Chapter 3
Fractions & Symbols

In this chapter, we will make use of the **Greek Symbols** palette to build the following equation:

paste_4.eps ¬

Then, we will look at how to change this equation to a form which is more suitable for inclusion in a line of text:

paste_5.eps ¬

Fractions & the Greek Symbols palette

Pick **Equation ±> New** to create a new equation window (or equivalently, type **Command-n**).

Begin the equation by typing ª*D*º. We now need to learn how to make a vertical fraction and place the ª*D*º in the numerator.

To create a vertical fraction, you can either use the vertical fraction button in the center of the top row of the Element Creator, or equivalently, press the ª/º key on the keyboard.

VertFracButton.tiff ¬

A **Fraction** element will be created with the current selection in the numerator, and the cursor in the denominator. If you don't have anything selected (as is the case here), the element just to the left of the cursor will be placed in the numerator.

Now that we have the ª*D*º in the numerator, we need to place a ªμº in the denominator. To do this, bring up the Greek Symbols palette on the Element Creator by pressing the

GreekSymbolsButton.tiff ¬

button in the top row of the panel if the Greek Symbols palette is not already showing.

The Greek Symbols palette contains many symbols that are not available on the keyboard.

Be careful not to confuse some of the upper case greek characters with their roman counter parts. If you need other symbols like ª∞º that are not greek characters, they can be found in the **Misc. Symbols** palette.

Find and press the ªμº button to place a ªμº in the denominator, and then press return to indicate you are finished with the denominator.

Continue making the equation by typing ª=*kT*º. Next, we need to create another Fraction element, and place the ª*kT*º in the numerator. If you were to hit the vertical fraction button or the ª/º key as we did last time, that would place only the ª*T*º in the numerator. This is not what we want. Instead, you'll need to select ª*kT*º with the mouse and then press the ª/º key or the vertical fraction button.

Finally, finish up the first equation by typing ª*q*º, and then return to signify you are done with the denominator.

Modifications

As you can see, the equation is a bit tall. If the equation is meant to stand by itself, away from other text, this is not a problem. Typically, this sort of equation is known as a **display** equation.

However, sometimes you may wish to include a small equation within a line of text. This sort of equation is known as an **in-line** equation. In these situations, you would like the height of the equation to be comparable to the height of a single character, so that the equation won't open up large gaps between the lines of text in your document.

In our example, the best thing to do is to move the denominator on the left-hand side of the equation to the right-hand side, and use a horizontal fraction instead of a vertical fraction.

A possible way to do this is to select the ªμº and delete it using the delete key. Pressing delete again will delete the fraction, leaving the ª*D*º behind.

Next, position the cursor after the ª=º sign using either the arrow keys or the mouse, and then press the ªμº button on the Greek Symbols palette again.

Finally, we need to switch the orientation of the remaining fraction from vertical to horizontal. To do this, select the fraction and bring up its Attributes inspector. The **Fraction Inspector** should become visible:

FractionInspector.tiff ¬

As you can see, there are three different styles that a fraction can have: vertical, horizontal, or vertical without a bar. Switch your fraction to horizontal by clicking on the middle button to

complete the modification.

- **Note**

  Because there is no clear way of knowing where a horizontal fraction ends and the elements around it begin, working with horizontal fractions can sometimes be very confusing. If strange things seem to be happening when you are using horizontal fractions, switch to composition mode so that you'll have a visual cue as to where the fraction begins and ends.

Variations

Another way we could modify our original equation to be more suitable for in-line text is to use the **Equation Inspector**:

EquationInspector.tiff ¬

The Equation Inspector allows you to change parameters that affect the equation as a whole (see Chapter 16). One of the parameters you can change is the **Equation Size**.

If you switch the first equation in this chapter to In-line mode, EquationBuilder will do its best to

compress tall elements so that they take less vertical space. In our first example, this means reducing the size of the numerators and denominators, and bringing them closer to the fraction bar. The second example is not perceptively changed by switching to In-line mode.