LATEX and Friends
Including External Pictures

http://csweb.ucc.ie/~dongen/LAF/LAF.html

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The `figure` Environment

- ☐ The `figure` environment creates a *floating* environment.
- ☐ Figure placement is controlled with an optional argument.
  - ☐ Argument can be any combination of `p`, `t`, `h`, `H`, and `b`.
  - ☐ The default value is `tbp`.
  - ☐ The argument is used to position the figure, but this may fail.
- ☐ Inside the `figure`, `\caption` defines a caption.
- ☐ Within the caption you may define a label with `\label`.

Creating a Figure

LaTeX Usage

```
\begin{figure}[tbp]
    ⟨Insert LaTeX here to produce the figure.⟩
    \caption[Comparison of algorithms.]
            {Comparison. The dashed line ...
             \label{fig:comparison}}
\end{figure}
```

The dpfloat Package

LATEX Input

```
\begin{figure}[ptbh]
% Left-side part of float(possibly with \caption).
\begin{leftfullpage}
    ⟨Left part of float⟩
\end{leftfullpage}
\end{figure}
% Right-side part of float(possibly with \caption).
\begin{figure}[ptbh]
\begin{fullpage}
    ⟨Right part of float⟩
\end{fullpage}
\end{figure}
```

Including External Pictures

- ☐ Many people include pictures by including external picture files.
- ☐ Prefer vector graphics formats to bitmaps.
- ☐ Programs such as `gnuplot` generate graphs in vector graphics format.
- ☐ You generate the picture with `gnuplot` and include it with LATEX.
  - ☐ This mechanism is relatively easy.
  - ☐ However, `gnuplot` may not always have the right graph output style.
  - ☐ The font in the pictures may be different.
  - ☐ The text in the pictures may be in a different size.
    - ☐ Re-scaling may break the right size of the font.
  - ☐ Including pictures may not always give a consistent look and feel.
  - ☐ The `pgfplots` package overcomes these problems.

The `graphicx` Package

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`\includegraphics[⟨key-value list⟩]{⟨file⟩}`
  Includes the external graphics file ⟨file⟩.
  □ The ⟨key-value list⟩ determines the style of the picture.
      angle The the rotation angle in degrees.
      width The width of the resulting picture.
     height The height of the resulting picture.
       type Specifies the file type.

Picture Formats

- ◻ Valid picture formats are:
  - ◻ `.pdf`, `.png`, `.jpg`.

Example
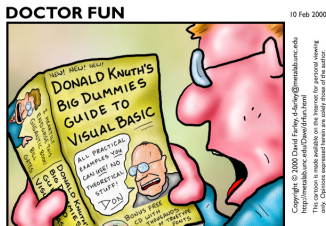
Figure 2.1 Including an external graphics file with …

LATEX Input

```latex
\begin{figure}[tbp]
\centering
\includegraphics[width=45mm]{vb4dummies.jpg}
\caption[Including an external graphics file]
        {Including an external
         graphics file with ...}
\end{figure}
```

Setting Default Key Values

☐ `graphicx` uses `keyval` to handle ⟨key⟩=⟨value⟩ pairs.

☐ `keyval` lets you define a default value for each key.

☐ `\setkeys`{Gin}{⟨key-value list⟩} sets default key values.

LATEX Usage

```
\setkeys{Gin}{width=6cm}
```

Setting the Search Path

- ☐ By default `\includegraphics` searches the current directory for files.
- ☐ It is possible to define a search path.
- ☐ `\graphicspath{⟨directory list⟩}` sets the search path.

LATEX Usage

```
\graphicspath{{./pdf/}{./eps/}}
```

Graphics Extensions

- ☐ The kind of graphics extensions allowed by `\includegraphics` depends on your output.
- ☐ Te last argument of `\includegraphics` determines the external graphics file.
- ☐ You may omit the file extension.
- ☐ `\includegraphics` will try to complete filenames without extension.
- ☐ `\DeclareGraphicsExtensions{⟨extension list⟩}` defines the proper extensions.
- ☐ The command works as expected.
    - ☐ If you omit an extension, the list is searched from left to right.
    - ☐ The process halts when an extension is found that "completes" the partial filename.
    - ☐ The "resulting" filename is used as the external graphics file.
- ☐ `\DeclareGraphicsExtensions{}` disallows filenames without extensions.

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About this Document

AMS American Mathematical Society

API Application Programming Interface

APL A Programming Language

CTAN Comprehensive TEX Archive Network

CD Compact Disk

FAQ Frequently Asked Question

GUI Graphical User Interface

IDE Integrated Development Environment

ISBN International Standard Book Number

OS Operating System

SI Système International d'Unités/International System of Units

TUG TEX Users Group

URL Uniform Resource Locator

WYSIWYG What You See Is What You Get

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About this Document

- ☐ This document was created with `pdflatex`.
- ☐ The LaTeX document class is `beamer`.