down and click on a time in the timeline for the object.

A new pose nib will appear in the Score window, indicating a pose for that object at that time. This ensures that the object will remain as it is at that time, no matter what happens in the previous or subsequent frames. (Just delete the pose nib to allow the object to resume the pose implied by the frame before and after.)

- Note: Using any of the tools in the Transform toolbox on an object automatically “freezes” that object into a pose.

If you want to allow an object to take on a pose implied by poses before and after, all you need to do is unfreeze the object. Just delete the pose from the timeline. For example, deleting the third pose above would result in a path something like the one below right.

- Warning: Remember, the Delete key deletes whatever you have selected in either the project window or the Score window. Hitting Delete when the project window is active will delete any selected *objects*! Likewise, in the Score window hitting it with an object selected deletes the object. However, with a pose nib selected, the *pose* will be deleted, not the object.

### Selecting poses

To select a pose, just click on a pose nib on the object's timeline. You can select multiple poses to work on by dragging a selection box around them. Holding down the Shift key while clicking on a nib adds or removes it from the selection.

- Warning: When you select a pose you won't see how the scene looks at that time. To do that you must double-click on the pose (or hold down the

Shift key while sliding the Time Marker, so it snaps to poses). This moves the Time Marker to the time of the pose.

### Moving a pose — adjusting timing

Moving a pose is one of the most useful animation features of Typestry. It provides an easy way to change an object's speed.

You can move one or more poses anywhere along a timeline by clicking and dragging them. Beware though: moving one pose beyond another one can play havoc with the already-established movements.

Consider the case of two poses that make an object move from left to right in 24 frames. Let's say you create a new pose at frame 12, halfway through the animation. Then you move the pose to frame 20. The object is still going to be halfway across the screen in this frame (you haven't moved the object); it will just take longer to get there — 20 frames instead of 12. And the rest of the distance will be covered in just four frames. So the object will appear to move slower for the first half of the distance, and faster for the second half.

Remember: Click and drag *on* a pose, not *near* it.

### Scaling poses — adjusting duration

You might want to stretch or squeeze the action in a part of an animation. There are a couple of ways you can do this. One is by dragging the beginning and ending poses of the section out some, until they run into other poses. However, there are tools to stretch and squeeze in more interesting ways. You can effectively resize just a portion of an object's timeline. The Time Marker acts as a reference point, controlling how the resizing behaves — whether one end is stationary while the rest of the line section moves, whether the middle stays where it is while both ends move, and so on. The farther from the Marker a nib is, the larger its motion is.

Here's how you do it. With two or more poses selected:

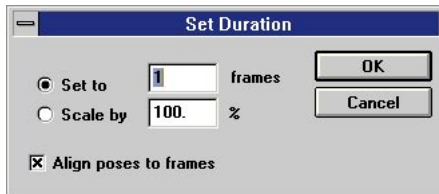
1. Select the Pose Scale tool in the Score window (to the left of the Zoom tool).
2. Drag the Time Marker to the point around which you'd like the line to scale.
3. Click and drag the poses along the timeline. This will resize only the selected section of the timeline without regard for points on the rest of the line. This may mean that the selected poses expand out beyond other ones.

-or-



3. Hold down the Ctrl key while clicking and drag the poses left or right. This resizes the selected portion, and pushes out (or pulls in) the right-hand unselected portion of the line (without scaling it) as needed. The left-hand unselected portion is untouched. The whole timeline's length will change. In other words, the selected poses expand out (or in), moving some outer points out as well. This is the “smart scale” mode.

If you'd like to change the duration of the whole animation, you can use the Animation Duration dialog instead of using the Score window's Pose Scale tool on all the poses. This allows you to use a single number to adjust everything at once. Just select Set Duration from the Motion menu. This brings up the Set Duration dialog.



**Set to.** This scales the animation to a particular number of frames.

**Scale by.** This scales the animation by a percentage.

**Align poses to frames.** In scaling an animation, when the individual poses move around they may or may not line up on frame boundaries. Checking this box forces each pose to align to the nearest frame. The tradeoff for this convenience can be some subtle changes in timing.

### Duplicating a pose

Duplicating a pose is especially useful when you want an animation to end up exactly where it started. To duplicate poses:

1. Select all the poses you want to duplicate.
2. Hold down the Ctrl key and drag one of the poses to a new place on the timeline. This creates copies of the selected poses and drags them all at the same time.

### Deleting a pose

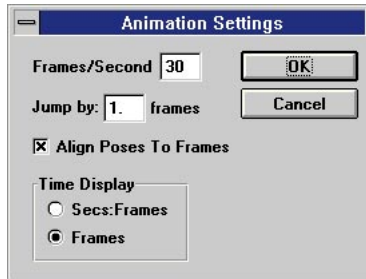
To delete a pose, just select the pose, and hit the Delete key.

## Animation settings

You can customize the way the Score window works with the controls in the Animation Settings



dialog. This is available by selecting Animation Settings from the Motion menu.



**Frames/Second.** This sets the number of frames per second. You'll want to adjust this based on whether you're going out to regular video, an AVI movie, etc.

**Jump by.** This sets the number of frames by which to jump when you use Jump Forward or Jump Backward under the Motion menu.

**Align Poses to Frames.** With this on, pose nibs and the Time Marker both snap to frame boundaries. Turning it off allows them to be between frames.

**Time Display.** This determines the meaning of the numbered tick marks in the Score window. The default is Secs:Frames. This displays the current time and frame number. For example, 3:17 means the

17th frame after the 3rd second. Unnumbered tick marks are frames.

## Rendering an animation

Typstry provides four ways to create an animation.

- You can see a simplified version of an animation (one with boxes representing letters) within Typstry.
- You can create a wireframe AVI movie.
- You can create an AVI movie the size and resolution of the project window.
- You can create the AVI movie at a particular size and resolution.

Additionally, you can output just frames to be assembled later into an AVI movie, or for use in some other application.

*To view a simplified version of an animation within Typstry:*

1. Set the animation stoppers at the top of the Score window to set the beginning and ending of the animation.
2. Select Run Animation from the Motion menu.



3. Click in the window to stop the animation.

Typestry runs the animation in the Motion Drawing Mode selected in the Preferences dialog. These modes are:

**Burn In.** This draws each frame, one on top of the other, beginning to end, creating a “trail” so you can see the objects’ paths.

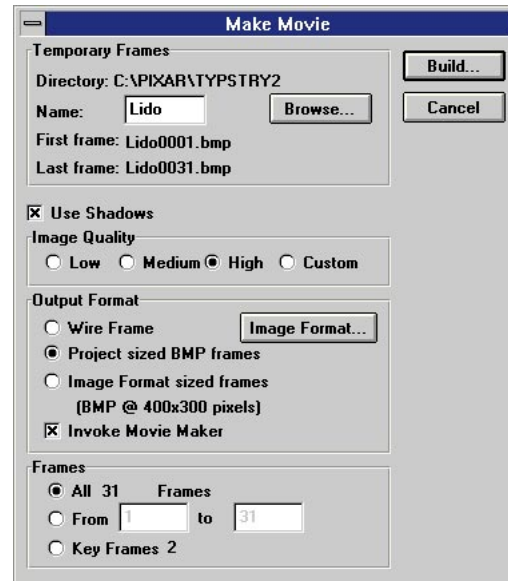
**Loop Forward.** This simply runs the animation from beginning to end, over and over, until you stop it.

**Loop To and Fro.** This runs the animation forward, and then backward, over and over, until you stop it.

Note: When Typestry animates objects on-screen, it always displays the required frames as fast as it can. For complex objects, this may be slower than you expect; for simple objects it may be faster than you expect. To see a “draft” of the animation at the right speed, make a wireframe AVI movie (see below).

*To create a wireframe AVI movie:*

1. Select Make Movie from the Motion menu. This brings up the Make Movie dialog.
2. Use the Browse button to select a directory, and type a name in the Name box.



3. Select Wireframe as the Output Format.

(4. If you want just frames, without making a movie, uncheck the Invoke Movie Maker choice.)

5. Click on the Build button.

Typestry then produces all the frames and puts them in the directory you specified. Once all the frames have been produced, the Movie Maker dialog appears (unless you unchecked the Invoke Movie Maker choice).

6. In the MovieMaker dialog you should just be able to click on the Build Movie button, unless you wish to specify different First and Last Frame Bitmaps. (For more on the MovieMaker see the next chapter.) This brings up Video for Windows' Video Compression dialog.

7. Use this dialog to select and adjust the Compression scheme. (See your Video for Windows documentation for more on this.)

8. Click on OK. This begins the actual movie-making process.

*To create an AVI movie the size and resolution of the project window:*

1. Select Make Movie from the Motion menu. This brings up the Make Movie dialog.

2. Use the Browse button to select a directory, and type a name in the Name box.

Note: In Windows you must restrict the file name to four characters. This is because Typestry appends four more digits to identify the frame files. But if you're running NT there is no such restriction.

3. Select an Image Quality. You can use lower quality settings to make a quick "draft" of an animation. Higher quality animations will take longer to render. If you've set any lights to cast shadows, check

Compute Shadows to have them appear in the animation.

4. Select Project sized BMP Frames as the Output Format.

5. If you'd like to render a subset of the frames, set this in the Frames area.

(6. If you want just frames, without making a movie, uncheck the Invoke Movie Maker choice.)

7. Click on the Build button.

Typestry then renders all the frames as BMP files and puts them in the directory you specified. Once all the frames have been rendered, the MovieMaker dialog appears (unless you unchecked the Invoke MovieMaker choice).

8. In the MovieMaker dialog you should just be able to click on the Build Movie button, unless you wish to specify different First and Last Frame Bitmaps. (For more on the MovieMaker see the next chapter.) This brings up Video for Windows' Video Compression dialog.

9. Use this dialog to select and adjust the Compression scheme. (See your Video for Windows documentation for more on this.)

10. Click on OK. This begins the actual movie-making process.



*To create an AVI movie at a particular size and resolution:*

1. Select Make Movie from the Motion menu. This brings up the Make Movie dialog.
2. Use the Browse button to select a directory, and type a name in the Name box.
3. Select an Image Quality. You can use lower quality settings to make a quick “draft” of an animation. Higher quality animations will take longer to render. If you’ve set any lights to cast shadows, check Compute Shadows to have them appear in the animation.
4. Select Image Format sized Frames as the Output Format. This allows you to use the settings found in the Image Format dialog to determine the dimensions, resolution, and file type of each frame. To set or change these settings click on the Image Format button to bring up the Image Format dialog.
5. If you’d like to render a subset of the frames, set this in the Frames area.
- (6. If you want just frames, without making a movie, uncheck the Invoke MovieMaker choice.)
7. Click on the Build button.

Typestry then renders all the frames in the selected format and puts them in the directory you specified.

Once all the frames have been rendered, the MovieMaker dialog appears (unless you unchecked the Invoke MovieMaker choice).

8. In the MovieMaker dialog you should just be able to click on the Build Movie button, unless you wish to specify different First and Last Frame Bitmaps. (For more on the MovieMaker see the next chapter.) This brings up Video for Windows’ Video Compression dialog.
9. Use this dialog to select and adjust the Compression scheme. (See your Video for Windows documentation for more on this.)
10. Click on OK. This begins the actual movie-making process.

## ***The nature of Typestry animation***

In Typestry, an animation is really a sort of a table, like this:

Objects have a certain pose at each frame. If they’re not in the table, they’re not in the animation. If they are in the table, they’re in the whole animation. They can’t be in the table in one frame, and not in the table in another. This means that if you create an object in a certain keyframe, you’ve created it for the whole animation. Likewise, if you delete an object in any keyframe, it’s gone for the whole thing.

## What to avoid

That having been said, here are a few things you should avoid in an animation. They are all characteristics that are permanently in place.

- Adding or deleting objects. An object exists (or not) for the complete animation. Likewise, when you group objects, they're grouped for the whole thing. If you want to make objects seem to disappear, you can use a trick: shrink the object almost to nothing in the space of a single frame.
- Changing any of the settings in the Details dialog.
- Changing anything in the Effects menu.
- Changing a light's Look, color, or shadow-casting ability. (But there's a trick you can use to give the illusion of animating a light's Look and color. Read on...)

## What to remember

And speaking of lights, don't forget — there are a couple of things that you *can* play with and animate to good effect: any light's position and intensity, and any spotlight's coneangle as well. The Lights window shows you the state of the lights *at the time indicated by the Time Marker*. Since you can animate intensity, you can get the *illusion* of animating a light's color or Look using a trick. Use two lights in the

same position, each with a different color or Look. Turn one's intensity down and the other's up. It will look like one light, since they're both in the same place.

## Tradeoffs

When you set some poses for an object, Typestry moves the object through those poses using certain tweening (interpolation) schemes. Think of this as drawing curves through a series of points (poses). Different animation packages use different kinds of curves. Each has its advantages and disadvantages.

The tradeoff with Typestry's curves is that although the curve goes through all the points so you can see exactly where the object will be at a given pose, the *shape* of the curve may not be exactly what you want. Everything depends on the positions of the various poses. Some situations may cause an object to go through a point, and then beyond it, before starting to curve around, rather than curving exactly as it reaches the point. For rotations, sometimes you may see a "preparation" for the rotation. Here the object may rotate slightly the wrong way just before it starts the real rotation.

If you notice any of these subtle idiosyncracies you can fix the situation pretty easily. The general idea is to identify the pose where things seem "off," make a



copy of that pose, and move it right next to the original. The closer the better — one frame away isn't too close.

## ***An animation checklist***

If you think you need to establish a new relationship between elements, you'll probably need to group or regroup things. Think about what needs to move relative to what. Remember, when we say move, we mean move, rotate, scale, skew, or any combination thereof.

If you need to move something independently of other things, try moving it out of the group it's in.

If you need to move something in conjunction with something else, try creating a new group that includes both things.

If you need to delay an object's movement, find the pose where the delay should *begin*. Copy that pose (using Ctrl-drag) to the time at which the delay should end. The object won't change between the two poses.

If things are moving too quickly or too slowly, select the affected poses and use “smart” pose scaling.

If you need to change the length of a whole animation, just select *all* the poses and use the Pose Scale

tool in the Score window to move them all at once, lengthening or shortening the whole animation.

If things start too early or too late, just move the pose(s) down the timeline.

If you need to reset an object's orientation, scale, or skew in the middle of things, just use one of the Reset... functions under the Edit menu.

If you need to tweak the movement of a group, you may benefit from creating a new group that includes the one you want to tweak. Tweaking the new group leaves the old one to act as it has been, so you don't have to go back and change other parts of the animation.

### *Rendering a loop*

If you're doing an animated loop you may have to make a small adjustment to your animation. First of all, you should have the first pose duplicated at the end of the animation, so things end up where they start. Now, when you go to render the frames, render all but the first frame, since it's already duplicated at the end. This is especially important if you're using particles, wind, or motion blur.

- And remember: It's not every piece of software that allows you to do motion blur. If you can afford the extra rendering time, be sure to turn this on: it

adds a powerful bit of realism. You'll probably want to use the Normal Blur setting (in the Motion Blur item under the Effects menu) for an animation, unless you're shooting for an unusual effect.

## ***Creating a 2-frame animation***

To use particles or wind (Physical Simulation) in a still image you must create an animation, since these both depend on motion. However, you may need only two frames to achieve the desired effect. In any case, you should never need more than two poses.

When you use particles or wind, Typestry has to calculate the position of the particles or the sheet in every frame of the animation. For this reason, the fewer frames you have, the smaller the number of calculations that will have to be made, speeding things up.

- This means that you should use the Animation Settings dialog (available from the Motion menu) to set a low number of Frames/Second. Two may be sufficient — this will allow you to see things at intervals of half a second.

1. With the Score window showing, drag the object's initial pose nib out. The farther you drag it, the later in time the rendered frame will be.

2. Double-click on the pose nib you just dragged out. This sets the Time Marker to that time.

3. Select Update Simulations from the Motion menu. Typestry will then calculate things for that frame. The more intermediate frames there are, the longer this will take.

4. If you need to, move the pose nib to a different time, double-click on it again to see the pose at that time, and select Update Simulations again. Repeat this until you reach a time that gives you the results you like.

*Danger, Will Robinson!* To see the effect of the particles or wind in a given frame, you *must* select Update Simulations from the Motion menu. Otherwise, the calculations for the object's shape won't get done.

5. Now you can render.

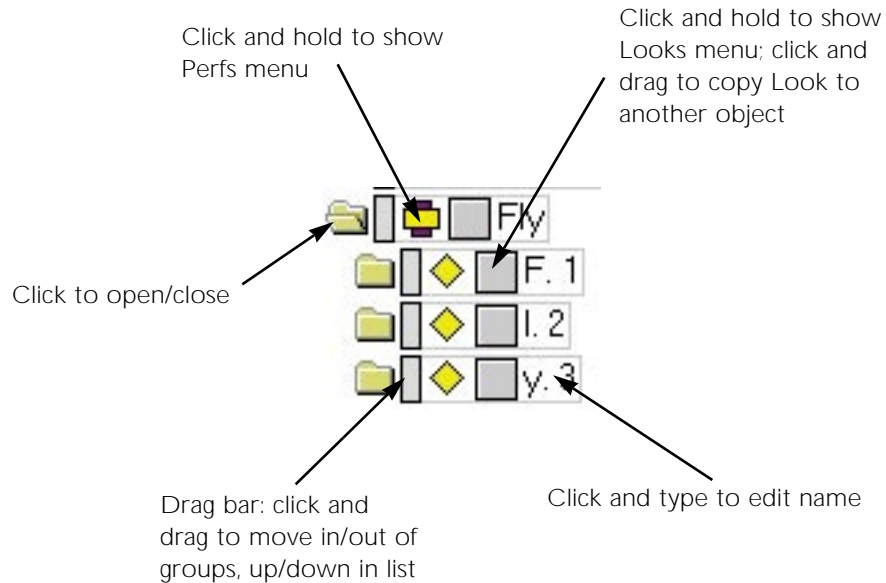
## ***Viewing a movie***

To view your animations you'll need to use the Media Player application. This is part of the Video for Windows software, and is usually located in the Accessories group in the Program Manager. The hardest part of this process is remembering where you had Typestry put the .avi file...



## Summary of Score window operations

- “First move the Time Marker, then move the object. Move the Time Marker, *then* move the object.”





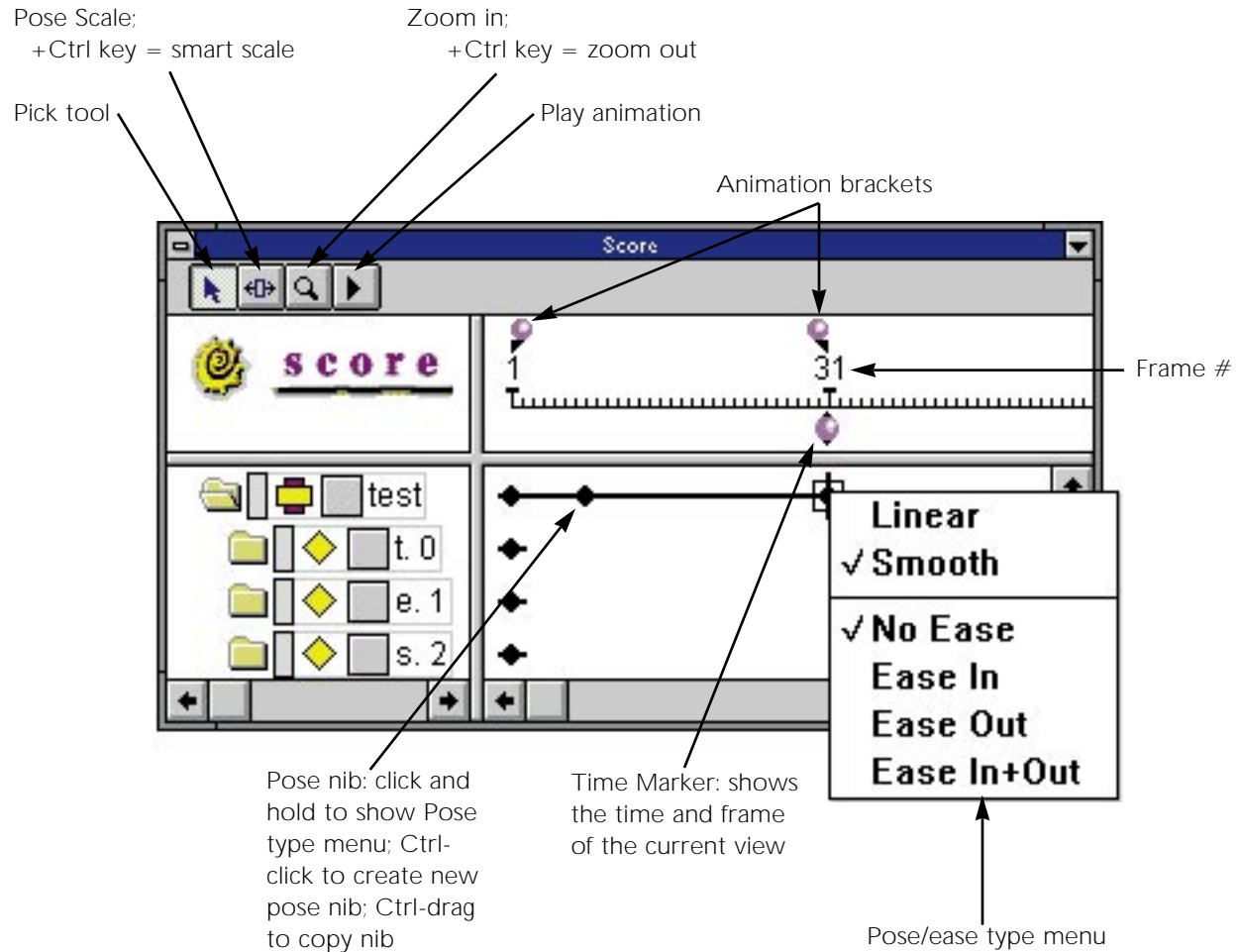




Image: John Bennett

*Font:* PIXAR is one character custom designed in Fontographer; Impact for Typestry 2.0; PixarPerfs for back-ground

*Build Method:* Extrude with custom bell-curve-shaped bevel, bevel depth 100%; for background, default Extrude

*Text Look:* Faces of text are BumpWave\Calmwave\beach, sides are Combinat\asteroid\foil; back-ground is Material\Starter\water\Deep Ocean Water

*Lights:* #1, Blue 70%, #3 Red 70%, #4 Yellow 70%, #7 pink 70%, #9 Dark blue 70%, #10 50%, #14 50%, #16 50%, "E" 45%



animation