

IEEE L^AT_EX-Workshop

HowTo modify pictures

Heiko Stude

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What do we want?

- ▶ Generate (simple) pictures in \LaTeX
- ▶ Import pictures out of other programs
- ▶ Modify pictures with \LaTeX (here: `graphicx`-package only)
- ▶ Do changes in slides (for `beamer`-package)
- ▶ Make better pictures with math-abilities of \LaTeX

What I need for this

```
\usepackage[overlay, absolute]{textpos}  
\usepackage{graphicx} %If you don't use beamer  
\usepackage{colors} % - " -
```

Infos

<http://www.ursoswald.ch/LaTeXGraphics/picture/picture.html>

grf.pdf (Manual for `graphicx`)

Environment "picture"

- ▶ You need the environment "picture"
- ▶ To have a feeling of lengths:
`\setlength{\unitlength}{1cm}`
- ▶ "picture" gets width and height (in round brackets)
`\begin{picture}(4,4)`
- ▶ Include everything with
`\put(x,y){...}`
`\multiput(x,y)(add_x,add_y){count}{...}`
- ▶ May be in environments "figure" and "minipage"
- ▶ Use `\vspace*{}` and `\hspace*{}` outside

Internally you use integers (see `setlength`)

- ▶ `\line(dirx, diry){length}`
dirx/diry cannot be set too high,
for simpler directions see later
- ▶ `\vector(dirx, diry){length}`
- ▶ `\circle(diameter)`, `\circle*(diameter)`
Don't work for pdf \LaTeX , but latex && dvi2pdf
"diameter" may not be freely usable
- ▶ `\oval(width, height)`
- ▶ `\qbezier(sx, sy)(circtox , circtoy)(tx, ty)`
Line from s to t with pull to circto
- ▶ `\linethickness(length)`
Do not apply to all things (only horizontal/vertical/bezier)
- ▶ `\thinlines`, `\thicklines`

Example

```
\setlength{\unitlength}{0.5cm}
\begin{figure}
  \begin{picture}(2,2)
    \put(0,1){y}
    \put(0,0){\line(1,0){2}}
    \put(1,0){x}
    \put(0,0){\vector(0,1){2}}
  \end{picture}
  \caption{EXX}
  \label{EXX} %Need to be AFTER caption
\end{figure}
```



Figure: EXX

- ▶ `\newsavebox{\name}`
- ▶ `\savebox{\name}(size)[position]{content}`
- ▶ `\usebox{\name}`

More commands and enhancements can be found in the packages `epic/eepic` and `pstricks`. Of course there are even more...

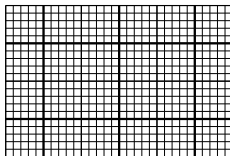


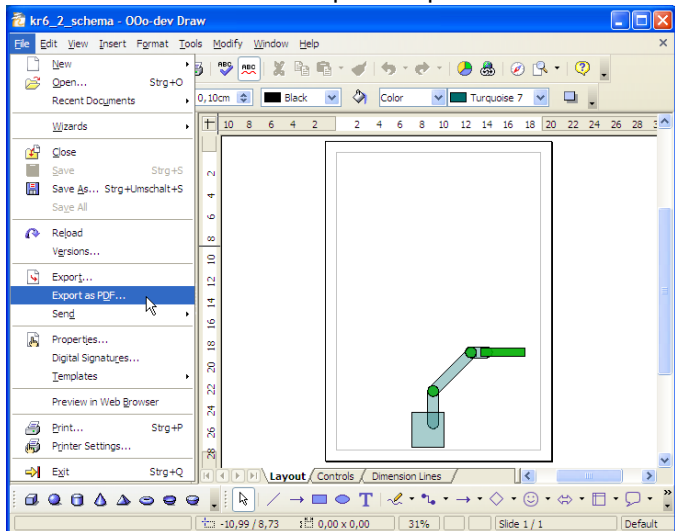
Figure: Multiput-Example

- ▶ We need the package "graphicx"
- ▶ `\includegraphics[opt]{filename}`
- ▶ We will talk about the opts later on.
- ▶ Can be done in picture-environment but you need not!
- ▶ File-Extension is used to determine which driver
- ▶ Out-Of-The-Box are working (pdflatex):
.png,.pdf,.jpg,.mps,.tif
- ▶ Not the same for dvi/ps/pdf!
Package hardly depends on program/-version.

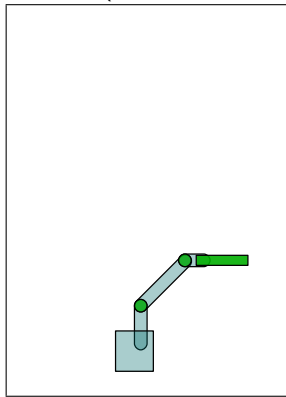


```
\begin{minipage}{3 cm}  
  \includegraphics[width=2.5cm]{./kr6-2.jpg}  
\end{minipage}
```

Generate one in OO Draw and export as pdf:



Include (here with `fbox`, `width=3.5 cm`)



...wonder?!

We need to clip the image - no problem, `includegraphics` has options!

`\includegraphics[key=value ,...]{ file _name}`

scale= number

width= length

height= length

totalheight= length

keepaspectratio= (true/false)

page= number (undoc.)

angle= number

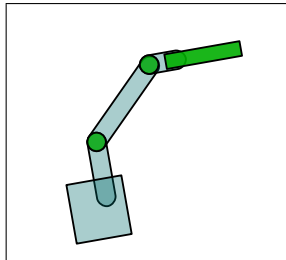
origin= loc (B,b,t,l,c,r)

clip= (true/false)

bb= (llx, lly, urx, ury)

viewport= (llx, lly, urx, ury)

trim= (dllx, dlly, durx, dury)



Here the options are:

`[angle=10,origin=c,width=3.5cm,clip=true,
viewport=6.5cm 1cm 19cm 12cm]`

- ▶ `\scalebox{hscale}[vscale]{...}`
- ▶ `\rotatebox[origin]{angle }{...}`
- ▶ `\reflectbox {...}`

```
\rotatebox [c]{45} {Hallo}  
\rotatebox [c]{-45}{Welt!}
```

Hallo Welt!

```
\scalebox {1}[3]{H}eiko
```

Heiko

```
\reflectbox {IEEE}
```

EEEI

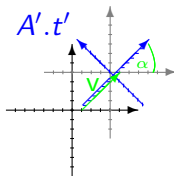
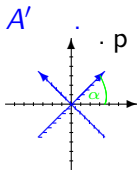
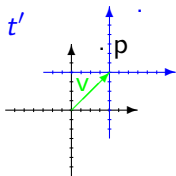
```
\rotatebox [c]{90}{  
  \scalebox {1}[3]{\{}}  
}
```

}

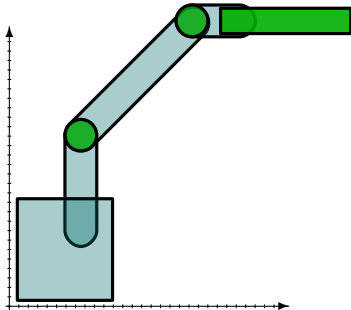
Now we will see some examples.

First some three coordination systems completely written in \LaTeX .

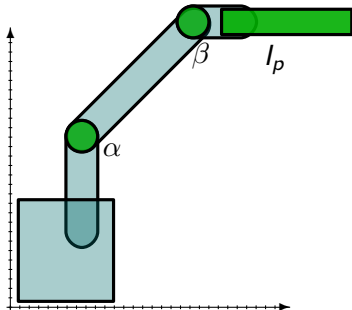
- ▶ Points are "dots" (\cdot)
- ▶ Angles are `qbezier`
- ▶ Coordination systems should be saveboxes
- ▶ Important: Comment ($\%$) at end of line of source!



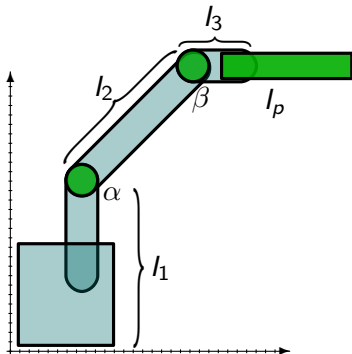
- ▶ `\only<2->{ ... }` for adding things slidewise.
- ▶ `\uncover<2->{ ... }`



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- ▶ `\uncover<2->{ ... }`



- ▶ `\only<2->{ ... }` for adding things slidewise.
- ▶ `\uncover<2->{ ... }`



Place these into the local *graphics.cfg* or in the document.

```
\DeclareGraphicsRule
  {.pdf.gz}{eps}{.pdf.bb}{gunzip -c #1}
\DeclareGraphicsRule
  {.jpeg}{jpg}{}{}
\DeclareGraphicsExtensions
  {.pdf,.jpg,.jpeg,.pdf.gz,.png,.tif}
\graphicspath
  {/cygdrive/c/Bilder/Irgendwo,
  /cygdrive/d/WasAuchImmer}


---


\begin{textblock}{0.2}(0.7,0.8)
  \begin{minipage}{5 cm}
    \includegraphics[scale=0.5,trim=0cm 1.8cm 0 1.8cm]
      {./IEEE.pdf}
  \end{minipage}
\end{textblock}
```




Thanks for all the fish...

eh...

thanks for your audience!

IEEE