Using encapsulated postscript graphics

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1 Introduction

The standard `graphics` package extends LaTeX's capabilities by allowing you to use other special features of the program you use to print dvi files (called the 'driver').

Before you use it you should be aware that, although some effort has been made to ensure the commands in the package work at other installations of LaTeX, not all of them do, and some of them are quite specific to the particular driver, `dvips`. Therefore, it is not guarenteed that if you email a LaTeX document prepared this way to a colleague elsewhere that you document will appear as you intend it when it is printed.

In this School, printing is done using `dvips`, which converts a dvi file to postscript. The graphics package allows other postscript commands to be used, and other postscript files to be incorporated in your document. This usually provides the quickest way to incorporated complex diagrams in a text.

There are many commands in the package. I will just mention the most commonly used ones here. For more information, see the documentation or ask me.

As always, you need to load the package:

```
\usepackage{graphics}
```

You can include a picture as follows.

```
\begin{center}
\fbox{\includegraphics{ubhamlet.eps}}
\end{center}
```

This gives the following output.

There are two things to remember:

1. The `\includegraphics` command produces a 'box'—like a character from an alphabet. You have to position it yourself.

2. The graphics file to be read in (`ubhamlet.eps`) here should be an *encpsulated postscript file*. An ordinary postscript file doesn't work. Most image tools can save their output as eps, and maple output and graphs can also be saved as eps.

The `graphics` package provides commands to scale, rotate and reflect boxes.

```
\rotatebox{30}{Rotated} text.
Scaled figure: \scalebox{0.1}{\includegraphics{ubhamlet.eps}}
```

gives

Rotated text. Scaled figure: 

where the rotation takes place about the boxe's *reference point* (usually the bottom left corner), and the scaling changes the size—here to a tenth (0.1) of teh original size. Also,

`Scaled figure: \scalebox{0.5}[0.3]{\includegraphics{ubhamlet.eps}}`

gives

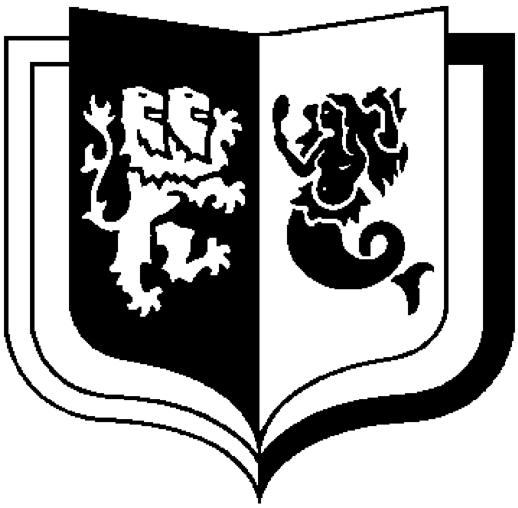
Scaled figure: 

The second optional argument to `\scalebox` is a separate scaling for the vertical dimension—here to 0.3 of the original vertical dimension.

There's also a command to scale a figure to a given size. The following makes the figure exactly 3 inches wide:

`Resized figure: \resizebox{3in}{!}{\includegraphics{ubhamlet.eps}}`

gives

Resized figure: 

(A vertical dimension, e.g., `2in`, can replace '!', so

`\resizebox{3in}{2in}{\includegraphics{ubhamlet.eps}}`

would make the figure 3 inches wide and 2 inches high. The '!' is used in place of the vertical dimension to ensure that the figure is rescaled by the same factor in both directions.)

There are many other options for graphics in the related `graphicx` package, which many people prefer to use. The full documentation is in the file `grfguide.tex`, and can be obtained by running LaTeX *three times* and then printing (with `dvips`!) as usual.

There are also many many other tricks that can be obtained using postscript. In all cases, please use them with care and taste!