Highlighting in the LaTeX picture environment

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Emphasizing text is normally accomplished in typeset text by changing the font, which in LaTeX is usually done by using the \emph command. However, a popular way for students to emphasize what is important in their textbooks is to use a highlighter. These come in various colours, but a golden shade of yellow is most common. I wanted to create this effect in LaTeX documents, not only for text (which is simple), but for pictures too.

For text all that is needed is the \colorbox command, with a colour being chosen to mimic the typical highlighter. For this I created a colour which I named *marygold* (a play on words, it's a homonym of *marigold* but named after my wife Mary) by using the following definition:

```
\definecolor{marygold}{cmyk}%
{0,0.1,0.5,0}
```

We can then produce highlighted text (it will appear as a shade of grey in this publication) by using:

```
\colorbox{marygold}{highlighted text}
```

So far, everything is easy, but highlighting in the *picture* environment is not so trivial. I had made a graph in which segments of some of the lines needed to be highlighted (to show the regions of highest expected profit). The graph with the highlighted line segments appears in the figure to the right. The line marked A_4 will serve as an example. The black line was created using:

```
\put(15,350){\line(3,-2){240}}
```

This line intercepts the A_2 line at coordinate (75,310), hence the highlighter had to run from (15,350) to (75,310). To make highlighting without text, an appropriately-sized \hspace command is used where the text would be in the \colorbox command.

The \colorbox command needs to be embedded within a \rotatebox command. In conjunction with the highlighting commands for the A_2 line, there needs to be a bit of trial-and-error in positioning the commands and in specifying the length for the \hspace commands. The four highlighted line segments were created using:

```
% Highlighting
% A1 line
\put(194,270){\rotatebox{18.435}%
{\colorbox{marygold}{\hspace{26pt}}}}
% A2 line
\put(74,310){\rotatebox{-18.435}%
```

```
{\colorbox{marygold}{\hspace{122pt}}}}
% A3 line
\put(222.5,279.5){\rotatebox{45}%
{\colorbox{marygold}{\hspace{37pt}}}}
% A4 line
\put(14,350){\rotatebox{-33.69}%
{\colorbox{marygold}{\hspace{66pt}}}}
```
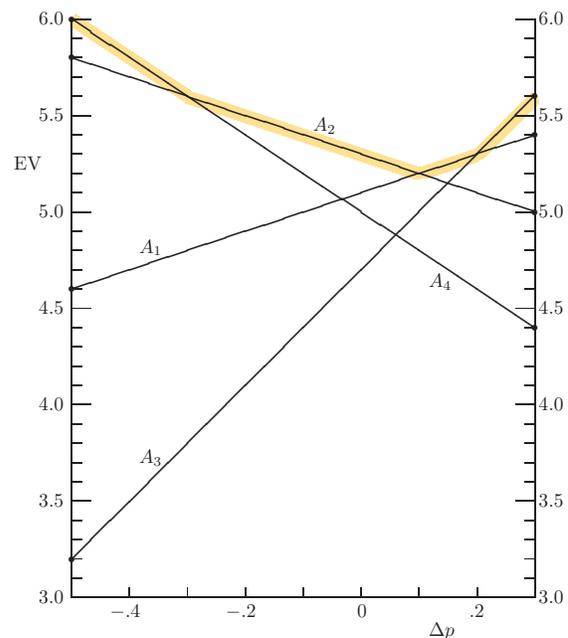

An Example of Highlighting in the Picture Environment

Since the normal use of a highlighter is to superimpose it upon typeset text, one might presume that everything to appear in black would be drawn first, and that the commands to create the highlighting would come afterward. However, doing it this way creates the highlighting with the black lines underneath being removed. Instead, I discovered by experimentation that the commands to perform the highlighting need to come immediately after the \begin{picture} command. When I discovered this, I had incorrectly presumed that there was a special effect caused by the ordering of the commands within the *picture* environment. I am grateful to an anonymous reviewer for pointing out that this effect is caused instead by the "PostScript/PDF rendering model, which places later elements over previous elements [thereby] obscuring them."

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