

Chapter 6

Vectors & More Fonts

In this chapter, we will look at two different ways to typeset the following as in-line equations:

paste_10.eps ↯

and

paste_11.eps ↯

Vectors & Derivatives

Since we wish to use our equation as an in-line equation, the first thing to do is to bring up the

Equation Inspector and switch to In-Line mode, as discussed in Chapter 3.

Next, switch to the Misc. Symbols palette

MiscSymbolsButton.tiff ↵

and make a ∇^0 symbol.

Now, switch to the Binary Operators & Relations palette and click on the dot operator (\cdot). Click on the parentheses button to insert a pair of parentheses. Remember that this leaves the insertion point inside the parentheses so that you can fill out its contents.

Next, switch to the **Accents, Braces, & Bars** palette

AccentsOverundersButton.tiff ↵

and click on the vector accent. Type \vec{E}^0 followed by return to signify that you are done with the **Accent**. Note that accents do *not* change their size to match the width of whatever they are accenting.

Click the cross button, \times^0 , button on the Element Creator panel, or equivalently, the \times^0 key on the keyboard, followed again by the vector button (on the Accents, Braces, & Bars palette). Now type \vec{H}^0 , followed by a return to signify you are finished with the vectored \vec{H}^0 , and

another return to signify that you are done with the contents of the parentheses.

After typing in the a^+o , you'll need to create the partial derivative with respect to t . You could specify the derivative as a fraction, and use the Misc. Symbols palette to create the ∂ symbol, but this partial derivative combination can also be found on the **Operators & Calculus** palette. (Common calculus operations have been preformed for you and placed on the Operators & Calculus palette for convenience.)

OperatorsCalculusButton.tiff \rightarrow

Either way, create the partial derivative with respect to t . (If you use the Operators & Calculus palette, you will need to select the ∂x^o in the derivative and change it to a ∂t^o .)

• **Note**

Vertical fractions are typeset smaller in In-line mode than they are in Display mode. This is so that the equation takes up less vertical space.

Using the techniques we have discussed in the previous chapters, you should now be able to finish this equation (an infamous ∂ exercise left to the reader!^o). If you get into trouble, switch to composition mode, so that it will be clear what typesetting work is automatically being done for you by EquationBuilder.

Modifications

Now that you have finished the first form of the equation (right?), we want to modify it so that we use bold characters to represent vectors, rather than vector symbols.

The first thing to do is to remove all the vector symbols. An easy way to do this would be to select each vectored variable in turn, delete it, and replace it with the same variable, but without the vector accent.

Alternatively, you could click on the *left* side of each of the vectored characters and hit the delete key to remove the vector symbol. If things don't go as planned using this technique, try again in composition mode to make sure that the cursor gets positioned under the vector, and not just to the left of the vectored variable. It is sometimes difficult to tell the actual position of the cursor when you are not in composition mode. Remember that to remove just the vector, you want to put the cursor at the *left* side of what the vector is accenting.

Once you have removed all the vector symbols, you'll need to change the particular elements so that they are typeset in bold rather than the default font type.

Since we wish to modify an element specific parameter that is potentially common to all elements, you need to bring up the **Element Inspector (Command-2)**.

ElementInspector.tiff ↵

Using the Element Inspector, we can override the default font type for the *selected* element. In our case, select the first E^0 and change the **Element Font Type** from Default to Bold. The font for the element will then be changed to the default bold font that has been set for the equation. Remember that the Equation Inspector can be used to set the font family and typeface for each of the default font types.

Change the font type for each of the remaining vectors and the modifications will be complete.

Alternatively, we could have instead picked a custom font type for the selected element. This is done by selecting Custom from the **Element Font Type** pop-up list. The inspector itself will change to show a list of the available font families on your system:

ElementInspector.Fonts.tiff ↵

You can then scroll through the list and pick a custom font for the selected element.

Please note that we suggest making use of the default font types whenever possible, rather than using custom fonts for each element or group of elements in the equation. The reason

for this is that if at some point you wish to change the fonts for a particular equation from, say, the Times family to Helvetica, you would only need to change the default font families in the Equation Inspector. By changing default font families at the highest level, i.e. with the Equation Inspector, you are assured that the entire equation remains consistent. If, on the other hand, you had made extensive use of custom fonts for each of the different elements in the equation, you would then have to go through and change the font for each of those elements individually.

Variations

A good way to streamline the above process is to change the first vectored ${}^aE^o$ to ${}^a\mathbf{E}^o$, select that, copy it (**Command-c**), select the other vectored ${}^aE^o$ and paste the ${}^a\mathbf{E}^o$ in (**Command-v**).