My First PSTricks Pictures

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TUG 2008, Cork, Ireland

1. Skeleton Document

We will talk about inserting PSTricks into TEX in the next lecture. Right now the following will do:

```
\documentclass{article}
\usepackage{pstricks,pstricks-add}
\begin{document}
Code
\end{document}
```

We will use the "latex-dvips-ps2pdf" route:

```
latex document.tex
dvips document.tex -o document.ps
ps2pdf document.ps
```

2. Flagpole

We start with graphed paper to put the stuff on:

```
\begin{pspicture}(5,5)
  \psgrid[gridcolor=gray]
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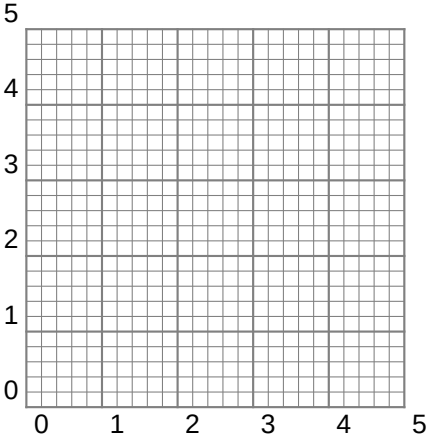

Now a pole there. The pole will be a rectangle with a sphere on top:

```
\begin{pspicture}(5,5)
  \psgrid[gridcolor=gray]
  \psframe[fillstyle=solid,fillcolor=black](0.8,0)(1,4.5)
  \pscircle[fillstyle=solid,fillcolor=black](0.9,4.65){0.1}
\end{pspicture}
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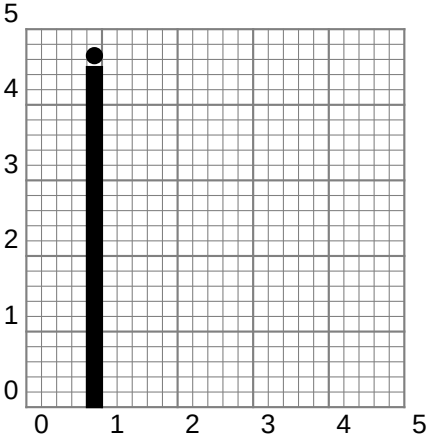

And put a flag on the pole:

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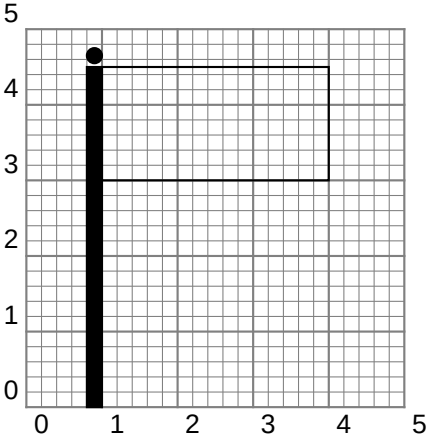

But which flag? The choice is obvious!

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  \psframe[fillstyle=solid,fillcolor=white,linestyle=none](2,3)(3,4.5)
  \psframe[fillstyle=solid,fillcolor=orange,linestyle=none](3,3)(4,4.5)
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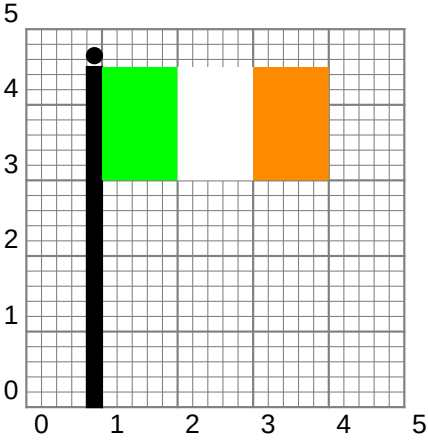

This is nice, but too wordy. Why should we repeat `fillstyle`?

```
\begin{pspicture}(5,5)
  \psset{fillstyle=solid,fillcolor=black,linestyle=none}
  \psframe(0.8,0)(1,4.5)
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  \psframe[fillcolor=green](1,3)(2,4.5)
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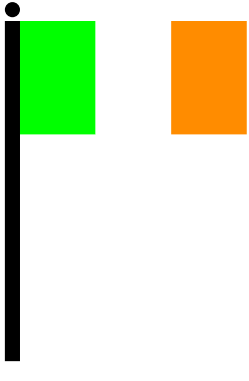

3. Birthday Card

A birthday card should have balloons. Let us learn to draw one, anchored at $(0, 0)$:

```
\begin{pspicture}(-1,0)(1,2.1)
  \psgrid[gridcolor=gray]
  \psline[linewidth=2pt](0,0)(0,2)
  \psellipse[fillstyle=solid,fillcolor=red](0,1.5)(0.4,0.6)
\end{pspicture}
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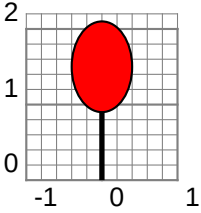

We can wrap this into a command, making the color variable:

```
\newcommand{\balloon}[1]{%
  \begin{pspicture}(-1,0)(1,2.1)
    \psline[linewidth=2pt](0,0)(0,2)
    \psellipse[fillstyle=solid,fillcolor=#1](0,1.5)(0.4,0.6)
  \end{pspicture}}

\balloon{green}\balloon{white}\balloon{orange}
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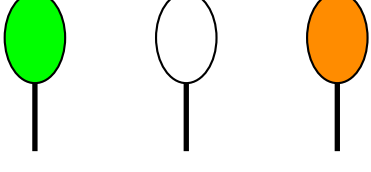

Now we can start the card:

```
\begin{pspicture}(12,5)
  \psgrid[gridcolor=gray]
  \rput[b](1,2.5){\balloon{red}}
  \rput[b](11,2.5){\balloon{blue}}
\end{pspicture}
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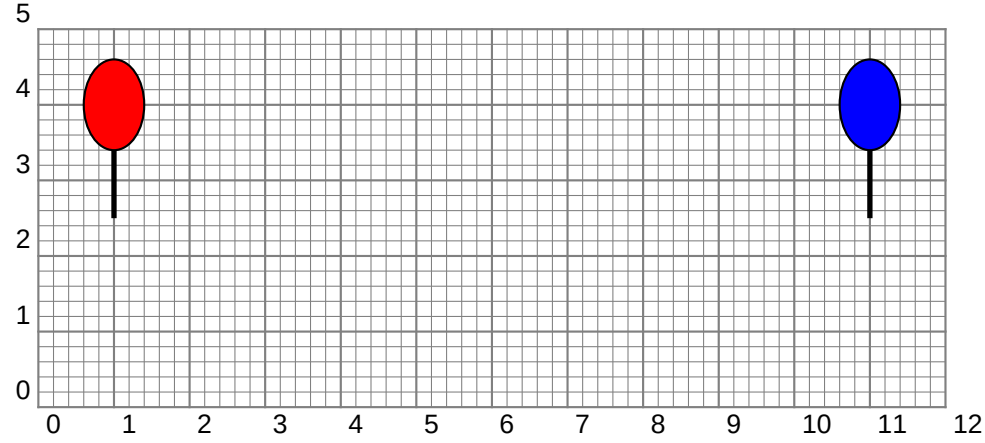

The rotation commands have peculiar syntax:

```
\begin{pspicture}(12,5)
  \psgrid[gridcolor=gray]
  \rput[b](1,2.5){\balloon{red}}
  \rput[b]{15}(1,2.5){\balloon{cyan}}
  \rput[b]{-15}(1,2.5){\balloon{yellow}}
  \rput[b]{-15}(11,2.5){\balloon{magenta}}
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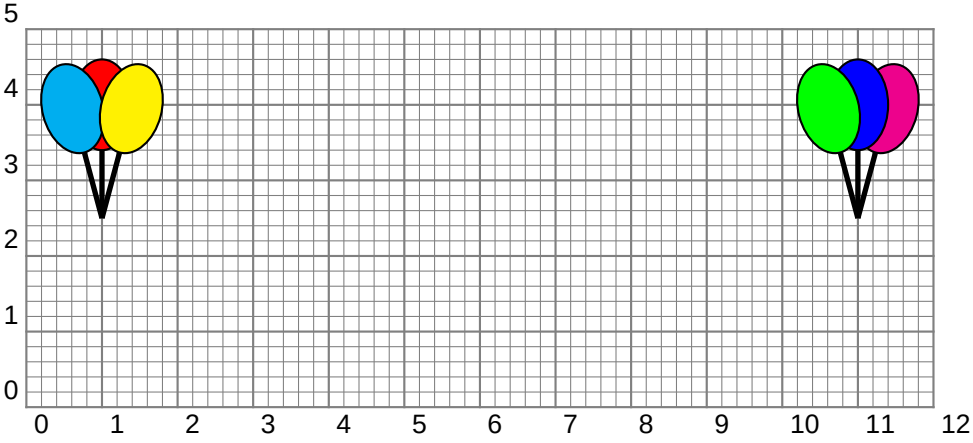

Adding a slogan:

```
\begin{pspicture}(12,5)
  ...
  \psframe[linewidth=2pt](1,0)(11,2.5)
  \rput[c](6,1.2){\Huge Happy Birthday, \TeX!}
\end{pspicture}
```

Adding a slogan:

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\begin{pspicture}(12,5)
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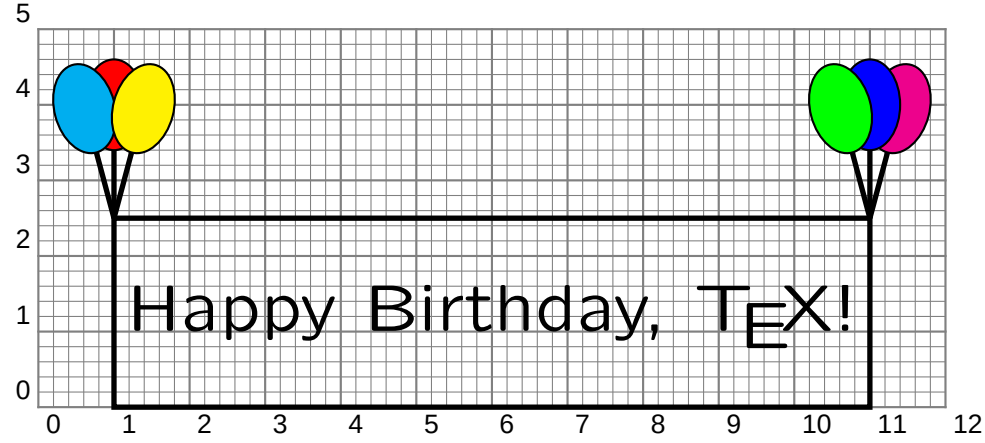

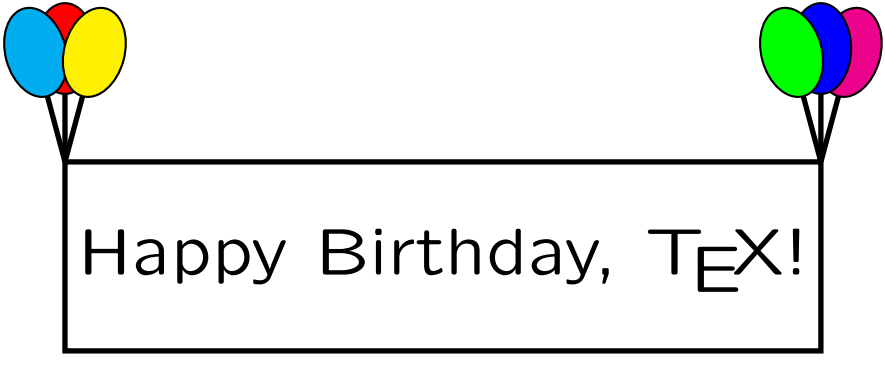
Happy Birthday, TEX!

4. Equation With Comments

We start from Newton's equation:

```
{\Huge
  \begin{displaymath}
    F=ma
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$$F = ma$$

How can we explain, what is there? We use *nodes* to name things:

```
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\begin{displaymath}
  \rnode{Force}{F} = \rnode{Mass}{m} \rnode{Acceleration}{a}
\end{displaymath}}
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$$F = ma$$

Add explanations:

```
{\Huge
  \begin{displaymath}
    \rnode{Force}{F} = \rnode{Mass}{m} \rnode{Acceleration}{a}
  \end{displaymath}}
\begin{center}
\rnode{explForce}{Force}\qquad
\rnode{explMass}{Mass}\qquad
\rnode{explAcceleration}{Acceleration}
\end{center}
```

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```

$$F = ma$$

Force Mass Acceleration

And the arrows...

```
{\Huge
\begin{displaymath}
  \rnode{Force}{F} = \rnode{Mass}{m} \rnode{Acceleration}{a}
\end{displaymath}}
\begin{center}
\rnode{explForce}{Force}\qquad
\rnode{explMass}{Mass}\qquad
\rnode{explAcceleration}{Acceleration}
\psset{arrows=->}
\ncline{explForce}{Force}
\ncline{explMass}{Mass}
\ncline{explAcceleration}{Acceleration}
\end{center}
```

And the arrows. . .

```
{\Huge
\begin{displaymath}
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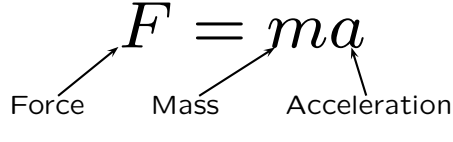

5. Maze

We define two tiles:

```
\newcommand\tileA{%
  \begin{pspicture}(1,1)
    \psline(0.5,0)(1,0.5)
    \psline(0,0.5)(0.5,1)
  \end{pspicture}}
\newcommand\tileB{%
  \begin{pspicture}(1,1)
    \psline(0.5,1)(1,0.5)
    \psline(0,0.5)(0.5,0)
  \end{pspicture}}
\fbox{\tileA}~\fbox{\tileB}
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    \psline(0.5,1)(1,0.5)
    \psline(0,0.5)(0.5,0)
  \end{pspicture}}
\fbox{\tileA}~\fbox{\tileB}
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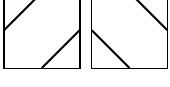

And create a maze:

```
\fbox{%
  \parbox{3.5cm}{%
    \psset{unit=0.5cm}
    \setlength{\lineskip}{0pt}
    \tileA\tileA\tileB\tileB\tileA\tileB\tileA\\
    \tileB\tileA\tileA\tileA\tileA\tileA\tileA\\
    \tileA\tileA\tileB\tileA\tileA\tileB\tileA\\
    \tileA\tileB\tileB\tileA\tileA\tileB\tileB\\
    \tileB\tileB\tileB\tileA\tileA\tileA\tileA\\
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    \tileA\tileB\tileB\tileA\tileA\tileB\tileB\\
    \tileB\tileB\tileB\tileA\tileA\tileA\tileA\\
    \tileB\tileA\tileB\tileA\tileB\tileA\tileA\\
    \tileB\tileA\tileA\tileA\tileB\tileB\tileA}}
```

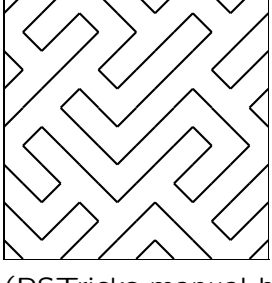

(PSTricks manual has examples of *random* mazes like this).