

Chapter 5

Matrices & Fonts

In this chapter, we'll step through the process of building the following:

paste_8.eps ↵

Then we'll look at how to modify the default fonts for the equation so that it looks like

paste_9.eps ↵

Matrices & Subscripts

Begin the equation by typing in ${}^aA=^o$, then either type ${}^a(^o$ or press the parentheses button to

create the parentheses. Next, bring up the **Multilines & Matrices** palette

MultilineMatricesButton.tiff ↵

and make a **Matrix** by pressing the matrix button (the button with a 2×2 array of $a^?_o$ s, labeled $n \times m$).

This will generate a 2×2 matrix of grayed out question marks. The question marks are merely place-holders: you can't actually select them, but you can click on them and begin typing.

Now that we have a 2×2 matrix, we need to increase its size to 4×4 . Hit tab once to select the entire matrix (or use the mouse), and bring up its Attributes inspector. The **Matrix Inspector** should now appear:

MatrixInspector.tiff ↵

Increase the number of rows to four and the number of columns to four by either grabbing a slider or entering the number directly into the corresponding text field. Next, press OK or hit return.

Now, click on the top left $a^?_o$ to position the cursor. Type a^o and hit the subscript button (or

equivalently, the $^{\circ}$ key)

SubscriptButton.tiff ↵

to move the cursor into the subscript position.

Type $^{\circ}$ followed by return to signify you are finished with the subscript, followed by another return to signify you are finished with the first matrix element. This will advance the cursor to the next matrix position.

Continue to fill out the matrix in this way, until you are done with the equation. Note that the $^{\circ}$ character that is available on the Multilines & Matrices palette is different than the $^{\circ}$ character on the Misc. Symbol palette (one is raised, the other is not.)

MiscSymbolsButton.tiff ↵

- **Note**

If the equation gets too large to fit in the window, you can either change the zoom using the **Zoom Controls** pop-up-list in the lower right-hand corner of the window, or you can increase the size of the window by dragging the window's lower right-hand corner.

Modifications

For this modification, we want to change the default fonts used in the equation. Since we wish to alter the overall look of the equation, the parameters we wish to change are accessible through the Equation Inspector.

EquationInspector.tiff ↵

The first thing to note is that for our modified equation, we no longer wish symbols to be italic by default. To switch this, turn off the Italicize Aa..Zz switch. All the symbols should be typeset in the default roman font (Times-Roman).

Since we wish to change the default roman font used for the equation from Times-Roman to Helvetica, select Roman using the pop-up list in the **Default Font Types** field. The current default roman font should display itself in the corresponding preview field.

To change the font, press the Change... button. The inspector itself changes to show a list of the available font families on your system:

EquationInspector.Fonts.tiff ↵

Scroll through the list and select Helvetica. Note that when you select a font, it is previewed at the top of the inspector. After you have selected Helvetica, press Set, and you are now done with the modifications.

Variations

If we had wished to change the default font sizes for the equation, we could have done so using the **Default Font Size** field of the Equation Inspector.

Basically, EquationBuilder maintains three different default font sizes: large, medium, and small. Depending on an element's position in an equation, it will be set (by default) in the font size appropriate for its position in the equation.

If we had wished to use this equation in a presentation, we would likely have wanted the equation symbols to be typeset significantly larger. By using the Equation Inspector to change the default font sizes, we can change the sizes of all the elements in the equation, without having to select each element individually and then set it to the appropriate larger size.