
Typesetting with T_EX / L^AT_EX

Part V: PDFL^AT_EX and Slides

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Overview

- Part I: basic components and essential \LaTeX
- Part II: formatting and layout
- Part III: figures and tables
- Part IV: basic mathematics and $\text{AMS}\text{\LaTeX}$
- **Part V**: $\text{PDF}\text{\LaTeX}$ and slides
- Part VI: $\text{BIB}\text{\TeX}$ and MakeIndex
- Part VII: useful things...

PDF \LaTeX

- PDFTEX is a modification of the T_EX compiler to produce PDF files directly
- Works similar to the standard T_EX compiler, but some things are different
 - Different fonts
 - Different graphic formats
 - Extended/modified low-level T_EX commands
- In particular useful for slides
- Unclear if it is the best way forward for T_EX

Fuzzy Fonts

- Standard CM fonts look fuzzy when used with PDF \LaTeX
 - Standard CM fonts are provided as bitmap (.pk) files
 - Bitmaps are not scalable
- Type 1 postscript fonts (true type, scalable)
 - CM fonts Provided by AMS (courtesy of Blue Sky Research and Y&Y)
 - Loads more type1 fonts available, e.g.:
<http://fonts.tom7.com/>,
<http://www.tex.ac.uk/cgi-bin/texfaq2html?label=psfchoice>

Using Type1 Fonts

- To use type1 fonts in modern T_EX installation:

```
dvips -Ppdf mfile
```

(if type1 fonts are available/installed...)

- Not all CM fonts are really available as type1

- To fix this include the package `type1cm`

- Maps non-existent type1 CM fonts on existing ones

T1 Type1 Fonts

➤ T1 type1 fonts

- OT1 CM type1 fonts readily available
- T1 encoded fonts usually only installed as bitmapped fonts
- But 8-bit Type1 fonts are available now (as real fonts and virtual fonts)
- See

<ftp://www.ctan.org/tex-archive/fonts/ps-type1>
and

<http://www.tex.ac.uk/cgi-bin/texfaq2html?label=type1T1>

➤ Alternatively use standard PS fonts (times, helvet, ... packages from PSNFSS)



Graphics in PDF \LaTeX

- Graphics formats supported by new version of PDF \TeX :
 - jpg (photos), png (bitmaps), pdf (vector drawings)
 - MetaPost (similar to MetaFont) .mps files also usable
- No (encapsulated) PostScript driver for PDF \LaTeX
 - Use `epstopdf`
 - Convert eps to “encapsulated PostScript that comes out of MetaPost” using `purifyeps`
 - These tools are available on CTAN

Page Geometry

- geometry package particularly useful to set page size (not only for PDF)

```
\usepackage[pagespecs]{geometry}  
\geometry{pagespecs}
```

- Some of the **pagespecs**:

- landscape, portrait, twoside, nohdead, nofoot
- a0paper, a1paper, ..., b0paper, ..., letterpaper, ...
- paperwidth=X, paperheight=X, textwidth=X, textheight=X, hscale=X, vscale=X, ...

Hyperref Package

➤ hyperref package adds support for PDF extensions:

- Document info
- Bookmarks
- Hyperlinks, ...

➤ To set PDF document info in preamble:

```
\hypersetup{pdfpagemode=UseOutlines|UseNone,  
pdftitle = {TITLE},  
pdfcreator = {CREATOR},  
pdfauthor = {AUTHOR},  
pdfsubject = {SUBJECT},  
pdfkeywords = {KEYWORDS},  
pdfstartview = Fit}
```

PDF Outlines / Bookmarks

➤ To define outlines in preamble based on page numbers:

```
\pdfoutline goto page X /Fit count SUB  
{NAME}
```

- **X** gives page number
- **SUB** gives number of sub-bookmarks
- **NAME** gives bookmark text

```
\pdfoutline goto page 1 {/Fit} count 0 {1.0}  
\pdfoutline goto page 2 {/Fit} count 1 {2.0}  
  \pdfoutline goto page 2 {/Fit} count 0 {2.1}  
\pdfoutline goto page 4 {/Fit} count 0 {3.0}
```

URLs

- `hyperref` provides command to insert hyper-links in text:

```
\url{URL}
```

- Works as active link with `acroread`
- Use `hyperref` package option `colorlinks` to have links in different colour
- `url` package provides alternative `\url` command for inactive links
(one overrides the other depending on package inclusion order)

Including Movies, ...

➤ Run movies or anything you like using hyperref:

```
\href{run:Movie.mpeg}{My Movie}  
\href{run:./myprogram}{Execute My Program}
```

- `\href` inserts a hyper reference
- Allows to run any program, movie, etc.
- Program files, data files, etc. have to be available

```
\href{run:AlienSong.mpg}{Weird Alien}  
\href{run:/usr/bin/gnome-chess}{Go Play}
```

Weird Alien
Go Play

FoilT_EX



Slides with FoilT_EX

- `foils` document class to typeset slides
(better than standard `slides` class)
- Provided by FoilT_EX (available on CTAN)
- Redefines standard commands (`itemize`, `enumerate`, `\maketitle`, `abstract`, ...) suitable for slides
- Slide title and separation:

```
\foilhead[bodydist]{Title}
```
- These slides have been prepared with a modified FoilT_EX
- Some `foils` class options: `17pt`, `20pt`, `25pt`, `30pt`, `headrule`, `footrule`, `landscape`

Slide Headers and Footers

- Header and footer contents set with:

```
\leftheader{string}                \rightheader{string}

\MyLogo{string} \Restrictions{string} ...
                                           \rightfooter{string}
```

- Logo will print automatically, control printing with:

```
\LogoOn
\LogoOff
```

- Set other headers to empty in order to avoid appearance



Colour

➤ To use colour include standard \LaTeX color package

➤ Set text colour:

```
\color[model]{colorspec}  
\textcolor[model]{colorspec}{text}}
```

- Without **model** defined colour **colorspec** is selected
- With **model**, **colorspec** specifies colour (see next slide)

➤ Set page background colour:

```
\pagecolor[model]{colorspec}
```

➤ Default text colour selected with

```
\normalcolor
```

Defining Colours

- Define colour with name **name**

```
\definecolor{name}{model}{colorspec}
```

- **model** and **colorspec** (values in [0,1]) is:

grey G

rgb R,G,B

cmyk C,M,Y,K

- Named colours are also available:

```
\DefineNamedColor{named}{JungleGreen}{rgb}{0,0.6,0}  
\color[named]{JungleGreen}  
\definecolor{mygreen}{named}{JungleGreen}
```

- Names help post-processors to adjust colours
- Use `usenames` option of `color` package to omit `[named]` argument of `\color`

Coloured Boxes

- To create a box with coloured background:

```
\colorbox[model]{colorspec}{text}}
```

- To create a box with coloured background and frame:

```
\fcolorbox[model]{framecolorspec}%  
{colorspec}{text}}
```

- Works like ordinary boxes

```
\fcolorbox{red}{black}{\parbox{17cm}{\color{white}  
This is a parbox with \colorbox{blue}{coloured}  
background}}
```

This is a parbox with **coloured** back-
ground

PPower4



PPower4 Post-Processor

- PPower4 is a post-processor for pdf files generated with $\text{PDF}\text{\LaTeX}$
(implemented in java)
- Provides additional options available for PDF files which cannot be realised with $\text{PDF}\text{\LaTeX}$ alone:
 - Setting background colors
 - Setting page transitions
 - Pause slides
- \LaTeX package required for all PPower4 features:
`pause`, `background`, `mpmulti`

Background Colour

➤ Background colour settings incompatible with `\pagecolor` command

➤ Monochrome background in selected colour:

```
\pagecolor{color}
```

➤ Background colour changing horizontally:

```
\hpagecolor[color1]{color2}
```

- Either from `color1` to `color2`

- Or from `color2` to brighter variant

➤ Background colour changing vertically:

```
\vpagecolor[color1]{color2}
```



Background Images

➤ To add background image use `bgadd` option with background package

➤ To add background from the top left corner of the slide:

```
\bgadd{\includegraphics[width=2cm]{myimage.jpg}}
```

➤ To add to the centre:

```
\bgcenter{\includegraphics[width=2cm]{myimage.jpg}}
```

➤ Remove background images:

```
\bgclear
```



Pause

➤ To pause a page:

```
\pause
```




Pause

➤ To pause a page:

```
\pause
```

- Pause waits for a next-page command before remaining part of the page is displayed
- Actually the post-processor duplicates the page and expands it with new content
- Simple `\pause` command only allows sequential execution



Pause

➤ To pause a page:

```
\pause
```

- Pause waits for a next-page command before remaining part of the page is displayed
- Actually the post-processor duplicates the page and expands it with new content
- Simple `\pause` command only allows sequential execution

➤ Pause command is implemented by assigning levels to text “chunks”

- In sequential mode each chunk is numbered from 1, 2, ...
- This can be adjusted for more complex cases setting the level-tags explicitly

Pauselevels

- To set the pause level of a text chunk to **N**:

```
\pauselevel{=N}
```

- Text will be display from pauselevel **N** onwards

- To set a maximum pause level for a chunk:

```
\pauselevel{:M}
```

- To set a pause level range:

```
\pauselevel{=N :M}
```

- Incremental (from last pause level) is also possible:

```
\pauselevel{=-n :+m}
```

- This makes text visible from **-n** to **+m** with respect to last level



Pauselevel Example

```
\pauselevel{=1 :2,=4} From 1-2, 4 \pause\\  
\pauselevel{=3 :4} From 3-4\pause\\  
\pauselevel{=2 :2} From 2-2\pause\\  
\pauselevel{=1 :4} From 1-4\pause
```

Pauselevel: 1

From 1-2, 4

From 1-4



Pauselevel Example

```
\pauselevel{=1 :2,=4} From 1-2, 4 \pause\\  
\pauselevel{=3 :4} From 3-4\pause\\  
\pauselevel{=2 :2} From 2-2\pause\\  
\pauselevel{=1 :4} From 1-4\pause
```

Pauselevel: 2

From 1-2, 4

From 2-2

From 1-4



Pauselevel Example

```
\pauselevel{=1 :2,=4} From 1-2, 4 \pause\\  
\pauselevel{=3 :4} From 3-4\pause\\  
\pauselevel{=2 :2} From 2-2\pause\\  
\pauselevel{=1 :4} From 1-4\pause
```

Pauselevel: 3

From 3-4

From 1-4

Pauselevel Example

```
\pauselevel{=1 :2,=4} From 1-2, 4 \pause\\  
\pauselevel{=3 :4} From 3-4\pause\\  
\pauselevel{=2 :2} From 2-2\pause\\  
\pauselevel{=1 :4} From 1-4\pause
```

Pauselevel: 4

From 1-2, 4

From 3-4

From 1-4

➤ How was the pauselevel counter realized?

Pauselevel Counter

- For the pauselevel counter the space for the numbers has to be ignored:

```
\rlap{string}
```

- Pauselevel counter code:

```
\hfill Pauselevel: \pauselevel{=1}\pause  
\rlap{1}\pauselevel{=1 :1}\pause  
\rlap{2}\pauselevel{=2 :2}\pause  
\rlap{3}\pauselevel{=3 :3}\pause  
\rlap{4}\pauselevel{=4 :4}\pause
```

- Note that only text chunk visibility and not spacing, etc. is influenced by pausing



Taking a Tour

1



Taking a Tour

1





Taking a Tour

2
1 ↺



Taking a Tour

2 3
1 ↻



Taking a Tour

2 3 4
1 ↻



Taking a Tour

2 3 4
1 ↻ 5

Taking a Tour

2 3 4
1 ↻ 5
6

Taking a Tour

2 3 4
7 ↻ 5
6

Taking a Tour

8 3 4
7 ↻ 5
6



Taking a Tour Code

```
\begin{center}
```

```
\end{center}
```



Taking a Tour Code

```
\begin{center}  
  \begin{tabular}[c]{r}
```

```
\end{tabular}\begin{tabular}[c]{c}
```

```
\end{tabular}\begin{tabular}[c]{l}
```

```
\end{tabular}  
\end{center}
```

Taking a Tour Code

```
\begin{center}
\begin{tabular}[c]{r}

      8 \\\

      7

\end{tabular}\begin{tabular}[c]{c}

      3 \\\
      $\circlearrowright$ \\\
      6

\end{tabular}\begin{tabular}[c]{l}

      4 \\\

      5

\end{tabular}
\end{center}
```

Taking a Tour Code

```
\begin{center}
\begin{tabular}[c]{r}
\pause \pauselevel{=3 :8}\rlap{2}
\pause \pauselevel{=9}8 \\
\pause \pauselevel{=1 :7}\rlap{1}
\pause \pauselevel{= 8}7
\end{tabular}\begin{tabular}[c]{c}
\pause \pauselevel{=4} 3 \\
\pause \pauselevel{=2}$\circlearrowright$ \\
\pause \pauselevel{=7}6
\end{tabular}\begin{tabular}[c]{l}
\pause \pauselevel{=5}4 \\
\pause 5
\end{tabular} \pause
\end{center}
```



More PPower4

➤ See WWW site for more on PPower4:

- [http://www-sp.iti.informatik.tu-darmstadt.de/
software/ppower4/](http://www-sp.iti.informatik.tu-darmstadt.de/software/ppower4/)