

# Dynamic Online and Beamer Presentations in PDF using $\text{\LaTeX}$ and $\text{\TeXPower}$

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Presentations need dedicated typographic rules, even when compared to printed slides.



## Beamer presentations vs. printed slides

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resolution	low	high



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space usage	good	incomplete
dynamics	prepared in advance	manual



## Beamer presentations vs. printed slides

	presentation	slide
resolution	low	high
orientation	landscape	portrait/landscape
colors	ok	difficult
space usage	good	incomplete
dynamics	prepared in advance	manual
navigation	links, buttons	slide shuffling



## When preparing a presentation, . . .

- plan carefully in advance;
- use dedicated packages;
- landscape; no frames or borders;
- ensure font readability;
- emphasize with **color**;
- use navigation aids.



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## Day One

- 1 The T<sub>E</sub>XPower bundle
- 2 The `powersem` class
- 3 The `tpslifonts` package
- 4 `texpower` General Features



## 5 **texpower's Color Handling**

5.1 Standard colors

5.2 Color sets

5.3 Color Background Options

5.4 Color variants

5.5 Miscellaneous color management commands

5.6 Color Emphasis and Highlighting

5.7 New emphasis and highlighting elements

5.8 Predefined standard colors

5.9 Gradient rules and boxes

5.10 Further development



## 6 Page backgrounds, Panels

6.1 Structured page backgrounds

6.2 Panel-specific user level commands

6.3 Further development

## 7 Navigation helpers



## Day Two

### 8 Incremental display

- 8.1 Basic display effects
- 8.2 Customising display effects
- 8.3 Controlling the order of display
- 8.4 Page transitions and automatic advancing



## Day Three

### 9 Designing a Presentation

9.1 Conference Talks

9.2 Lectures

### 10 Typical Applications

10.1 Presenting Text

10.2 Presenting Mathematics

10.3 Presenting Graphics

10.4 Designing Custom Display Commands



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Currently, T<sub>E</sub>XPower is a **SourceForge** project in alpha stage, maintained by Hans Fr. Nordhaug — many thanks to him.



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The latest released version is also found at CTAN in

<CTAN:macros/latex/expt1/texpower/>



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**powersem.cls**: a simple **seminar** extension fixing some bugs and adding some functionality for presentations.

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Can be used like **seminar** but adds some (small) bugfixes and extensions.

**New option:** **display** Sets everything up for incremental display. In particular, seminar is kept from shoving and squeezing things.

**New option:** **truepagenumbers** To get correct page links if slides are numbered *c.s.p.*

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- Rewrite seminar.



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3 The `tpslifonts` package

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- prefer Type1 fonts (for Acrobat versions below 6);
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This means careful specific font configuration is required.

When using ‘standard’ Type1 fonts like Helvetica, there is not much flexibility in font configuration (above the facilities already provided by the **mathptmx** package).



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**General rule:**    **Never** use large design sizes in presentations!

Readability can be much enhanced by restricting the choice of design sizes to low values.



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**cmr17**: Careful specific font configuration is required.



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cmss8: Careful specific font configuration is required.

Additionally, the cm family contains the “Slifonts” subfamily designed specifically for presentations:

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**Math fonts** are another extremely important topic for font configuration, especially because no existing presentation package gets them even remotely right.

**General rule:** As math is almost always more important than the surrounding text, math fonts should be more readable than text fonts, **not less!**



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The font family “computer modern math italic” (cmmi) is particularly problematic, especially when combined with sans serif text.

Fortunately, lately the sans serif math font family “computer modern bright” (cmb) has been made freely available in Type1 format.



3 The `tpslifonts` package

seminar

standard

style

(cmr+cmmi)

$$\begin{aligned}
 c_k &= \frac{1}{2\pi} \int_0^{2\pi} f(x) e^{-ikx} dx = \frac{1}{2\pi} \sum_{j=1}^r \int_{t_{j-1}}^{t_j} f(x) e^{-ikx} dx \\
 &= \frac{-i}{2\pi k} \int_0^{2\pi} \varphi(x) e^{-ikx} dx = \frac{-i\gamma_k}{k}.
 \end{aligned}$$

As for all  $\alpha, \beta \in \mathbb{C}$ ,  $|\alpha\beta| \leq \frac{1}{2} (|\alpha|^2 + |\beta|^2)$ , it holds that

$$|c_k| \leq \frac{1}{2} \left( \frac{1}{|k|^2} + |\gamma_k|^2 \right).$$

From the convergence of  $\sum_{k=1}^{\infty} \frac{1}{k^2}$  and  $\sum_{k=-\infty}^{\infty} |\gamma_k|^2$ , it follows that

$$\sum_{k=-\infty}^{\infty} |c_k| < \infty.$$



3 The `tpslifonts` package

seminar

standard

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(cmr+cmmi)

with design

size

restriction

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seminar

with

sem1cmss

option

(lcmss+cmmi)

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3 The `tpslifonts` package

seminar

with

semhelv

option

(phv+cmmi)

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seminar

with

helvet

and

mathptmx

packages

(phv+ptm)

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seminar

with lcms

+ cmbright

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foils

standard

style

(cmss+cmmi)

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with

cmbright

math

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(lcmss+cmb)

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 c_k &= \frac{1}{2\pi} \int_0^{2\pi} f(x) e^{-ikx} dx = \frac{1}{2\pi} \sum_{j=1}^r \int_{t_{j-1}}^{t_j} f(x) e^{-ikx} dx \\
 &= \frac{-i}{2\pi k} \int_0^{2\pi} \varphi(x) e^{-ikx} dx = \frac{-i\gamma_k}{k}.
 \end{aligned}$$

As for all  $\alpha, \beta \in \mathbb{C}$ ,  $|\alpha\beta| \leq \frac{1}{2} (|\alpha|^2 + |\beta|^2)$ , it holds that

$$|c_k| \leq \frac{1}{2} \left( \frac{1}{|k|^2} + |\gamma_k|^2 \right).$$

From the convergence of  $\sum_{k=1}^{\infty} \frac{1}{k^2}$  and  $\sum_{k=-\infty}^{\infty} |\gamma_k|^2$ , it follows that

$$\sum_{k=-\infty}^{\infty} |c_k| < \infty.$$



3 The `tpslifonts` package

prosper  
stan-  
dard  
style

## math example

$$c_k = \frac{1}{2\pi} \int_0^{2\pi} f(x) e^{-ikx} dx = \frac{1}{2\pi} \sum_{j=1}^r \int_{t_{j-1}}^{t_j} f(x) e^{-ikx} dx$$

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3 The `tpslifonts` package

prosper

with

helvet

and

mathptmx

pack-

ages

(phv+ptm)

## math example

$$c_k = \frac{1}{2\pi} \int_0^{2\pi} f(x) e^{-ikx} dx = \frac{1}{2\pi} \sum_{j=1}^r \int_{t_{j-1}}^{t_j} f(x) e^{-ikx} dx$$

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3 The `tpslifonts` package

prosper

with

lcmss

and

cm-

bright

math

(lcmss

+

cmbr)

## math example

$$c_k = \frac{1}{2\pi} \int_0^{2\pi} f(x) e^{-ikx} dx = \frac{1}{2\pi} \sum_{j=1}^r \int_{t_{j-1}}^{t_j} f(x) e^{-ikx} dx$$

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3 The `tpslifonts` package

The `tpslifonts` package tries to get all the font stuff 'right'.

**General features:**

- Independent of the rest of the T<sub>E</sub>XPower bundle.
- Supports a wide range of fonts.
- Selects only fonts freely available in Type1 format.
- Presentation-friendly design size selection.
- 'smooth scaling' for all fonts.
- Supports OT1 and T1 font encoding.



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**Text font options:**

`cmr` Computer Modern Roman text (default: lcms).

`cmfib` Computer Modern Roman Fibonacci text.

`cmss` Computer Modern Sans Serif text.

`cmbright` Computer Modern Bright text.

`concrete` Concrete text.



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`eulermath` Euler math (default: cmmi).

`cmbrightmath` Computer Modern Bright math.



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`scale5pt`, `scale6pt`, `scale7pt` set maximum design size (default 8pt).

`scaleupmath`, `scaleuptt` scale math and typewriter fonts to match text font (only useful for `lcmss`).

`textops` take math operators (and upper case greek) from text font.



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3 The `tpslifonts` package

`cmbrightmath`,  
`scaleupmath`,  
`scaleuptt`,  
`textops`

$$c_k = \frac{1}{2\pi} \int_0^{2\pi} f(x) e^{-ikx} dx = \frac{1}{2\pi} \sum_{j=1}^r \int_{t_{j-1}}^{t_j} f(x) e^{-ikx} dx$$

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3 The `tpslifonts` package

eulermath,  
scaleupmath,  
scaleuptt

$$\begin{aligned} c_k &= \frac{1}{2\pi} \int_0^{2\pi} f(x) e^{-ikx} dx = \frac{1}{2\pi} \sum_{j=1}^r \int_{t_{j-1}}^{t_j} f(x) e^{-ikx} dx \\ &= \frac{-i}{2\pi k} \int_0^{2\pi} \varphi(x) e^{-ikx} dx = \frac{-i\gamma_k}{k}. \end{aligned}$$

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3 The `tpslifonts` package

`cmr`,  
`scale7pt`

$$\begin{aligned} c_k &= \frac{1}{2\pi} \int_0^{2\pi} f(x) e^{-ikx} dx = \frac{1}{2\pi} \sum_{j=1}^r \int_{t_{j-1}}^{t_j} f(x) e^{-ikx} dx \\ &= \frac{-i}{2\pi k} \int_0^{2\pi} \varphi(x) e^{-ikx} dx = \frac{-i\gamma_k}{k}. \end{aligned}$$

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3 The `tpslifonts` package

`cmfib,`  
`scale7pt`

$$\begin{aligned} c_k &= \frac{1}{2\pi} \int_0^{2\pi} f(x) e^{-ikx} dx = \frac{1}{2\pi} \sum_{j=1}^r \int_{t_{j-1}}^{t_j} f(x) e^{-ikx} dx \\ &= \frac{-i}{2\pi k} \int_0^{2\pi} \varphi(x) e^{-ikx} dx = \frac{-i\gamma_k}{k}. \end{aligned}$$

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3 The `tpslifonts` package

`cmfib,`  
`scale7pt,`  
`scaleupmath,`  
`scaleuptt,`  
`\boldmath`

$$\begin{aligned}
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3 The `tpslifonts` package

`cmbright`,  
`cmbrightmath`

$$\begin{aligned} c_k &= \frac{1}{2\pi} \int_0^{2\pi} f(x) e^{-ikx} dx = \frac{1}{2\pi} \sum_{j=1}^r \int_{t_{j-1}}^{t_j} f(x) e^{-ikx} dx \\ &= \frac{-i}{2\pi k} \int_0^{2\pi} \varphi(x) e^{-ikx} dx = \frac{-i\gamma_k}{k}. \end{aligned}$$

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3 The `tpslifonts` package

concrete,  
eulermath

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## Further development

- Smarter choice of design sizes.
- Allow **bitmap** fonts (optional).
- Make dedicated ‘slifonts’ versions of math and typewriter fonts to avoid scaling.
- Make dedicated versions of cmr and cmmi (darker, different geometry) for slides.



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The package **texpower** is completely independent of the document class used and the method of **pdf** creation.

### General Options:

**option: `display`**. Enable 'dynamic' features. If not set, it is assumed that the document is to be printed, and all commands for dynamic presentations have no effect.

**option: `printout` (default)**. No 'dynamic' features.

**option: `verbose`**. Output some administrative info.



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**4 texpower** General Features

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**option: `fixcolorstack`** switches on color stack correction. Use it if you experience strange color switches in your document.



If a color-related option (see below) is given to the **texpower** package, T<sub>E</sub>XPower installs an extensive color management scheme on top of the kernel of the **color** package.



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## 5.1 Standard colors

T<sub>E</sub>XPower maintains a list of **standard colors** which are recognized and handled by T<sub>E</sub>XPower's color management. Some commands like **\dimcolors** affect all standard colors.



There are some predefined colors which are in this list from the outset.



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`\defineTPcolor{<name>}{<model>}{<def>}` acts like `\definecolor` from the `color` package, but the color `<name>` is also added to the list of standard colors.



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`\defineTPcolor{<name>}{<model>}{<def>}` acts like `\definecolor` from the `color` package, but the color `<name>` is also added to the list of standard colors.

`\addTPcolor{<name>}` adds an existing color to the list of standard colors.



## 5.2 Color sets

Every standard color may be defined in one or several **color sets**. There are two fundamentally different types of color set:

**The current color set.** This contains the current definition of every standard color which is actually used at the moment. Every standard color should be defined at least in the current color set. The current color set is not distinguished by a special name.



**Named color sets.** These are 'containers' for a full set of color definitions (for the standard colors) which can be activated by respective commands.



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Color definitions in a named color set are not currently available, they have to be made available by **activating** the named color set.



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Color definitions in a named color set are not currently available, they have to be made available by **activating** the named color set.

There are four predefined color sets named **whitebg**, **lightbg**, **darkbg**, **blackbg**.



There are the following commands for manipulating color sets:

`\usecolorset{<name>}` Make the color set named `<name>` the **current color set**. All standard colors in the current color set which are also in color set `<name>` are overwritten.

`\dumpcolorset{<name>}` Copy the definitions of all standard colors in the current color set into color set named `<name>`.



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`\dumpcolorset{<name>}` Copy the definitions of all standard colors in the current color set into color set named `<name>`.



## 5.3 Color Background Options

For activating the predefined color sets, there are shorthands `\whitebackground`, `\lightbackground`, `\darkbackground`, `\blackbackground` which execute `\usecolorset` and additionally set the background color to its current value.



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There are package options to set the background color which automatically execute the respective command.



**option: `whitebackground` (default)** Set standard colors to match a white background color.

**option: `lightbackground`** Set standard colors to match a light (but not white) background color.

**option: `darkbackground`** Set standard colors to match a dark (but not black) background color.

**option: `blackbackground`** Set standard colors to match a black background color.



## 5.4 Color variants

In addition to color sets, T<sub>E</sub>XPower implements a concept of **color variant**. Currently, every color has three variants: **normal**, **dimmed**, and **enhanced**. The normal variant is what is usually seen, text written in the dimmed variant appears “faded into the background” and text written in the enhanced variant appears to “stick out” .



It is possible to predefine a **designated color** for a color variant.



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For color **<color>** the designated name of the **dimmed** variant is **d<color>**, the designated name of the **enhanced** variant is **e<color>**.



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For color **<color>** the designated name of the **dimmed** variant is **d<color>**, the designated name of the **enhanced** variant is **e<color>**.

If a color by that name exists at the time the variant is switched to, then variant switching is executed by replacing color **<color>** with the designated color.



If a color by the **designated name** does not exist at the time a color variant is switched to, then variant switching is executed by **automatically** calculating the color variant from the original color.



If a color by the **designated name** does not exist at the time a color variant is switched to, then variant switching is executed by **automatically** calculating the color variant from the original color.

The dimmed variant is calculated by **interpolating** between **pagecolor** and the color to be dimmed, using the **\colorbetween** command.



5 **texpower**'s Color Handling

If a color by the **designated name** does not exist at the time a color variant is switched to, then variant switching is executed by **automatically** calculating the color variant from the original color.

The dimmed variant is calculated by **interpolating** between **pagecolor** and the color to be dimmed, using the **\colorbetween** command.

There is a command **\dimlevel** which contains the parameter **\weight** given to **\colorbetween** (default: 0.7).



The enhanced variant is calculated by **extrapolating** the color to be enhanced (relative to **pagecolor**).



The enhanced variant is calculated by **extrapolating** the color to be enhanced (relative to **pagecolor**).

There is a command `\enhancelevel` which gives the **extent** of the extrapolation (default: **0.5**).



The following commands switch color variants:

`\dimcolor[⟨level⟩]{⟨color⟩}` switches color  
⟨color⟩ to the **dimmed** variant. If given, ⟨level⟩  
replaces the value of `\dimlevel` in automatic  
calculation of the dimmed variant.

`\dimcolors[⟨level⟩]` switches all standard colors to  
the **dimmed** variant.



The following commands switch color variants:

`\dimcolor[⟨level⟩]{⟨color⟩}` switches color  
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replaces the value of `\dimlevel` in automatic  
calculation of the dimmed variant.

`\dimcolors[⟨level⟩]` switches all standard colors to  
the **dimmed** variant.



`\enhancecolor[⟨level⟩]{⟨color⟩}` switches color  
⟨color⟩ to the enhanced variant.

`\enhancecolors[⟨level⟩]` switches all standard  
colors to the enhanced variant.



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⟨color⟩ to the **enhanced** variant.

`\enhancecolors[⟨level⟩]` switches all standard  
colors to the **enhanced** variant.



## 5.5 Miscellaneous color management commands

```
\replacecolor[⟨tset⟩]{⟨tcolor⟩}[⟨sset⟩]{⟨scolor⟩}
```

makes `⟨tcolor⟩` have the same definition as `⟨scolor⟩` (if `⟨scolor⟩` is defined at all), where `⟨tcolor⟩` and `⟨scolor⟩` are color names as given in the first argument of `\definecolor`. If (one of) `⟨tset⟩` and `⟨sset⟩` are given, the respective color is taken from the respective color set, otherwise from the current color set.



```
\colorbetween[⟨weight⟩]{⟨src1⟩}{⟨src2⟩}{⟨target⟩}
```

calculates a 'weighted average' between two colors.

⟨**src1**⟩ and ⟨**src2**⟩ are the names of the two colors.

⟨**weight**⟩ (default: **0.5**) is a fixed-point number

between **0** and **1** giving the 'weight' for the

interpolation between ⟨**src1**⟩ and ⟨**src2**⟩. ⟨**target**⟩

is the name to be given to the resulting mixed color.



`\vanishcolors[⟨color⟩]` is similar to the color variant command `\dimcolors`, but instead of dimming colors, all standard colors are replaced by a single color given by the new command `\vanishcolor` (default: `pagecolor`).



## 5.6 Color Emphasis and Highlighting

**texpower** offers some support for text emphasis and highlighting with colors (instead of, say, font changes). These features are enabled by the following options:

**option: `coloremph`** Make `\em` and `\emph` switch colors instead of fonts.

**option: `colormath`** Color all mathematical formulae.

**option: `colorhighlight`** Make new highlighting commands defined by **texpower** use colors.



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## 5.7 New emphasis and highlighting elements

`\origmath` works exactly like `\ensuremath` but doesn't color its argument.

`\underl` Additional **emphasis** command. Defaults to **bold face** if the `colorhighlight` option is not given.

`\concept` Additional **emphasis** command. Also defaults to **bold face** if the `colorhighlight` option is not given.



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**`\inactive`** Additional emphasis command, this time for 'de-emphasising'. There is no sensible default if the **`colorhighlight`** option is not given.

**`\present`** Highlighting command which puts its argument into a **box with colored background**. Defaults to an **`\fbox`** if the **`colorhighlight`** option is not given.



**`\inactive`** Additional emphasis command, this time for 'de-emphasising'. There is no sensible default if the **`colorhighlight`** option is not given.

**`\present`** Highlighting command which puts its argument into a **box with colored background**. Defaults to an **`\fbox`** if the **`colorhighlight`** option is not given.



## 5.8 Predefined standard colors

**color: pagecolor** Background color of the page.

**color: textcolor** Color of normal text.

**color: emcolor** Color used for emphasis if the **coloremph** option is set.

**color: altemcolor** Color used for double emphasis if the **coloremph** option is set.



**color: mathcolor** Color used for math  $a^2 + b^2 = c^2$  if the **colormath** option is set.

**color: codecolor** Color used by the **\code** command if the **colorhighlight** option is set.

**color: underlcolor** Color used by the **\underl** command if the **colorhighlight** option is set.

**color: conceptcolor** Color used by the **\concept** command if the **colorhighlight** option is set.



**color: inactivecolor** Color used by the `\inactive` command if the `colorhighlight` option is set.

**color: presentcolor** Color used as background color by the `\present` command if the `colorhighlight` option is set.

**color: highlightcolor** Color used as background color by the `\highlightboxed` and `\highlighttext` commands if the `colorhighlight` option is set.



## 5.9 Gradient rules and boxes

```
\vgradrule[⟨str⟩][⟨mod1⟩]{⟨col1⟩}[⟨mod2⟩]{⟨col2⟩}[⟨r⟩]{⟨w⟩}{⟨h⟩}
```

creates a rule-like object consisting of a vertical color gradient composed of horizontal stripes. The topmost stripe has color `⟨col1⟩`, the bottommost stripe has color `⟨col2⟩`. Inbetween, color changes gradually from top to bottom. The colors are specified by the `⟨mod1⟩/⟨col1⟩` and `⟨mod2⟩/⟨col2⟩` pairs exactly as for the `\color` command.

`[⟨r⟩]{⟨w⟩}{⟨h⟩}` are the usual `\rule` arguments.



The optional argument `<str>`, if given, should contain a number specifying the number of stripes.

`\rulefirstgradprogression` should expand to an integer. This value (default **1**) controls the 'order' of progression from `<col1>` to `<col2>`. The default value **1** means linear progression. **2** means quadratic progression, etc. **-2** means quadratic progression "from bottom to top", etc.

`\vgradrule{red}{blue}{10em}{2ex}` gives



```
\hgradrule[⟨str⟩][⟨mod1⟩]{⟨col1⟩}[⟨mod2⟩]{⟨col2⟩}[⟨r⟩]{⟨w⟩}{⟨h⟩}
```

is equivalent with `\vgradrule`, but the gradient is composed from vertical stripes progressing horizontally.

`\hgradrule{red}{blue}{10em}{2ex}` gives

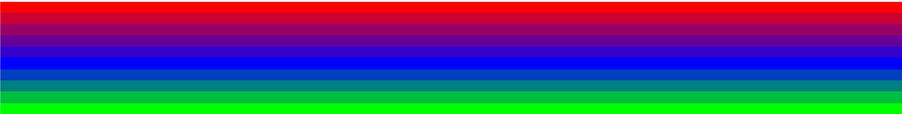


```
\dblvggradrule[⟨mid⟩][⟨str⟩][⟨m1⟩]{⟨c1⟩}[⟨m2⟩]{⟨c2⟩}[⟨m3⟩]{⟨c3⟩}[⟨r⟩]
```

gives a ‘vertically progressing’ double-gradient rule which has a start, middle, and end color.

`⟨mid⟩` should be a fraction between **0** and **1** giving the relative position at which the ‘middle’ color is located.

```
\dblvggradrule{red}{blue}{green}[-1ex]{10em}{3ex}
```

gives .



```
\dblhgradrule[⟨mid⟩][⟨str⟩][⟨m1⟩]{⟨c1⟩}[⟨m2⟩]{⟨c2⟩}[⟨m3⟩]{⟨c3⟩}[⟨r⟩]
```

is equivalent with `\dblvgradrule`, but the gradient is composed from vertical stripes progressing horizontally.

```
\dblhgradrule[.3][100]{red}{blue}{green}[-1ex]{10em}
```

gives



```
\vgradbox[⟨str⟩][⟨mod1⟩]{⟨col1⟩}[⟨mod2⟩]{⟨col2⟩}{⟨content⟩}
```

creates an mbox containing **⟨content⟩**, which has a background made up of a vertical color gradient. In fact, the background exceeds the extent of **⟨content⟩** by the value of **\fboxsep** on every side, just like the **\colorbox** command from the color package. The gradient background is constructed using the **\vgradrule** command.

```
\vgradbox{textcolor}{conceptcolor}{\textcolor{presentcolor}{foo}}
```

gives **foo**.

5 **texpower**'s Color Handling

```
\hgradbox[⟨str⟩][⟨mod1⟩]{⟨col1⟩}[⟨mod2⟩]{⟨col2⟩}{⟨content⟩}
```

```
\dblvggradbox[⟨mid⟩][⟨str⟩][⟨m1⟩]{⟨c1⟩}[⟨m2⟩]{⟨c2⟩}[⟨m3⟩]{⟨c3⟩}{⟨cont
```

```
\dblhggradbox[⟨mid⟩][⟨str⟩][⟨m1⟩]{⟨c1⟩}[⟨m2⟩]{⟨c2⟩}[⟨m3⟩]{⟨c3⟩}{⟨cont
```

all create boxes the backgrounds of which are made of the respective gradient rules.

```
\dblhggradbox[] [20] [rgb]{.8,1,1}[rgb]{1,.8,1}[rgb]{1,1,.6}{jabberwocky
```

gives  jabberwocky.



## 5.10 Further development

- Use 'native' color gradient facilities of the target format (**ps**, **pdf**) if available.
- Add facilities to aid in creating presentations which are friendly to color blind people.
- Add facilities for creating several color variants of a presentation simultaneously and switching between them 'on the fly' based on viewing conditions.
- Make an empiric study on the readability of color combinations.



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## 6.1 Structured page backgrounds

`\backgroundstyle[⟨options⟩]{⟨style⟩}` is the central command for structured page backgrounds. It works like `\pagestyle` and other commands of this type. This means `⟨style⟩` is a symbolic name specifying the general method by which the page background is constructed.



## 6.1 Structured page backgrounds

`\backgroundstyle[⟨options⟩]{⟨style⟩}` is the central command for structured page backgrounds. It works like `\pagestyle` and other commands of this type. This means `⟨style⟩` is a symbolic name specifying the general method by which the page background is constructed.

The detailed construction is influenced by parameters which can be set in `⟨options⟩`, which should be a comma-separated list of `⟨key⟩=⟨value⟩` pairs.



`<style>` may have one of the following values:

**Style:** `none` No background.

**Options:** none.



`<style>` may have one of the following values:

**Style: none** No background.

**Options:** none.

**Style: plain** Plain background. In addition to background style `none`, the background style `plain` does produce panel backgrounds.

**Options:** `hpanels`, `autopanelcolor`, `bottompanelcolor`, `leftpanelcolor`, `rightpanelcolor`, `toppanelcolordef`, `bottompanelcolordef`, `leftpanelcolordef`, `rightpanelcolordef`, `toppanelheight`, `bottompanelheight`, `leftpanelwidth`, `rightpanelwidth`.



**Style:** `vgradient`      Vertical gradient. The page background is constructed using the `\vgradrule` command. If there are panels, the gradient rule fills the rectangular space left between the specified panels.

**Options:** `stripes`, `firstgradprogression`, `startcolor`, `startcolordef`, `endcolor`, `endcolordef` in addition to the parameters used for style `plain`.



**Style: `vgradient`**

Vertical gradient. The page background is constructed using the `\vgradrule` command. If there are panels, the gradient rule fills the rectangular space left between the specified panels.

**Options:** `stripes`, `firstgradprogression`, `startcolor`, `startcolordef`, `endcolor`, `endcolordef` in addition to the parameters used for style `plain`.

**Style: `hgradient`**

Horizontal gradient. The page background is constructed using the `\hgradrule` command.



**Style: `doublevgradient`** Double vertical gradient.

The page background is constructed using the `\dblvggradrule` command.

**Options:** `gradmidpoint`, `secondgradprogression`, `midcolor`, `midcolordef` in addition to the parameters used for style `vgradient` (and `plain`).



**Style: `doublevgradient`** Double vertical gradient.

The page background is constructed using the `\dblvggradrule` command.

**Options:** `gradmidpoint`, `secondgradprogression`, `midcolor`, `midcolordef` in addition to the parameters used for style `vgradient` (and `plain`).

**Style: `doublehgradient`** Double horizontal gradient.

The page background is constructed using the `\dblhggradrule` command.



Now, a list of all parameters and their meaning. In the following,

- $\langle \mathbf{n} \rangle$ : (calc expression for a) nonnegative integer
- $\langle \mathbf{i} \rangle$ : (calc expression for an) integer
- $\langle \mathbf{r} \rangle$ : fixed-point number
- $\langle \mathbf{l} \rangle$ : (calc expression for a) length
- $\langle \mathbf{c} \rangle$ : name of a defined color
- $\langle \mathbf{cm} \rangle$ : valid color model name
- $\langle \mathbf{cd} \rangle$ : valid color definition wrt a given  $\langle \mathbf{cm} \rangle$  parameter
- $\langle \mathbf{t} \rangle$ : ‘truth value’ in the sense of the ifthen package.



**Option: `stripes=<n>`** Set the `<stripes>` parameter of gradient rules to `<n>`.

**Default:** `\bgndstripes`.

**Used by:** `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`.

**Option: `gradmidpoint=<r>`** Set the `<midpoint>` parameter of double gradient rules to `<r>`.

**Default:** `\bgndgradmidpoint`

**Used by:** `doublevgradient`, `doublehgradient`



**Option: `firstgradprogression=<i>`** Set the first gradient progression of gradient rules to `<i>`.

**Default:** `\bgndfirstgradprogression`

**Used by:** `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`

**Option: `secondgradprogression=<i>`** Set the second gradient progression of double gradient rules to `<i>`.

**Default:** `\bgndsecondgradprogression`

**Used by:** `doublevgradient`, `doublehgradient`



**Option:** `startcolor=<c>` Set the `<startcolor>` parameter of gradient rules to `<c>`.

**Default:** If neither `startcolor` nor `startcolordef` is given, the color `bgndstartcolor` is used as startcolor.

**Used by:** `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`

**Overwrites:** `startcolordef`



**Option:** `startcolordef={⟨cm⟩}{⟨cd⟩}` Set the

⟨`startcolor`⟩ parameter of gradient rules to color `foo`, which is obtained by

`\definecolor{foo}{⟨cm⟩}{⟨cd⟩}`. Note that the two pairs of curly braces are mandatory.

**Default:** If neither `startcolor` nor `startcolordef` is given, the color `bgndstartcolor` is used as `startcolor`.

**Used by:** `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`

**Overwrites:** `startcolor`



**Option:** `endcolor=<c>` Set the `<endcolor>`

parameter of gradient rules to `<c>`.

**Default:** If neither `endcolor` nor `endcolordef` is given, the color `bgndendcolor` is used as `endcolor`.

**Used by:** `vgradient`, `hgradient`, `doublevgradient`,  
`doublehgradient`

**Overwrites:** `endcolordef`



**Option:** `endcolordef={⟨cm⟩}{⟨cd⟩}`      Set the

`⟨endcolor⟩` parameter of gradient rules to color `foo`, which is obtained by `\definecolor{foo}{⟨cm⟩}{⟨cd⟩}`. Note that the two pairs of curly braces are mandatory.

**Default:** If neither `endcolor` nor `endcolordef` is given, the color `bgndendcolor` is used as `endcolor`.

**Used by:** `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`

**Overwrites:** `endcolor`



**Option:** `midcolor=<c>` Set the `<midcolor>`

parameter of double gradient rules to `<c>`.

**Default:** If neither `midcolor` nor `midcolordef` is given, the color `bgndmidcolor` is used as midcolor.

**Used by:** `doublevgradient`, `doublehgradient`

**Overwrites:** `midcolordef`



**Option:** `midcolordef={⟨cm⟩}{⟨cd⟩}` Set the  
⟨`midcolor`⟩ parameter of double gradient rules to  
color foo, which is obtained by  
`\definecolor{foo}{⟨cm⟩}{⟨cd⟩}`. Note that the  
two pairs of curly braces are mandatory.

**Default:** If neither `midcolor` nor `midcolordef` is given, the color  
`bgndmidcolor` is used as midcolor.

**Used by:** `doublevgradient`, `doublehgradient`

**Overwrites:** `midcolor`



**Option: `hpanels=<t>`** Specifies the ‘direction’ of panels produced. `hpanels=true` means the top and bottom panel span the full width of the screen. In the space left in the middle, the left panel, the background itself, and the right panel are displayed. `hpanels=false` means the left and right panel span the full height of the screen.

**Default:** `hpanels=true` is the default for `plain`, `hgradient` and `doublehgradient`. `hpanels=false` is the default for `vgradient` and `doublevgradient`.

**Used by:** `plain`, `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`



**Option: `autopanelwidths=<t>`** Specifies whether the default values of the parameters `toppanelheight`, `bottompanelheight`, `leftpanelwidth`, `rightpanelwidth` should be calculated automatically from the contents of declared panels, or if the current panel dimensions of declared panels are to be used as defaults.

**Default:** `true`.

**Used by:** `plain`, `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`



**Option:** `<pos>panelheight=<1>` Set the height of space left for the `top/bottom` panel to `<1>`. The width is calculated automatically, depending on the setting of the `hpanels` parameter.

**Default:** If a panel has been defined using `\DeclarePanel`, then if `autopanelheight=true`, the height is calculated from the contents of the panel. `\toppanelheight` or `\bottompanelheight` is overwritten with the result. If `autopanelheight=false`, the setting of `\toppanelheight` or `\bottompanelheight` is taken as the default. If a panel has not been declared, `\bgndtoppanelheight` or `\bgndbottompanelheight` is used as default.

**Used by:** `plain`, `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`



**Option:** `<pos>panelwidth=<l>` Set the width of space left for the `left/right` panel to `<l>`. The height is calculated automatically, depending on the setting of the `hpanels` parameter.

**Default:** If a panel has been defined using `\DeclarePanel`, then if `autopanelwidth=true`, the height is calculated from the contents of the panel. `\leftpanelwidth` or `\rightpanelwidth` is overwritten with the result. If `autopanelwidth=false`, the setting of `\leftpanelwidth` or `\rightpanelwidth` is taken as default. If a panel has not been declared, `\bgndleftpanelwidth` or `\bgndrightpanelwidth` is used as default.

**Used by:** `plain`, `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`



**Option:** `<pos>panelcolor=<c>` Set the background color of the `top/bottom/left/right` panel to `<c>`.

**Default:** The standard colors `toppanelcolor`, `bottompanelcolor`, `leftpanelcolor`, `rightpanelcolor` are used as defaults.

**Used by:** `plain`, `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`

**Overwrites:** `toppanelcolordef` / `bottompanelcolordef` / `leftpanelcolordef` / `rightpanelcolordef`



**Option:** `<pos>panelcolordef={<cm>}{<cd>}` Set the

background color of the `top/bottom/left/right` panel to color `foo`, which is obtained by

`\definecolor{foo}{<cm>}{<cd>}`. Note that the two pairs of curly braces are mandatory.

**Used by:** `plain`, `vgradient`, `hgradient`, `doublevgradient`, `doublehgradient`

**Overwrites:** `toppanelcolor` `bottompanelcolor` `leftpanelcolor` `rightpanelcolor`



## 6.2 Panel-specific user level commands

```
\DeclarePanel[⟨name⟩]{⟨pos⟩}{⟨contents⟩}
```

declares the contents `⟨contents⟩` of the panel at position `⟨pos⟩`. Afterwards, on every page the panel contents are set in a parbox of dimensions and position specified by `\⟨pos⟩panelwidth`, `\⟨pos⟩panelheight`, `\panelmargin` and `\⟨pos⟩panelshift` for top and bottom panels and `\⟨pos⟩panelraise` for left and right panels.



The parbox is constructed anew on every page, so all changes influencing panel contents or parameters (like a `\thepage` in the panel contents) are respected.



The parbox is constructed anew on every page, so all changes influencing panel contents or parameters (like a `\thepage` in the panel contents) are respected.

The panel contents are set in color `\langle pos \rangle paneltextcolor`. There is another standard color `\langle pos \rangle panelcolor`, which is however not activated by `\DeclarePanel` but by selecting an appropriate **background style**.



The parbox is constructed anew on every page, so all changes influencing panel contents or parameters (like a `\thepage` in the panel contents) are respected.

The panel contents are set in color

`\langle pos \rangle paneltextcolor`. There is another standard color `\langle pos \rangle panelcolor`, which is however not activated by `\DeclarePanel` but by selecting an appropriate **background style**.

Note that `\backgroundstyle` must be called after the panel declaration.



Pages are constructed as follows: first the page background, then the panels, and then the page contents. Hence, panels overwrite the background and the page contents overwrite the panels.



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The user is supposed to make sure themselves that there is enough space left on the page for the panels (document class specific settings).



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The user is supposed to make sure themselves that there is enough space left on the page for the panels (document class specific settings).

The panel declaration is global. A panel can be 'undeclared' by using `\DeclarePanel{<pos>}{}`.



If the optional argument `<name>` is given, the panel contents and (calculated) size will also be stored under the given name, to be restored later with `\restorepanels`. This is nice for switching between different sets of panels.



For an example look at the files `simplepanel.tex` and `panelexample.tex` in the `doc` directory. A simple example follows:

```
\DeclarePanel{left}{%  
  \textsf{Your Name}  
  
  \vfill  
  
  \button{\Acrobatmenu{PrevPage}}{Back}  
  \button{\Acrobatmenu{NextPage}}{Next} }
```



There is a starred version which will (try to) automatically calculate the ‘flexible’ dimension of each panel. For top and bottom panels this is the height, for left and right panels this is the width. Make sure the panel contents are ‘valid’ at the time `\DeclarePanel*` is called so the calculation can be carried out in a meaningful way.



There is a starred version which will (try to) automatically calculate the ‘flexible’ dimension of each panel. For top and bottom panels this is the height, for left and right panels this is the width. Make sure the panel contents are ‘valid’ at the time `\DeclarePanel*` is called so the calculation can be carried out in a meaningful way.

While the automatic calculation of the height of top and bottom panels is trivial (using `\settoheight`), there is a sophisticated procedure for calculating a ‘good’ width for the parbox containing the panel.



The procedure is not perfect, but if no ‘indigestible’ things crop up (which can result from rules or color changes appearing in the wrong place (vertical mode)), it will reliably make sure that no largish objects like logos or buttons end up sticking out of the panel.



## 6.3 Further development

- Add more background styles (pictures or tiles).
- Add background styles to panels.
- Define a user interface for easy definition of self-designed ‘fancy’ backgrounds.
- Allow to include **prosp**er styles.
- Add an option to scale (instead of overlay) the page to fit the content area left by the panels.
- Allow for more flexible panel layout and placement.



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`\button{<navcommand>}{<text>}` creates a button labelled `<text>` which executes `<navcommand>` when pressed.



`\button{<navcommand>}{<text>}` creates a button labelled `<text>` which executes `<navcommand>` when pressed.

`<navcommand>` can be for instance `\Acrobatmenu{<command>}` or `\hyperlink{<target>}` (note that `<navcommand>` should take one (more) argument specifying the sensitive area which is provided by `\button`).



`\button` takes four optional arguments (left out above): `\width`, `\height`, `\depth` and `\alignment` in that order. If given, `\width`, `\height`, `\depth` give the dimensions of the framed area comprising the button (excluding the shadow, but including the frame).



`\button` takes four optional arguments (left out above): `<width>`, `<height>`, `<depth>` and `<alignment>` in that order. If given, `<width>`, `<height>`, `<depth>` give the dimensions of the framed area comprising the button (excluding the shadow, but including the frame).

Default are the ‘real’ width, height and depth, respectively, of `<text>`, plus allowance for the frame.



## 7 Navigation helpers

`\button` takes four optional arguments (left out above): `<width>`, `<height>`, `<depth>` and `<alignment>` in that order. If given, `<width>`, `<height>`, `<depth>` give the dimensions of the framed area comprising the button (excluding the shadow, but including the frame).

Default are the ‘real’ width, height and depth, respectively, of `<text>`, plus allowance for the frame.

If given, the optional parameter `<alignment>` (one of `l,c,r`) gives the alignment of `<text>` inside the button box (makes sense only if `<width>` is given).



## 7 Navigation helpers

The button appearance is defined by some configurable button parameters:

`\buttonsep` Space between button label and border.  
(Default: `\fboxsep`)

`\buttonrule` Width of button frame. (Default: `0pt`)

`\buttonshadowhshift` Horizontal displacement of button shadow. (Default: `0.3\fboxsep`)

`\buttonshadowvshift` Vertical displacement of button shadow. (Default: `0.3\fboxsep`)



A list of predefined buttons follows:

`\ backpagebutton [⟨width⟩]` Last subpage of previous page.

`\ backstepbutton [⟨width⟩]` Previous step.

`\ gobackbutton [⟨width⟩]` ‘Undo action’ (go back to whatever was before last action).



## 7 Navigation helpers

```
\nextstepbutton[⟨width⟩]
```

Next step.

```
\nextpagebutton[⟨width⟩]
```

First subpage of next  
page.

```
\nextfullpagebutton[⟨width⟩]
```

Last subpage of  
next page.

```
\fullscreenbutton[⟨width⟩]
```

Toggle fullscreen  
mode.

## Further development

- Add more navigation buttons (and a more sensible naming scheme).
- More flexible labelling of standard buttons.
- Add means for **inline bookmarks** (parts of the table of contents displayed in a panel as a ‘jump table’).
- Sensible handling of **thumbnails**.
- Provide **progress indicators** which can also be used to jump to certain parts of the presentation.



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## 8.1 Basic display effects

### 8.1.1 The `\pause` command

`\pause` ships out the current page, starts a new page and copies whatever was on the current page onto the new page, where typesetting is resumed.



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### 8.1.1 The `\pause` command

`\pause` ships out the current page, starts a new page and copies whatever was on the current page onto the new page, where typesetting is resumed.

This will create the effect of a `pause` in the presentation.



## Things to pay attention to

1. `\pause` should appear in **vertical mode** only, i. e. between paragraphs or at places where ending the current paragraph doesn't hurt.



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1. `\pause` should appear in **vertical mode** only, i. e. between paragraphs or at places where ending the current paragraph doesn't hurt.
2. This means `\pause` is forbidden in all **boxed** material (including **tabular**), **headers/footers**, and **floats**.



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1. `\pause` should appear in **vertical mode** only, i. e. between paragraphs or at places where ending the current paragraph doesn't hurt.
2. This means `\pause` is forbidden in all **boxed** material (including **tabular**), **headers/footers**, and **floats**.
3. `\pause` shouldn't appear either in environments which have to be closed to work properly, like **picture**, **tabbing**, and (unfortunately) environments for **aligned math formulas**.



4. `\pause` does work in all environments which mainly influence paragraph formatting, like `center`, `quote` or all `list` environments.



## 8.1.2 The `\stepwise` command

`\stepwise{<contents>}` is a command for displaying some part of a L<sup>A</sup>T<sub>E</sub>X document (which is contained in `<contents>`) ‘step by step’.



## 8.1.2 The `\stepwise` command

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If `<contents>` contains one or more constructs of the form `\step{<stepcontents>}`, the following happens:



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`\stepwise{⟨contents⟩}` is a command for displaying some part of a L<sup>A</sup>T<sub>E</sub>X document (which is contained in `⟨contents⟩`) ‘step by step’.

If `⟨contents⟩` contains one or more constructs of the form `\step{⟨stepcontents⟩}`, the following happens:

1. The current contents of the page are saved (as with `\pause`).



2. As many pages as there are `\step` commands in `<contents>` are produced.



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Every page starts with what was on the current page when `\stepwise` started.



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Every page starts with what was on the current page when `\stepwise` started.

The first page also contains everything in `⟨contents⟩` which is not in `⟨stepcontents⟩` for any `\step` command.



## 8 Incremental display

2. As many pages as there are `\step` commands in `⟨contents⟩` are produced.

Every page starts with what was on the current page when `\stepwise` started.

The first page also contains everything in `⟨contents⟩` which is not in `⟨stepcontents⟩` for any `\step` command.

The second page additionally contains the `⟨stepcontents⟩` for the first `\step` command, and so on, until all `⟨stepcontents⟩` are displayed.



3. When all `<stepcontents>` are displayed, `\stepwise` ends and typesetting is resumed (still on the current page).



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This will create the effect that the `\step` commands are executed ‘                    ’.



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## Things to pay attention to

1. `\stepwise` should appear in **vertical mode** only, i. e. between paragraphs, just like `\pause`.
2. Don't put `\pause` or nested occurrences of `\stepwise` into `\contents`.
3. Structures where `\pause` does not work (like `tabular` or aligned equations) can go completely into `\contents`, where `\step` can be used freely.



4. `\step` can go in `\stepcontents`. The order of execution of `\step` commands is the order in which they appear in `\contents`, independent of nesting.



## 8 Incremental display

```
\begin{itemize}
\item one\pause
\item two\pause
\item three
\end{itemize}
```

gives

- one



## 8 Incremental display

```
\begin{itemize}
\item one\pause
\item two\pause
\item three
\end{itemize}
```

gives

- one
- two



## 8 Incremental display

```
\begin{itemize}  
  \item one\pause  
  \item two\pause  
  \item three  
\end{itemize}
```

gives

- one
- two
- three



## 8 Incremental display

```
\stepwise  
{%  
  one,  
  \step{two, }%  
  \step{three.}%  
}
```

gives  
one,



## 8 Incremental display

```
\stepwise  
{%  
  one,  
  \step{two, }%  
  \step{three.}%  
}
```

gives  
one, two,



## 8 Incremental display

```
\stepwise  
{%  
  one,  
  \step{two, }%  
  \step{three.}%  
}
```

gives  
one, two, three.



## 8.2 Customising display effects

### 8.2.1 `\boxedsteps` and `\nonboxedsteps`

By default, `⟨stepcontents⟩` belonging to a `\step` which is not yet ‘active’ are ignored altogether. This makes it possible to include e. g. tabulators `&` or line breaks into `⟨stepcontents⟩` without breaking anything.



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By default, `⟨stepcontents⟩` belonging to a `\step` which is not yet ‘active’ are ignored altogether. This makes it possible to include e. g. tabulators `&` or line breaks into `⟨stepcontents⟩` without breaking anything.

Sometimes, the desired behaviour of a `\step` which is not yet ‘active’ is to create an appropriate amount of blank space where `⟨stepcontents⟩` can go as soon as it is activated.



The simplest and most robust way of doing this is to create an empty box (aka `\phantom`) with the same dimensions as the text to be hidden.



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The simplest and most robust way of doing this is to create an empty box (aka `\phantom`) with the same dimensions as the text to be hidden.

This behaviour is toggled by the following commands.

`\boxedsteps` makes `\step` create a blank box the size of `\stepcontents` when inactive and put `\stepcontents` into a box when active.

`\nonboxedsteps` activates the default behaviour.



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The simplest and most robust way of doing this is to create an empty box (aka `\phantom`) with the same dimensions as the text to be hidden.

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`\boxedsteps` makes `\step` create a blank box the size of `\stepcontents` when inactive and put `\stepcontents` into a box when active.

`\nonboxedsteps` activates the default behaviour.



## 8 Incremental display

```

\stepwise
{\begin{tabular}{ll}
  \hline 1 & one%
  \step{\ 2 & two}%
  \step{\ 3 & three}\\
  \hline
\end{tabular}}
\par\boxedsteps
\begin{tabular}{ll}
  \hline 1 & one\\
  \step{2}&\step{two}\\
  \step{3}&\step{three}\\
  \hline
\end{tabular}}

```

gives

1	one
1	one

---



## 8 Incremental display

```

\stepwise
{\begin{tabular}{ll}
  \hline 1 & one%
  \step{\ 2 & two}%
  \step{\ 3 & three}\
  \hline
\end{tabular}
\par\boxedsteps
\begin{tabular}{ll}
  \hline 1 & one\
  \step{2}&\step{two}\
  \step{3}&\step{three}\
  \hline
\end{tabular}}

```

gives

---

 1    one

 2    two
 

---

 1    one
 

---



## 8 Incremental display

```

\stepwise
{\begin{tabular}{ll}
  \hline 1 & one%
  \step{\ 2 & two}%
  \step{\ 3 & three}\\
  \hline
\end{tabular}}
\par\boxedsteps
\begin{tabular}{ll}
  \hline 1 & one\\
  \step{2}&\step{two}\\
  \step{3}&\step{three}\\
  \hline
\end{tabular}}

```

gives

---

 1 one

2 two

3 three

---



---

 1 one

---



## 8 Incremental display

```

\stepwise
{\begin{tabular}{ll}
  \hline 1 & one%
  \step{\ 2 & two}%
  \step{\ 3 & three}\\
  \hline
\end{tabular}
\par\boxedsteps
\begin{tabular}{ll}
  \hline 1 & one\\
  \step{2}&\step{two}\\
  \step{3}&\step{three}\\
  \hline
\end{tabular}}

```

gives

---

 1 one

2 two

---

 3 three

---



---

 1 one

2

---



## 8 Incremental display

```

\stepwise
{\begin{tabular}{ll}
  \hline 1 & one%
  \step{\ 2 & two}%
  \step{\ 3 & three}\
  \hline
\end{tabular}
\par\boxedsteps
\begin{tabular}{ll}
  \hline 1 & one\
  \step{2}&\step{two}\
  \step{3}&\step{three}\
  \hline
\end{tabular}}

```

gives

---

 1 one

2 two

---

 3 three

---

1 one

2 two

---



## 8 Incremental display

```

\stepwise
{\begin{tabular}{ll}
  \hline 1 & one%
  \step{\ 2 & two}%
  \step{\ 3 & three}\\
  \hline
\end{tabular}}
\par\boxedsteps
\begin{tabular}{ll}
  \hline 1 & one\\
  \step{2}&\step{two}\\
  \step{3}&\step{three}\\
  \hline
\end{tabular}}

```

gives

---

1	one
2	two
3	three

---

1	one
2	two
3	

---



## 8 Incremental display

```

\stepwise
{\begin{tabular}{ll}
  \hline 1 & one%
  \step{\ 2 & two}%
  \step{\ 3 & three}\\
  \hline
\end{tabular}}
\par\boxedsteps
\begin{tabular}{ll}
  \hline 1 & one\\
  \step{2}&\step{two}\\
  \step{3}&\step{three}\\
  \hline
\end{tabular}}

```

gives

---

 1 one

2 two

---

 3 three

---



---

 1 one

2 two

---

 3 three


## 8.2.2 Custom versions of `\stepwise`

Sometimes, it might happen that vertical spacing is different on every page of a sequence generated by `\stepwise`, making lines ‘wobble’.

This is caused by interactions between different ways vertical spacing is added to the page. Hopefully, problems caused this way can be reduced until the first beta release.



## 8 Incremental display

There are two custom versions of `\stepwise` which should produce better vertical spacing.

`\liststepwise{<contents>}` works exactly like `\stepwise`, but adds an ‘invisible rule’ before `<contents>`. Use for list environments and aligned equations.

`\parstepwise{<contents>}` works like `\liststepwise`, but `\boxedsteps` is turned on by default. Use for texts where `\steps` are to be filled into blank spaces.



### 8.2.3 Starred versions of `\stepwise` commands

Usually, the first page of a sequence produced contains only material which is not part of any `\stepcontents`. The first `\stepcontents` are displayed on the second page of the sequence.

For special effects, it might be desirable to have the first `\stepcontents` active even on the first page of the sequence.

All variants of `\stepwise` have a starred version (e. g. `\stepwise*`) which does exactly that.



## 8.2.4 The optional argument of `\stepwise`

Every variant of `\stepwise` takes an optional argument, like this:

```
\stepwise[⟨settings⟩]{⟨contents⟩}
```

`⟨settings⟩` will be placed right before the internal loop which produces the sequence of pages. It can contain settings of parameters which modify the behaviour of `\stepwise` or `\step`. `⟨settings⟩` is placed inside a group so all changes are local to this call of `\stepwise`.

Some internal macros and counters which can be adjusted are explained in the following.



## 8.2.5 Customizing the way `<stepcontents>` is displayed

Internally, there are three macros (taking one argument each) which control how `<stepcontents>` is displayed:

`\displaystepcontents`, `\hidestepcontents`, and `\activatestep`. Virtually, every

`\step{<stepcontents>}` is replaced by

```
\hidestepcontents{<stepcontents>}
```

when this step is not yet active.



## 8 Incremental display

```
\displaystepcontents{\activatestep{<stepcontent
```

when this step is activated for the first time.

```
\displaystepcontents{<stepcontents>}
```

when this step has been activated before.

By redefining these macros, the behaviour of `\step` is changed accordingly. You can redefine them inside `<contents>` to provide a change affecting one `\step` only, or in the optional argument of `\stepwise` to provide a change for all `\steps` inside `<contents>`.



`\activatestep` is set to `\displayidentical` by default, the default settings of `\hidestepcontents` and `\displaystepcontents` depend on whether `\boxedsteps` or `\nonboxedsteps` (default) is used.



## 8 Incremental display

`texpower` offers nine standard definitions.

For interpreting `\displaystepcontents`:

`\displayidentical` Simply expands to its argument.

The same as L<sup>A</sup>T<sub>E</sub>Xs `\@ident`. Used by `\nonboxedsteps` (default).

`\displayboxed` Expands to an `\mbox` containing its argument. Used by `\boxedsteps`.



For interpreting `\hidestepcontents`:

`\hideignore` Expands to nothing. Used by `\nonboxedsteps` (default).

`\hidephantom` Expands to a `\phantom` containing its argument. Used by `\boxedsteps`.

`\hidevanish` In a colored document, makes its argument 'vanish' by setting all colors to `\vanishcolor` (defaults to `pagecolor`). This will give weird results with structured backgrounds.



`\hidetext`

Produces blank space of the same dimensions as the space that would be occupied if its argument would be typeset in the current paragraph. Respects automatic hyphenation and line breaks.

This command needs the `soul` package to work, which is not loaded by `texpower` itself. Consult the documentation of `soul` concerning restrictions on commands implemented using `soul`.



`\hidedimmed`

In a colored document, displays its argument with dimmed colors. Note that this doesn't make the argument completely invisible. For monochrome documents, there is no useful interpretation for this command, so it is disabled.



For interpreting `\activatestep`:

`\highlightboxed` If the `colorhighlight` option is set, expands to a box with colored background containing its argument. Otherwise, expands to an `\fbox` containing its argument. The resulting box has the same dimensions as the argument (background may overlap surrounding text).

There is a new length register `\highlightboxsep` which acts like `\fboxsep` for the resulting box and defaults to `0.5\fboxsep`.



s `\highlighttext` If the `colorhighlight` option is set, puts its argument on colored background. Otherwise, underlines its argument. The resulting text has the same dimensions as the argument (background may overlap surrounding text).

`\highlightboxsep` is used to determine the extent of the coloured box(es) used as background. This command needs the `soul` package to work (compare the description of `\hidetext`).



`\highlightenhanced` In a colored document, displays its argument with enhanced colors.

For monochrome documents, there is no useful interpretation for this command, so it is disabled.



## 8.2.6 Variants of `\step`

There are a couple of custom versions of `\step` which make it easier to achieve special effects needed frequently.

`\bstep` Like `\step`, but is always boxed.

`\bstep{<stepcontents>}` is implemented in principle as

```
{\boxedsteps\step{<stepcontents>}}.
```



`\switch{⟨ifinactive⟩}{⟨ifactive⟩}` is a variant of

`\step` which, instead of making its argument appear, switches between `⟨ifinactive⟩` and `⟨ifactive⟩` when activated.

In fact, `\step{⟨stepcontents⟩}` is in principle implemented by

```
\switch{\hidestepcontents{⟨stepcontents⟩}}
      {\displaystepcontents{⟨stepcontents⟩}}
```

Beware of problems when `⟨ifinactive⟩` and `⟨ifactive⟩` have different dimensions.

## 8 Incremental display

**`\dstep`**

A variant of `\step` which takes **no** argument, but simply switches colors to ‘dimmed’ if not active.

**`\vstep`**

A variant of `\step` which takes **no** argument, but simply switches all colors to `\vanishcolor` (defaults to `pagecolor`) if not active.

**`\steponce`**

Like `\step`, but goes inactive again in the subsequent step.



`\multistep` is a shorthand macro for executing several steps successively. The syntax is

```
\multistep*[\langle activatefirst \rangle]{\langle n \rangle}{\langle stepcontents \rangle}
```

where `\langle n \rangle` is the number of steps.

Only one instance of `\langle stepcontents \rangle` is displayed at a time. Inside `\langle stepcontents \rangle`, a counter `substep` can be evaluated which tells the number of the current instance.

In the starred form the last instance of `\langle stepcontents \rangle` stays visible.



`\movie` works like `\multistep`, but between `\steps`, pages are advanced automatically every `\dur` seconds. The syntax is

```
\movie{<n>}{<dur>} [<stop>] {<stepcontents>}
```

where `<n>` is the number of steps. The additional optional argument `<stop>` gives the code (default: `\stopAdvancing`) which stops the animation. (`\movie` accepts the same first optional argument as `\multistep` but it was left out above.)



`\overlays` is another shorthand macro for executing several steps successively. In contrast to `\multistep`, it doesn't print things after each other, but over each other. The syntax is

```
\overlays [⟨activatefirst⟩] {⟨n⟩} {⟨stepcontents
```

where `⟨n⟩` is the number of steps. Inside `⟨stepcontents⟩`, a counter `substep` can be evaluated which tells the number of the current instance.



## 8 Incremental display

`\restep`, `\rebstep`, `\reswitch`, `\redstep`, `\revstep`.

Frequently, it is desirable for two or more steps to appear at the same time, for instance to fill in arguments at several places in a formula at once.

`\restep{<stepcontents>}` is identical with `\step{<stepcontents>}`, but is activated at the same time as the previous occurrence of `\step`.

`\rebstep`, `\reswitch`, `\redstep`, and

`\revstep` do the same for `\bstep`, `\switch`, `\dstep`, and `\vstep`.

## 8.3 Controlling the order of display

### 8.3.1 Optional arguments of `\step`

The variants of `\step` take two optional arguments for influencing the mode of activation, like this:

```
\step[⟨activatefirst⟩][⟨whenactive⟩]{⟨stepcontents⟩}.
```

Both `⟨activatefirst⟩` and `⟨whenactive⟩` should be conditions in the syntax of the `\ifthenelse` command.



## 8 Incremental display

`<activatefirst>` checks whether this `\step` is to be activated for the first time. The default value is

`\value{step}=\value{stepcommand}`. By using `\value{step}=\langle n \rangle`, this `\step` can be forced to appear as the *n*th one.

`<whenactive>` checks whether this `\step` is to be considered active at all. The default behaviour is to check whether this `\step` has been activated before (this is saved internally for every step).



### 8.3.2 Finding out what's going on

Inside `<settings>` and `<contents>`, you can refer to the following internal state variables which provide information about the current state of the process executed by `\stepwise`:

**counter: firststep** The number from which to start counting steps (see counter `step` below). Is **0** by default and **1** for starred versions of `\stepwise`. You can set this in `<settings>` for special effects.



**counter: totalsteps** The total number of `\step` commands occurring in `\contents`.

**counter: step** The number of the current iteration, i. e. the number of the current page in the sequence of pages produced by `\stepwise`. Runs from `\value{firststep}` to `\value{totalsteps}`.

**counter: stepcommand** The number of the `\step` command currently being executed.



**boolean: firstactivation** true if this `\step` is active for the first time, **false** otherwise.

**boolean: active** true if this `\step` is currently active, **false** otherwise.

`stepcommand`, `firstactivation`, and `active` are useful only inside `\stepcontents`.



### 8.3.3 `\afterstep`

It might be necessary to set some parameters which affect the appearance of the page (like page transitions) inside `\stepcontents`. However, the `\step` commands are usually placed deeply inside some structure, so that all local settings are likely to be undone by groups closing before the page is completed.

`\afterstep{<settings>}` puts `<settings>` right before the end of the page, after the current step is performed.



## Things to pay attention to

1. There can be only one effective value for `<settings>`. Every occurrence of `\afterstep` overwrites this value globally.
2. `\afterstep` will not be executed in `<stepcontents>` if the corresponding `\step` is not active, even if `<stepcontents>` is displayed owing to a redefinition of `\hidestepcontents`.



## 8.4 Page transitions and automatic advancing

### 8.4.1 Page transitions

These commands work only if the **hyperref** package is loaded.

The following page transition commands are defined:



## 8.4 Page transitions and automatic advancing

### 8.4.1 Page transitions

These commands work only if the `hyperref` package is loaded.

The following page transition commands are defined:

`\pageTransitionSplitH0` Split Horizontally to the outside.



## 8.4 Page transitions and automatic advancing

### 8.4.1 Page transitions

These commands work only if the **hyperref** package is loaded.

The following page transition commands are defined:

`\pageTransitionSplitHO` Split Horizontally to the  
outside.

`\pageTransitionSplitHI` Split Horizontally to the  
inside.



```
\pageTransitionSplitV0
```

Split Vertically to the

outside.



## 8 Incremental display

```
\pageTransitionSplitVO
```

outside.

Split Vertically to the

```
\pageTransitionSplitVI
```

inside.

Split Vertically to the



## 8 Incremental display

```
\pageTransitionSplitVO
```

outside.

Split Vertically to the

```
\pageTransitionSplitVI
```

inside.

Split Vertically to the

```
\pageTransitionBlindsH
```

Horizontal Blinds.



## 8 Incremental display

```
\pageTransitionSplitVO
```

outside.

Split Vertically to the

```
\pageTransitionSplitVI
```

inside.

Split Vertically to the

```
\pageTransitionBlindsH
```

Horizontal Blinds.

```
\pageTransitionBlindsV
```

Vertical Blinds.



## 8 Incremental display

`\pageTransitionSplitVO`

outside.

Split Vertically to the

`\pageTransitionSplitVI`

inside.

Split Vertically to the

`\pageTransitionBlindsH`

Horizontal Blinds.

`\pageTransitionBlindsV`

Vertical Blinds.

`\pageTransitionBox0`

Growing Box.



n `\pageTransitionBoxI` Shrinking Box.



`\pageTransitionBoxI`    Shrinking Box.

`\pageTransitionWipe{⟨angle⟩}`

Wipe from one edge of the page to the facing edge.

`⟨angle⟩` is a number between **0** and **360** which specifies the direction (in degrees) in which to wipe.

Apparently, only the values **0**,



`\pageTransitionBoxI` Shrinking Box.

`\pageTransitionWipe{⟨angle⟩}`

Wipe from one edge of the page to the facing edge.

⟨angle⟩ is a number between **0** and **360** which specifies the direction (in degrees) in which to wipe.

Apparently, only the values **0**, **90**,



`\pageTransitionBoxI`    Shrinking Box.

`\pageTransitionWipe{⟨angle⟩}`

Wipe from one edge of the page to the facing edge.

`⟨angle⟩` is a number between **0** and **360** which specifies the direction (in degrees) in which to wipe.

Apparently, only the values **0**, **90**, **180**,



`\pageTransitionBoxI` Shrinking Box.

`\pageTransitionWipe{⟨angle⟩}`

Wipe from one edge of the page to the facing edge.

⟨angle⟩ is a number between **0** and **360** which specifies the direction (in degrees) in which to wipe.

Apparently, only the values **0**, **90**, **180**, **270** are supported.



`\pageTransitionBoxI` Shrinking Box.

`\pageTransitionWipe{⟨angle⟩}`

Wipe from one edge of the page to the facing edge.

⟨angle⟩ is a number between **0** and **360** which specifies the direction (in degrees) in which to wipe.

Apparently, only the values **0**, **90**, **180**, **270** are supported.

`\pageTransitionDissolve` Dissolve.



```
\pageTransitionGlitter{⟨angle⟩}
```

Glitter from one edge of the page to the facing edge.

⟨angle⟩ is a number between **0** and **360** giving the direction (in degrees) in which to glitter.

Apparently, only the values **0**,



```
\pageTransitionGlitter{⟨angle⟩}
```

Glitter from one edge of the page to the facing edge.

⟨angle⟩ is a number between **0** and **360** giving the direction (in degrees) in which to glitter.

Apparently, only the values **0**, **270**,



```
\pageTransitionGlitter{⟨angle⟩}
```

Glitter from one edge of the page to the facing edge.

⟨angle⟩ is a number between **0** and **360** giving the direction (in degrees) in which to glitter.

Apparently, only the values **0**, **270**, **315** are supported.



```
\pageTransitionGlitter{⟨angle⟩}
```

Glitter from one edge of the page to the facing edge.

⟨angle⟩ is a number between **0** and **360** giving the direction (in degrees) in which to glitter.

Apparently, only the values **0**, **270**, **315** are supported.

```
\pageTransitionReplace
```

Simple Replace (the default).



## Things to pay attention to

1. The setting of the page transition is a property of the page, i. e. whatever page transition is in effect when a page break occurs, will be assigned to the corresponding pdf page.

2. The page transition setting is local to groups.

Make sure no L<sup>A</sup>T<sub>E</sub>X environment is ended between a `\pageTransition` setting and the next page break.

In particular, in `\stepcontents`, `\afterstep` should be used.



3. Setting page transitions works well with `\pause`. Here, `\pause` acts as a page break, i. e. a different page transition can be set before every occurrence of `\pause`.



## 8.4.2 Automatic advancing of pages

If you have loaded the **hyperref** package, then the following command is defined which enables automatic advancing of **pdf** pages.

`\pageDuration{<dur>}` causes pages to be advanced automatically every **<dur>** seconds. **<dur>** should be a non-negative fixed-point number.



## 8.4.2 Automatic advancing of pages

If you have loaded the **hyperref** package, then the following command is defined which enables automatic advancing of **pdf** pages.

`\pageDuration{<dur>}` causes pages to be advanced automatically every **<dur>** seconds. **<dur>** should be a non-negative fixed-point number.

Depending on the **pdf** viewer, this will happen only in full-screen mode.



## 8 Incremental display

The same restrictions as for **page transitions** apply. In particular, the page duration setting is undone by the end of a group, i. e. it is useless to set the page duration if a L<sup>A</sup>T<sub>E</sub>X environment ends before the next page break.

There is no ‘neutral’ value for **<dur>** (**0** means advance as fast as possible). You can make automatic advancing stop by calling **\pageDuration{}**. **texpower** offers the custom command

h `\stopAdvancing`

to do this.



## 9.1 Conference Talks

### 9.1.1 Structure

- No deep sectioning necessary; either ‘slide titles’ or one level of sectioning.
- Number slides **1–*n***.



### 9.1.2 Slide design

- Put name of presenter and title of talk on every slide.
- Adhere to ‘corporate design’.
- Ensure readability in case of bad viewing conditions.



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- Put name of presenter and title of talk on every slide.
- Adhere to ‘corporate design’.
- Ensure readability in case of bad viewing conditions.

### 9.1.3 Navigation

- Mainly by buttons on the slide.
- Avoid too many builds or transition effects in case of bad hardware / missing remote control.



## 9.2 Lectures

### 9.2.1 Structure

- Keep ‘in sync’ with structure of lecture notes – deep sectioning starting from chapter.
- Slide numbering *c.s.n* makes references to slides more robust.



## 9.2.2 Slide design

- Keep decoration minimal; name of lecture and lecturer are known.
- No need for ‘corporate design’.
- Controlled viewing conditions.



### 9.2.3 Navigation

- Mainly by bookmarks.
- Provide ‘reference links’.
- Use remote control.
- Transition effects get boring.



## 10.1 Presenting Text



## 10.2 Presenting Mathematics



## 10.3 Presenting Graphics



## 10.3.1 Included Graphics



## 10.3.2 Inline Graphics



## 10.3.3 Combining Text, Maths, and Graphics



## 10.4 Designing Custom Display Commands

