

# beamerswitch — Convenient mode selection in Beamer documents

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This class is a wrapper around the `beamer` class to make it easier to use the same document to generate the different forms of the presentation: the slides themselves, an abbreviated slide set for transparencies or online reference, an n-up handout version, and a transcript or set of notes using the `article` class.

To contact the author about this package, please visit the GitHub page where the code is hosted: <https://github.com/alex-ball/beamerswitch>.

## 1 Quick start guide

Here are the key facts:

- The `beamerswitch` class makes it easier to switch between `beamer` modes.
- It is aimed at you if you want to generate handouts from your presentation, whether printouts of your slides or something more like a paper or article.
- It is *not* a drop-in replacement for `beamer`.

If you have an existing `beamer` presentation and want convert it to use `beamerswitch` instead, here's what you need to do.

1. Replace the class `beamer` with `beamerswitch`.

Wrap any class options you have specified in braces and turn them into the value of the `beameroptions` option:

Before	After
<pre>\documentclass[10pt]{beamer}</pre>	<pre>\documentclass[beameroptions= ↪ {10pt}]{beamerswitch}</pre>

If you didn't specify any options, then give `beameroptions` a blank value:

Before	After
<pre>\documentclass{beamer}</pre>	<pre>\documentclass[beameroptions= ↪ {}]{beamerswitch}</pre>

If you only specified `ignorenonframetext`, then you don't need `beameroptions`:

Before	After
<pre>\documentclass   → [ignorenonframetext]   → {beamer}</pre>	<pre>\documentclass{beamerswitch}</pre>

2. Wrap any preamble content intended only for your slides (like `\usetheme` or `\usepackage` commands) with `\mode<presentation><...>` or something more specific, as required.

In summary, here is an example:

Before	After
<pre>\documentclass[10pt]{beamer}  \usetheme{metropolis}  \title{Test presentation} \begin{document}   \maketitle \end{document}</pre>	<pre>\documentclass[beameroptions=   → {10pt}]{beamerswitch} \mode&lt;presentation&gt;{%   \usetheme{metropolis} } \title{Test presentation} \begin{document}   \maketitle \end{document}</pre>

At this point the document should compile exactly as before.

If you intend to use article mode at all, I strongly suggest that you proceed by converting your document body so it that works with `beamer`'s `ignorenonframetext` option in place. That means making sure all slide content is in a `frame` environment, new command definitions are moved to the preamble, and so on.

Lastly, read through the rest of this manual and see what `beamerswitch` can do for you!

## 2 Introduction

With `beamer`, it is possible to typeset the same document code in different ways to get different effects. The result you get depends on a potentially confusing mix of options, modes, and indeed classes.

Beamer has five modes for typesetting content. There are three modes that produce regular slides:

- The `beamer` mode relates to the normal, default slide set.
- The `trans` class option switches to the mode of the same name. It is intended for transparencies, but is really just an alternative mode that ignores 'bare' overlay specifications.
- The `handout` class option switches to the mode of the same name. It is intended for print-friendly versions, but is really just another alternative mode that ignores 'bare' overlay specifications.

The `beamer` manual shows how to use `handout` mode in conjunction with `pgfpages` to get several slides on a single side of A4 (or Letter) paper.

Beamer can also produce a double-height or double-width slide set, with the intention that each half will be shown on a different display (e.g. one for the audience, one for the speaker). There are three variations of this, activated using `\setbeameroption`:

- `show notes on second screen` uses the second screen for text marked up using `\note{<text>}`.
- `second mode text on second screen` uses the second screen for showing the slide typeset in `second` mode rather than `beamer`. Unlike `trans` and `handout`, `second` responds to 'bare' overlay specifications.
- `previous slide on second screen`, uses the second screen either for showing the previous slide or, if the slide has the `typeset second` option set, for showing the current slide typeset in `second` mode.

The final variation is to use a different class altogether, such as `article`, in conjunction with `beamerarticle`. In this case the content is set free-flowing in `article` mode, without any of the frame furniture.

The `beamer` manual suggests coping with all these variations by having the document code in one file, and using it as input to other files that each set up a different mode of operation. This is fine but a bit of a fiddle. It would be nice to be able to get the same effect using a single file and, ideally, a single command invocation.

The `beamerswitch` class addresses this issue by acting as a wrapper around the various options, and providing a common interface for switching between modes. More specifically, it has three main functions:

1. To provide more choice of handout-mode layouts than `pgfpages` gives you out-of-the-box. Additionally, I hope you will find the method for selecting them more memorable.
2. To enable you to switch to `article` mode with a simple change of class option, instead of having to fiddle with commented-out `\documentclass` and `\usepackage` lines.
3. To allow you to override the `beamer` mode from the command line, by choosing a given jobname suffix. Primarily this is to allow you to generate the different versions programmatically. Indeed, the class provides facilities for generating multiple versions with a single command.

### 3 Dependencies

To use `beamerswitch`, you will need to have the following packages available and reasonably up to date on your system. All of these ship with recent  $\text{\TeX}$  distributions.

- beamer
- etoolbox
- hyperref
- iftex
- pgf
- shellesc
- xkeyval
- xstring

One feature of the class uses `latexmk` by default, though you can configure it to use something else if you need or want to.

## 4 Loading the class

The class is loaded in the usual way:

```
\documentclass[<options>]{beamerswitch}
```

The various options are described below.

### 4.1 Passing options to the underlying classes

**articleoptions**=*{<options>}* (default and initially empty)

Passes the *<options>* to the `article` class when in `article` mode.

**beameroptions**=*{<options>}* (default and initially `ignorenonframetext`)

Passes the *<options>* to the `beamer` class when in `beamer`, `handout` or `trans` mode. Do not specify `handout` or `trans` among the options as `beamerswitch` handles those for you. Note that the default behaviour is to pass the `ignorenonframetext` option, so remember to include it yourself if you start specifying other options.

### 4.2 Choosing the mode of the current run

The `beamerswitch` class, as explained above, does not do much itself but rather helps you to switch between `beamer` modes, specifically `article`, `beamer`, `trans` and `handout`.

The normal way of choosing the mode is to use the respective class options.

**article** (no value, initially unset)

Switches to `article` mode, which uses the `article` class and resembles a normal article.

**beamer** (no value, initially set)

Switches to `beamer` mode, which uses the `beamer` class and resembles a normal slideshow.

**handout** (no value, initially unset)

Switches to `handout` mode, which uses the `beamer` class but uses a different series of overlay specifications. It resembles a set of printed pages with multiple slides shown on each page.

**trans** (no value, initially unset)

Switches to `trans` mode, which uses the `beamer` class and resembles a normal slideshow, but uses a different series of overlay specifications.

There is, however, a sneaky second way of setting the mode that overrides the first, and that is to use the `\jobname`. By default, this is the name of your  $\TeX$  file minus the `.tex` extension, but you can set it to something else when you run  $\TeX$ . If you set the `\jobname` to end in one of the following suffixes, the mode will automatically switch:

- `-article` will switch to `article` mode.
- `-handout` will switch to `handout` mode.
- `-slides` will switch to `beamer` mode.
- `-trans` will switch to `trans` mode.

The idea is that you can keep your source document the same, but by running  $\TeX$  with an alternative `\jobname`, you can get a different version out with a meaningfully different file name.

Of course, you may not want to use those suffixes. Perhaps you want them in German; perhaps your document's file name already ends in one of them; perhaps 'article' or 'trans' doesn't describe what you're using those modes for. The suffixes are provided by the following commands:

#### `\ArticleSuffix`

Holds the `\jobname` suffix that triggers `article` mode.

#### `\BeamerSuffix`

Holds the `\jobname` suffix that triggers `beamer` mode.

#### `\HandoutSuffix`

Holds the `\jobname` suffix that triggers `handout` mode.

#### `\TransSuffix`

Holds the `\jobname` suffix that triggers `trans` mode.

The `CamelCase` is an admittedly rather obscure signal to you that, if you want to change them to something else, you should do so via `\newcommand` before loading the class:

```
\newcommand*\ArticleSuffix{-script}
\documentclass{beamerswitch}
```

### 4.3 Using more than one mode at once

Another handy feature of the class is that it can spawn parallel compilations, so you could in theory generate all four versions from a single command. It achieves this magic by escaping to the shell and running `latexmk`. Thus for it to work you need to run  $\TeX$  with shell escape enabled and you need `latexmk` to be installed.

**`alsoarticle`** (no value, initially unset)

Spawns a new compilation process in `article` mode.

**`alsobeamer`** (no value, initially unset)

Spawns a new compilation process in `beamer` mode.

**`alsohandout`** (no value, initially unset)

Spawns a new compilation process in `handout` mode.

**alsotrans** (no value, initially unset)

Spawns a new compilation process in **trans** mode.

**also**={⟨comma-separated list of modes⟩} (no default, initially empty)

Spawns compilation processes in each of the specified modes. Note that the list has to be wrapped in braces, and only the four aforementioned modes are recognized.

If you would rather use a tool other than **latexmk** to managed your spawned compilation processes, it is possible to do that. Bear in mind, though, that **beamerswitch** is not clever enough to spot if you have already compiled the other version on a previous run so you have to take care of that yourself. The command that does the business is this:

**\BeamerswitchSpawn**{⟨suffix⟩}

Spawns a new compilation process with ⟨suffix⟩ appended to the **\jobname**.

By default, **\BeamerswitchSpawn** checks which **TeX** engine you are running, and then runs the matching one of **\SpawnedPDFTeX**, **\SpawnedXeTeX**, **\SpawnedLuaTeX**, or if all the tests fail, **\SpawnedTeX**, with the converted **\jobname**. These commands all add an engine-selecting option to a base command, **\SpawnedCompiler**, which by default is **latexmk** with **synctex** enabled, shell escape disabled and interaction set to batch mode. See the **Implementation** section below for details.

Any of these commands can be pre-defined to something else, depending on what you want to do. So, for example, if you want to change the base **latexmk** options, pre-define **\SpawnedCompiler** to **latexmk** plus your chosen options:

```
\newcommand*\SpawnedCompiler{%
  latexmk -silent -shell-escape -interaction=nonstopmode}
\documentclass{beamerswitch}
```

If you want to switch to using **rubber**, say, pre-define **\SpawnedPDFTeX** and friends accordingly (perhaps taking advantage of **\SpawnedCompiler** to reduce repetition):

```
\newcommand*\SpawnedCompiler{rubber -q --synctex}
\newcommand*\SpawnedPDFTeX{\SpawnedCompiler -m pdftex}
\newcommand*\SpawnedXeTeX{\SpawnedCompiler -m xelatex}
\documentclass{beamerswitch}
```

If you don't need the engine selection routine provided, you can replace it by pre-defining **\BeamerswitchSpawn** to do whatever you need it to do instead:

```
\newcommand*\BeamerswitchSpawn[1]{%
  \ShellEscape{... -jobname=\jobname#1 \jobname}%
}
\documentclass{beamerswitch}
```

If you want to use **arara** to compile everything, the class options won't help you as **arara** does not let you change **\jobnames** on the command line. That's no problem, though, because you can do it manually within your list of directives:

```

% arara: lualatex
% arara: lualatex: { options: "-jobname beamerswitch-example-article" }
% arara: lualatex: { options: "-jobname beamerswitch-example-handout" }
% arara: lualatex: { options: "-jobname beamerswitch-example-trans" }
\documentclass{beamerswitch}

```

## 4.4 Improving compatibility

**nohyperref** (no value, initially unset)

The `beamer` class loads `hyperref` for you, but when you switch to `article` mode, `beamerarticle` doesn't, so it is easy for you to get caught out. To protect you from this, `beamerswitch` *does* load `hyperref` in `article` mode, with the pleasing side effect that `\subject` and `\keywords` then work as intended instead of throwing errors.

To achieve this, the class has to load `hyperref` quite early on, which can cause trouble with certain other packages. If you would rather load `hyperref` yourself at a different point, use this option.

## 5 Setting the layout of the handouts

The class provides a simplified interface to the `pgfpages` package. By default, it prints six slides to a side of A4 paper, but you can change this by using the following command in the preamble.

**\handoutlayout**{*options*}

Configures the layout of the page when using `handout` mode. It has no effect in other modes. The available *options* are listed below.

**paper**=*paper size* (no default, initially `a4paper`)

Selects the size of paper to use for `handout` mode. The value is passed directly to `pgfpages`, so consult the documentation of that package for the allowed values. You can find them under the documentation for the `resize to` layout.

**nup**=*1|1plus|2|3|3plus|4|4plus|6|8* (no default, initially `6`)

Selects how many slides are shown on a single page in `handout` mode. The 'plus' layouts leave blank space for recipients to make handwritten notes next to each slide. The effects of the various values are shown in Figure 1 on page 8. Note that the `2`, `3plus`, `4` and `6` layouts are intended for slides in the usual 4:3 aspect ratio, while the `3`, `4plus` and `8` layouts are intended for widescreen slides.

**pnos** (no value, initially unset)

Adds page numbers to the bottom of each page. The number appears at a distance of `\handoutpnobaseline` (initially 5mm) from the bottom edge of the page. You can change this before calling `\handoutlayout`, if you like, using the usual mechanisms (e.g. `\setlength`).

**border**=*length* (default 0.4pt, initially 0pt)

Puts a rectangular border of thickness *length* around each slide.

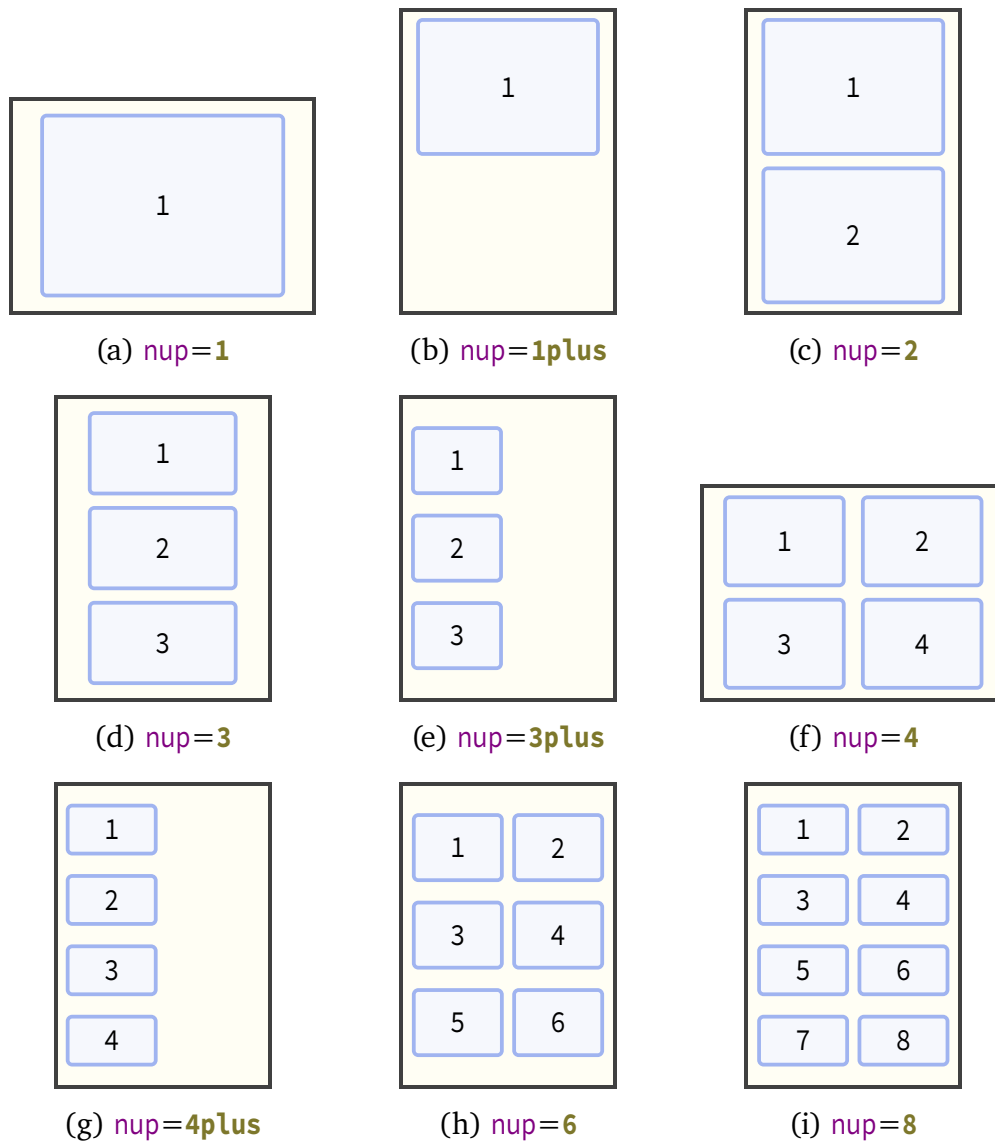


Figure 1: Handout layouts provided by `beamerswitch`

**margin**= $\langle length \rangle$  (default Opt, initially 5mm)

Sets how much extra space to leave around each slide on the page. To achieve this it uses the `border shrink` option from `pgfpages`. If you add page numbers, this value will increase if necessary to prevent the number colliding with the slides, so treat it as a minimum.

**align** (no value, initially unset)

When `margin` is non-zero, the effective page margins are approximately half the size of the gaps between slides (some additional white space comes from preserving the aspect ratio of the slides). When set, this option tweaks the positions of the slides so that the page margins are approximately the same as the interior gaps.



## 6 Changing the look of article mode

Some additional options can be set by using the following command in the preamble.

**`\articlelayout`**{*options*}

Configures the appearance of `article` mode. It has no effect in other modes. The available *options* are listed below.

**`frametitles`**=`para`|`margin`|`none` (no default, initially `para`)

In `article` mode, affects how frame titles are printed. By default, `beamerarticle` prints them as paragraph headings, represented by the value `para`. To have them printed in the margin (using `\marginpar`), use `margin`. To omit them altogether, use the value `none`.

**`maketitle`** (no value, initially unset)

In `article` mode, adjusts the `\maketitle` routine:

- The title is printed closer to the top margin.
- The subtitle is shown joined to the title using a colon (rather than on a new line).
- The institute is shown directly beneath the author name, similar to the `beamer` layout, so you can use `\inst` just as in `beamer` to tie authors to their affiliations.

If you have `xparse` (and hence `expl3`) installed, the class will detect cases where your title ends in a character like ‘?’ and will not add a colon to it in that case. You can also suppress the colon manually with the following code (add it *after* using `\title` if automatic detection is in effect):

```
\toggletrue{titlepunct}
```

**`instbreak`**=*definition* (no default, initially `\linebreak`)

In `article` mode, defines how `\and` is rendered when `\insertinstitute` is used (such when the `maketitle` option is active). Another good *definition* to use might be `\quad`.

## 7 Tips for further configuration

There are some other ways to customize the behaviour of the various modes.

You can use the standard `TeX` methods for customizing how the `article` and `beamer` classes are loaded, if you don't like the class facilities for doing this:

```
\PassOptionsToClass{a4paper,11pt}{article} % for article mode
\PassOptionsToClass{utf8}{beamer} % for beamer, handout, trans modes
\documentclass{beamerswitch}
```

And of course there is the standard `beamer` way of passing different options to different modes:

```
\documentclass{beamer-switch}
\mode<article>{
  \usepackage[utf8]{inputenc}
}
\mode<beamer>{
  \setbeameroption{second mode text on second screen}
}
```

## 8 Feedback

I hope you find this class useful. Please report any bugs and add any suggestions for improvements or new features to the [Issue Tracker](#) on GitHub.

## 9 Implementation

### 9.1 Dependencies

We use the following packages:

- `xkeyval` with `xkvltxp` for setting options
- `etoolbox` for command patches and list processing
- `xstring` for comparisons
- `shellsc` for running parallel compilations
- `iftex` for determining which engine to use

```
19 \RequirePackage{xkeyval,xkvltxp,etoolbox,xstring,shellsc,iftex}
```

### 9.2 Class options

We recognize four main modes of operation: ‘beamer’, ‘trans’, ‘handout’, and ‘article’.

The `beamer` option triggers beamer mode.

```
20 \define@boolkey[DC]{beamerswitch}{beamer}[true]{%  
21   \ifbool{DC@beamerswitch@beamer}{%  
22     \setkeys[DC]{beamerswitch}{trans=false}  
23     \setkeys[DC]{beamerswitch}{handout=false}  
24     \setkeys[DC]{beamerswitch}{article=false}  
25   }{}%  
26 }
```

The `trans` option triggers trans mode.

```
27 \define@boolkey[DC]{beamerswitch}{trans}[true]{%  
28   \ifbool{DC@beamerswitch@trans}{%  
29     \setkeys[DC]{beamerswitch}{beamer=false}  
30     \setkeys[DC]{beamerswitch}{handout=false}  
31     \setkeys[DC]{beamerswitch}{article=false}  
32   }{}%  
33 }
```

The `handout` option triggers handout mode.

```
34 \define@boolkey[DC]{beamerswitch}{handout}[true]{%  
35   \ifbool{DC@beamerswitch@handout}{%  
36     \setkeys[DC]{beamerswitch}{beamer=false}  
37     \setkeys[DC]{beamerswitch}{trans=false}  
38     \setkeys[DC]{beamerswitch}{article=false}  
39   }{}%  
40 }
```

The `article` option triggers article mode.

```

41 \define@boolkey[DC]{beamerswitch}{article}[true]{%
42   \ifbool{DC@beamerswitch@article}{%
43     \setkeys[DC]{beamerswitch}{beamer=false}
44     \setkeys[DC]{beamerswitch}{trans=false}
45     \setkeys[DC]{beamerswitch}{handout=false}
46   }{}%
47 }

```

The `also` option allows the user to specify a set of alternative modes to typeset in parallel, in a comma-separated list. Alternatively, the user can specify the Boolean `also*` options directly.

```

48 \define@boolkey[DC]{beamerswitch}{alsobeamer}[true]{}
49 \define@boolkey[DC]{beamerswitch}{alsostrans}[true]{}
50 \define@boolkey[DC]{beamerswitch}{alsohandout}[true]{}
51 \define@boolkey[DC]{beamerswitch}{alsoarticle}[true]{}
52 \newcommand{\beamerswitch@SetAlso}[1]{%
53   \key@ifundefined[DC]{beamerswitch}{also#1}{%
54     \ClassWarning{beamerswitch}{`#1' is not a valid value for option `also'}%
55   }{}%
56   \setkeys[DC]{beamerswitch}{also#1}%
57 }%
58 }
59 \define@key[DC]{beamerswitch}{also}{%
60   \forcsvlist{\beamerswitch@SetAlso}{#1}%
61 }

```

The `beameroptions` will be passed to the `beamer` class.

```

62 \define@cmdkey[DC]{beamerswitch}{beameroptions}[ignorenonframetext]{}

```

The `articleoptions` will be passed to the `article` class.

```

63 \define@cmdkey[DC]{beamerswitch}{articleoptions}[]{}

```

The `nohyperref` option stops the class from loading the `hyperref` package in article mode.

```

64 \define@boolkey[DC]{beamerswitch}{nohyperref}[true]{}

```

The `textinst` option enforces `\textsuperscript` for institution markers. Recent versions of `beamer` do this by default.

```

65 \define@boolkey[DC]{beamerswitch}{textinst}[true]{}

```

The default behaviour is to use `beamer` mode only.

```

66 \setkeys[DC]{beamerswitch}{beamer=true,alsobeamer=false,alsostrans=false,%
67   alsohandout=false,alsoarticle=false,beameroptions,articleoptions}

```

Now we process the options given by the user.

```

68 \ProcessOptionsX[DC]<beamerswitch>

```

### 9.3 Jobname-based mode switching

We define some default values for the special suffixes.

```
69 \providecommand*\BeamerSuffix{-slides}
70 \providecommand*\TransSuffix{-trans}
71 \providecommand*\HandoutSuffix{-handout}
72 \providecommand*\ArticleSuffix{-article}
```

We provide a special routine for spawning new  $\TeX$  processes. We allow for the possibility of the user overriding this routine with another one, perhaps using a different automation tool; it should take one argument, being the jobname suffix.

```
73 \providecommand*\SpawnedCompiler{latexmk -silent -synctex=1
  ↪ -interaction=batchmode }
74 \providecommand*\SpawnedTeX{\SpawnedCompiler}
75 \providecommand*\SpawnedPDFTeX{\SpawnedCompiler -pdf }
76 \providecommand*\SpawnedLuaTeX{\SpawnedCompiler -pdfLua }
77 \providecommand*\SpawnedXeTeX{\SpawnedCompiler -pdfxe }
78 \providecommand*\BeamerswitchSpawn}[1]{%
79   \ifbool{PDFTeX}{%
80     \ShellEscape{\SpawnedPDFTeX -jobname=\jobname#1 \jobname}
81   }{%
82     \ifbool{LuaTeX}{%
83       \ShellEscape{\SpawnedLuaTeX -jobname=\jobname#1 \jobname}
84     }{%
85       \ifbool{XeTeX}{%
86         \ShellEscape{\SpawnedXeTeX -jobname=\jobname#1 \jobname}
87       }{%
88         \ShellEscape{\SpawnedTeX -jobname=\jobname#1 \jobname}
89       }%
90     }%
91   }%
92 }
```

We check for special jobnames and use them to override the above mode-related options. In certain circumstances, the jobname is wrapped in quote marks, so in that case we strip them off before running the tests.

```
93 \IfBeginWith*\jobname{"}{%
94   \IfEndWith*\jobname"}{%
95     \StrGobbleLeft{\jobname}{1}[\JobName]%
96     \StrGobbleRight{\JobName}{1}[\JobName]%
97   }{\let\JobName\jobname}%
98   }{\let\JobName\jobname}
```

Now we run the tests. Note that the `also` options are only acted upon if the all the tests fail.

```
99 \IfEndWith*\JobName*\BeamerSuffix{%
100   \setkeys[DC]{beamerswitch}{beamer=true}
101 }{%
102   \IfEndWith*\JobName*\TransSuffix{%
103     \setkeys[DC]{beamerswitch}{trans=true}
104   }{%
```

```

105     \IfEndWith*{\JobName}{\HandoutSuffix}{%
106     \setkeys[DC]{beamerswitch}{handout=true}
107     }{%
108     \IfEndWith*{\JobName}{\ArticleSuffix}{%
109     \setkeys[DC]{beamerswitch}{article=true}
110     }{%
111     \ifbool{DC@beamerswitch@alsobeamer}{%
112     \BeamerswitchSpawn{\BeamerSuffix}%
113     }{}
114     \ifbool{DC@beamerswitch@alsotrans}{%
115     \BeamerswitchSpawn{\TransSuffix}%
116     }{}
117     \ifbool{DC@beamerswitch@alsohandout}{%
118     \BeamerswitchSpawn{\HandoutSuffix}%
119     }{}
120     \ifbool{DC@beamerswitch@alsoarticle}{%
121     \BeamerswitchSpawn{\ArticleSuffix}%
122     }{}
123     }%
124     }%
125     }%
126     }%

```

## 9.4 Setting up modes

For article mode, we load the `article` class and the `beamerarticle` support package. Apologies for anyone hoping for `scartcl` or `memoir` alternatives. We also add some beamer base macros that are needed for the `\insertinstitute` command.

```

127     \ifbool{DC@beamerswitch@article}{%
128     \PassOptionsToClass{\cmdDC@beamerswitch@articleoptions}{article}
129     \LoadClass{article}
130     \RequirePackage{beamerarticle}
131     \def\beamer@insttitle#1{\textsuperscript{#1}}
132     \def\beamer@andtitle{\quad}
133     \def\beamer@instinst#1{\textsuperscript{#1}\ignorespaces}
134     \def\beamer@andinst{\linebreak}

```

It seems as though `beamerarticle` expects `hyperref` to be loaded, but doesn't actually do it itself. So we oblige, using the default options specified by `beamer`.

```

135     \ifbool{DC@beamerswitch@nohyperref}{}{%
136     \RequirePackage[bookmarks=true,%
137     bookmarksopen=true,%
138     pdfborder={0 0 0},%
139     pdfhighlight={/N},%
140     linkbordercolor={.5 .5 .5}]{hyperref}%
141     }

```

While `beamer` takes care of adding presentation metadata to the PDF properties, `beamerarticle` misses the title and author properties. (It does manage to set the subject and keywords, though.) We achieve parity with some additional `\hypersetup`. Note that `beamerarticle` appends the subtitle to `\@title` with a linebreak and this does odd things in the context of `pdftitle`, so we fix it with `\pdfstringdefDisableCommands`.

```

142 \AtBeginDocument{%
143   \@ifpackageloaded{hyperref}{%
144     \pdfstringdefDisableCommands{\def\<#1>#2{ - #2}}
145     \begingroup
146     \hypersetup{pdftitle={\@title}}%
147     \def\and{\unskip, }%
148     \let\thanks=\@gobble
149     \let\inst=\@gobble
150     \hypersetup{pdfauthor={\@author}}%
151     \endgroup
152   }{}%
153 }
154 }{}%
```

For the presentation modes, we load the `beamer` class with appropriate options. Since we are targeting users wanting different versions of their presentations with the same code, we activate `ignorenonframetext`.

```

155 \ifbool{DC@beamerswitch@handout}{%
156   \PassOptionsToClass{\cmdDC@beamerswitch@beameroptions}{beamer}
157   \LoadClass[handout]{beamer}
```

Handout mode lays multiple slides out on a single page. For this we use `pgfpages`. The actual configuration is handled later.

```

158 \RequirePackage{pgfpages}
```

We also activate `ignorenonframetext` for the other two modes.

```

159 }{}%
160 \ifbool{DC@beamerswitch@trans}{%
161   \PassOptionsToClass{\cmdDC@beamerswitch@beameroptions}{beamer}
162   \LoadClass[trans]{beamer}
163 }{}%
164 \PassOptionsToClass{\cmdDC@beamerswitch@beameroptions}{beamer}
165 \LoadClass{beamer}
166 }%
167 }
168 }
```

## 9.5 Mode-independent layout

We implement the option that formats institution markers in text mode rather than math mode in older versions of `beamer`.

```

169 \ifbool{DC@beamerswitch@textinst}{%
170   \def\beamer@insttitle#1{\textsuperscript{#1}}
171   \def\beamer@instinst#1{\textsuperscript{#1}\ignorespaces}
172 }{}%
```

## 9.6 Handout layout

In theory it would be nice to anticipate the paper size that the article mode would use, and pass that as an option to `\pgfpagesuselayout` but as that's unlikely to be clean code, we settle here for setting it with an option.

```
173 \def\beamerswitch@handoutpaper{a4paper}
174 \define@key[HL]{beamerswitch}{paper}{%
175   \def\beamerswitch@handoutpaper{#1}%
176 }
```

The `nup` option specifies how many slides to include per page. The 'plus' keyword indicates a layout with additional gaps for writing.

```
177 \newcounter{beamerswitch@nupcase}
178 \setcounter{beamerswitch@nupcase}{7}
179 \define@choicekey+[HL]{beamerswitch}{nup}[\val\nr]{1, 1plus, 2, 3, 3plus, 4,
  ↪ 4plus, 6, 8}{%
180   \setcounter{beamerswitch@nupcase}{\nr}
181 }{%
182   \ClassWarning{beamerswitch}{Value of `nup' not recognized.
183     Allowed values are 1, 1plus, 2, 3, 3plus, 4, 4plus, 6, and 8.}%
184 }
```

The `borders` option switches on borders around the slides on handout pages (and gaps where slides would appear if there were enough). The value is used to set the width of the border.

This is implemented as a PGF drawing command, which is initially set up to do nothing but gets filled out if the option is selected. As part of this, we calculate the number of the current slide (handoutpno gives the current page number minus one; `\beamerswitch@nup` is the number of slides per page; and `\pgf@cpn` gives the count of the current slide on the current page). If this exceeds the total number of slides, we suppress the border.

```
185 \newcommand*\beamerswitch@Border{\relax}
186 \define@key[HL]{beamerswitch}{border}[0.4pt]{%
187   \RequirePackage{pgf}%
188   \ifdimcomp{#1}{>}{0pt}{%
189     \renewcommand*\beamerswitch@Border{%
190       \ifnumcomp{(\value{handoutpno} * \beamerswitch@nup) + \the\pgf@cpn}{%
191         >}{\beamer@endpageofdocument}{%
192           \relax
193         }%
194         \pgfsetlinewidth{#1}\pgfstroke
195       }%
196     }%
197   }%
198   \renewcommand*\beamerswitch@Border{\relax}%
199 }%
200 }
```

The `margin` option controls how much white space is added around each slide on handout pages. It corresponds to the `border shrink` option of `\pgfpagesuselayout`.



```

201 \newlength{\beamerswitch@margin}
202 \setlength{\beamerswitch@margin}{5mm}
203 \define@key[HL]{beamerswitch}{margin}[0pt]{%
204   \setlength{\beamerswitch@margin}{#1}%
205 }

```

The `align` option chooses whether to rejig the positions of the slides on the page so that the effective page margin is the same as, rather than half, the space between adjacent slides.

```

206 \define@boolkey[HL]{beamerswitch}{align}[true]{}

```

The `pnos` option switches on page numbers for handout pages. The height at which the baseline of the number sits, relative to the bottom edge of the paper, is given by the length `\handoutpnobaseline`.

```

207 \newlength{\handoutpnobaseline}
208 \setlength{\handoutpnobaseline}{5mm}
209 \newcounter{handoutpno}
210 \define@boolkey[HL]{beamerswitch}{pnos}[true]{}

```

In order to implement the page numbers, we need to add a hook to the `pgfpages` shipout routine.

```

211 \def\beamerswitch@footer{}
212 \patchcmd{\pgfpages@buildshipoutbox}{%
213   \pgfsys@endpicture
214 }{%
215   \beamerswitch@footer\pgfsys@endpicture
216 }{}{}

```

We set up the `\handoutlayout` command for applying these options.

The hook `\beamerswitch@footer` is used to step the page number counter `handoutpno`; if page numbering is active, it also places the number on the page centered and `\handoutpnobaseline` up from the bottom.

The length `\beamerswitch@pnoadjust` is, conceptually, the height of the page number. When page numbers are active, the margin around slides is automatically increased to guarantee that the top of the page number will not be higher than the bottom of the lowest slide. Currently this does not account for extra whitespace arising from aspect ratio issues. When the `align` option is active, the margin at the bottom of the page is increased, but to save a register we make the adjustment to `\beamerswitch@pnoadjust` instead of a copy of `\beamerswitch@margin`.

```

217 \newlength{\beamerswitch@pnoadjust}
218 \newcommand*\handoutlayout[1]{%
219   \only<handout>{%
220     \setlength{\beamerswitch@pnoadjust}{1em}%
221     \setkeys[HL]{beamerswitch}{#1}%
222     \ifbool{HL@beamerswitch@pnos}{%
223       \def\beamerswitch@footer{%
224         \stepcounter{handoutpno}%

```

```

225     \setbox0\vbox{\makebox[0pt][c]{\arabic{handoutpno}}}%
226     \pgfsys@beginscope
227     \pgflevel{\pgftransformshift{%
228       \pgfpoint{.5\pgfphysicalwidth}{\handoutpno}}}%
229     \wd0=0pt%
230     \dp0=-\ht0%
231     \pgfsys@hbox0%
232     \pgfsys@endscope
233   }%
234   \ifbool{HL@beamerswitch@align}{%
235     \ifcase\value{beamerswitch@nupcase}\relax
236     \relax
237     \or
238     \addtolength{\beamerswitch@pnoadjust}{-0.333\beamerswitch@margin}%
239     \or
240     \addtolength{\beamerswitch@pnoadjust}{-0.333\beamerswitch@margin}%
241     \or
242     \addtolength{\beamerswitch@pnoadjust}{-0.5\beamerswitch@margin}%
243     \or
244     \addtolength{\beamerswitch@pnoadjust}{-0.5\beamerswitch@margin}%
245     \or
246     \addtolength{\beamerswitch@pnoadjust}{-0.333\beamerswitch@margin}%
247     \or
248     \addtolength{\beamerswitch@pnoadjust}{-0.6\beamerswitch@margin}%
249     \or
250     \addtolength{\beamerswitch@pnoadjust}{-0.5\beamerswitch@margin}%
251     \or
252     \addtolength{\beamerswitch@pnoadjust}{-0.6\beamerswitch@margin}%
253   \fi
254   }{}%
255   \ifdimcomp{\beamerswitch@margin}{<}%
256     {\handoutpno + \beamerswitch@pnoadjust}{%
257     \setlength{\beamerswitch@margin}%
258     {\the\dimexpr\handoutpno + \beamerswitch@pnoadjust\relax}%
259   }{}%
260 }{}%
261 \def\beamerswitch@footer{\stepcounter{handoutpno}}%
262 }%

```

The value of the `nup` option is used both to select the layout and set the value of `\beamerswitch@nup`. The latter is used to suppress unwanted borders and check if `\handoutlayout` has been called.

```

263   \ifcase\value{beamerswitch@nupcase}\relax
264     \def\beamerswitch@nup{1}%
265     \pgfpagesuselayout{1 by 1}[\beamerswitch@handoutpaper,%
266       landscape,border shrink=\the\beamerswitch@margin]%
267   \or
268     \def\beamerswitch@nup{1}%
269     \pgfpagesuselayout{1 by 1 narrow}[\beamerswitch@handoutpaper,%
270       border shrink=\the\beamerswitch@margin]%
271   \or
272     \def\beamerswitch@nup{2}%
273     \pgfpagesuselayout{1 by 2}[\beamerswitch@handoutpaper,%
274       border shrink=\the\beamerswitch@margin]%
275   \or

```

```

276     \def\beamerswitch@nup{3}%
277     \pgfpagesuselayout{1 by 3}[\beamerswitch@handoutpaper,%
278         border shrink=\the\beamerswitch@margin]%
279     \or
280     \def\beamerswitch@nup{3}%
281     \pgfpagesuselayout{1 by 3 narrow}[\beamerswitch@handoutpaper,%
282         border shrink=\the\beamerswitch@margin]%
283     \or
284     \def\beamerswitch@nup{4}%
285     \pgfpagesuselayout{2 by 2}[\beamerswitch@handoutpaper,%
286         landscape,border shrink=\the\beamerswitch@margin]%
287     \or
288     \def\beamerswitch@nup{4}%
289     \pgfpagesuselayout{1 by 4 narrow}[\beamerswitch@handoutpaper,%
290         border shrink=\the\beamerswitch@margin]%
291     \or
292     \def\beamerswitch@nup{6}%
293     \pgfpagesuselayout{2 by 3}[\beamerswitch@handoutpaper,%
294         border shrink=\the\beamerswitch@margin]%
295     \or
296     \def\beamerswitch@nup{8}%
297     \pgfpagesuselayout{2 by 4}[\beamerswitch@handoutpaper,%
298         border shrink=\the\beamerswitch@margin]%
299     \fi
300 }%
301 }

```

We initialize the class with the defaults set above.

```

302 \AtEndPreamble{%
303     \ifdef{\beamerswitch@nup}{}{}%
304     \handoutlayout{}%
305 }%
306 }

```

Though `pgfpages` defines some perfectly fine layouts, we need to add configurability to the existing ones and provide some new ones.

The '1 by 1' layout has a single slide per page.

```

307 \mode<handout>{%
308     \pgfpagesdeclarelayout{1 by 1}
309     {
310         \edef\pgfpageoptionheight{\the\paperheight}
311         \edef\pgfpageoptionwidth{\the\paperwidth}
312         \edef\pgfpageoptionborder{0pt}
313         \def\pgfpageoptionfirstshipout{1}
314     }
315     {
316         \pgfpagesphysicalpageoptions
317         {%
318             logical pages=1,%
319             physical height=\pgfpageoptionheight,%
320             physical width=\pgfpageoptionwidth,%
321             current logical shipout=\pgfpageoptionfirstshipout%
322         }

```

```

323 \pgfpageslogicalpageoptions{1}
324 {%
325     border shrink=\pgfpageoptionborder,%
326     border code=\beamerswitch@Border,%
327     resized width=\pgfphysicalwidth,%
328     resized height=\pgfphysicalheight,%
329     center=\pgfpoint{.5\pgfphysicalwidth}{.5\pgfphysicalheight}%
330 }%
331 }%

```

The ‘1 by 1 narrow’ layout is similar to the normal 2 on 1 layout, but there is a notes area instead of the second slide.

```

332 \pgfpagesdeclarelayout{1 by 1 narrow}
333 {
334     \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
335     \edef\pgfpageoptionwidth{\the\paperheight}
336     \def\pgfpageoptionborder{0pt}
337     \def\pgfpageoptionfirstshipout{1}
338 }
339 {
340     \pgfpagesphysicalpageoptions
341     {%
342         logical pages=1,%
343         physical height=\pgfpageoptionheight,%
344         physical width=\pgfpageoptionwidth,%
345         current logical shipout=\pgfpageoptionfirstshipout%
346     }
347     \ifdim\paperheight>\paperwidth\relax
348     % put side-by-side
349     \pgfpageslogicalpageoptions{1}
350     {%
351         border shrink=\pgfpageoptionborder,%
352         border code=\beamerswitch@Border,%
353         resized width=.5\pgfphysicalwidth,%
354         resized height=\pgfphysicalheight,%
355         center=\ifbool{HL@beamerswitch@align}{%
356             \pgfpoint{.25\pgfphysicalwidth +
357                 → 0.333\beamerswitch@margin}{.5\pgfphysicalheight}%
358             }{%
359                 \pgfpoint{.25\pgfphysicalwidth}{.5\pgfphysicalheight}%
360             }%
361         \else
362         % stack on top of one another
363         \pgfpageslogicalpageoptions{1}
364         {%
365             border shrink=\pgfpageoptionborder,%
366             border code=\beamerswitch@Border,%
367             resized width=\pgfphysicalwidth,%
368             resized height=.5\pgfphysicalheight,%
369             center=\ifbool{HL@beamerswitch@align}{%
370                 \pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight -
371                 → 0.333\beamerswitch@margin}%
372             }{%
373                 \pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight}%

```

```

373     }%
374   }%
375   \fi
376 }

```

The '1 by 2' layout is similar to the normal 2 on 1 layout.

```

377 \pgfpagesdeclarelayout{1 by 2}
378 {
379   \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
380   \edef\pgfpageoptionwidth{\the\paperheight}
381   \def\pgfpageoptionborder{0pt}
382   \def\pgfpageoptionfirstshipout{1}
383 }
384 {
385   \pgfpagesphysicalpageoptions
386   {%
387     logical pages=2,%
388     physical height=\pgfpageoptionheight,%
389     physical width=\pgfpageoptionwidth,%
390     current logical shipout=\pgfpageoptionfirstshipout%
391   }
392   \ifdim\paperheight>\paperwidth\relax
393     % put side-by-side
394     \pgfpageslogicalpageoptions{1}
395     {%
396       border shrink=\pgfpageoptionborder,%
397       border code=\beamerswitch@Border,%
398       resized width=.5\pgfphysicalwidth,%
399       resized height=\pgfphysicalheight,%
400       center=\ifbool{HL@beamerswitch@align}{%
401         \pgfpoint{.25\pgfphysicalwidth +
402           ↪ 0.333\beamerswitch@margin}{.5\pgfphysicalheight}%
403       }{%
404         \pgfpoint{.25\pgfphysicalwidth}{.5\pgfphysicalheight}%
405       }%
406     }%
407     \pgfpageslogicalpageoptions{2}
408     {%
409       border shrink=\pgfpageoptionborder,%
410       border code=\beamerswitch@Border,%
411       resized width=.5\pgfphysicalwidth,%
412       resized height=\pgfphysicalheight,%
413       center=\ifbool{HL@beamerswitch@align}{%
414         \pgfpoint{.75\pgfphysicalwidth -
415           ↪ 0.333\beamerswitch@margin}{.5\pgfphysicalheight}%
416       }{%
417         \pgfpoint{.75\pgfphysicalwidth}{.5\pgfphysicalheight}%
418       }%
419     }%
420     \else
421     % stack on top of one another
422     \pgfpageslogicalpageoptions{1}
423     {%
424       border shrink=\pgfpageoptionborder,%
425       border code=\beamerswitch@Border,%

```

```

424     resized width=\pgfphysicalwidth,%
425     resized height=.5\pgfphysicalheight,%
426     center=\ifbool{HL@beamerswitch@align}{%
427         \pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight -
         ↪ 0.333\beamerswitch@margin}%
428     }{%
429         \pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight}%
430     }%
431 }%
432 \pgfpageslogicalpageoptions{2}
433 {%
434     border shrink=\pgfpageoptionborder,%
435     border code=\beamerswitch@Border,%
436     resized width=\pgfphysicalwidth,%
437     resized height=.5\pgfphysicalheight,%
438     center=\ifbool{HL@beamerswitch@align}{%
439         \pgfpoint{.5\pgfphysicalwidth}{.25\pgfphysicalheight +
         ↪ 0.333\beamerswitch@margin}%
440     }{%
441         \pgfpoint{.5\pgfphysicalwidth}{.25\pgfphysicalheight}%
442     }%
443 }%
444 \fi
445 }

```

The ‘1 by 3’ layout is similar to the ‘1 by 2’, but with an extra row.

```

446 \pgfpagesdeclarelayout{1 by 3}
447 {
448     \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
449     \edef\pgfpageoptionwidth{\the\paperheight}
450     \def\pgfpageoptionborder{0pt}
451     \def\pgfpageoptionfirstshipout{1}
452 }
453 {
454     \pgfpagesphysicalpageoptions
455     {%
456         logical pages=3,%
457         physical height=\pgfpageoptionheight,%
458         physical width=\pgfpageoptionwidth,%
459         current logical shipout=\pgfpageoptionfirstshipout%
460     }
461     \ifdim\paperheight>\paperwidth\relax
462     % put side-by-side
463     \pgfpageslogicalpageoptions{1}
464     {%
465         border shrink=\pgfpageoptionborder,%
466         border code=\beamerswitch@Border,%
467         resized width=.333\pgfphysicalwidth,%
468         resized height=\pgfphysicalheight,%
469         center=\ifbool{HL@beamerswitch@align}{%
470             \pgfpoint{.167\pgfphysicalwidth +
             ↪ 0.5\beamerswitch@margin}{.5\pgfphysicalheight}%
471         }{%
472             \pgfpoint{.167\pgfphysicalwidth}{.5\pgfphysicalheight}%
473         }%

```

```

474 }%
475 \pgfpageslogicalpageoptions{2}
476 {%
477   border shrink=\pgfpageoptionborder,%
478   border code=\beamerswitch@Border,%
479   resized width=.333\pgfphysicalwidth,%
480   resized height=\pgfphysicalheight,%
481   center=\pgfpoint{.5\pgfphysicalwidth}{.5\pgfphysicalheight}%
482 }%
483 \pgfpageslogicalpageoptions{3}
484 {%
485   border shrink=\pgfpageoptionborder,%
486   border code=\beamerswitch@Border,%
487   resized width=.333\pgfphysicalwidth,%
488   resized height=\pgfphysicalheight,%
489   center=\ifbool{HL@beamerswitch@align}{%
490     \pgfpoint{.833\pgfphysicalwidth -
491       ↪ 0.5\beamerswitch@margin}{.5\pgfphysicalheight}%
492   }{%
493     \pgfpoint{.833\pgfphysicalwidth}{.5\pgfphysicalheight}%
494   }%
495 }%
496 % stack on top of one another
497 \pgfpageslogicalpageoptions{1}
498 {%
499   border shrink=\pgfpageoptionborder,%
500   border code=\beamerswitch@Border,%
501   resized width=\pgfphysicalwidth,%
502   resized height=.333\pgfphysicalheight,%
503   center=\ifbool{HL@beamerswitch@align}{%
504     \pgfpoint{.5\pgfphysicalwidth}{.833\pgfphysicalheight -
505       ↪ 0.5\beamerswitch@margin}%
506   }{%
507     \pgfpoint{.5\pgfphysicalwidth}{.833\pgfphysicalheight}%
508   }%
509 }%
510 \pgfpageslogicalpageoptions{2}
511 {%
512   border shrink=\pgfpageoptionborder,%
513   border code=\beamerswitch@Border,%
514   resized width=\pgfphysicalwidth,%
515   resized height=.333\pgfphysicalheight,%
516   center=\pgfpoint{.5\pgfphysicalwidth}{.5\pgfphysicalheight}%
517 }%
518 \pgfpageslogicalpageoptions{3}
519 {%
520   border shrink=\pgfpageoptionborder,%
521   border code=\beamerswitch@Border,%
522   resized width=\pgfphysicalwidth,%
523   resized height=.333\pgfphysicalheight,%
524   center=\ifbool{HL@beamerswitch@align}{%
525     \pgfpoint{.5\pgfphysicalwidth}{.167\pgfphysicalheight +
526       ↪ 0.5\beamerswitch@margin}%
527   }{%
528     \pgfpoint{.5\pgfphysicalwidth}{.167\pgfphysicalheight}%

```

```

527     }%
528   }%
529   \fi
530 }

```

The ‘1 by 3 narrow’ layout is like the ‘1 by 3’ layout but restricted to the left (or top) half of the page.

```

531 \pgfpagesdeclarelAYOUT{1 by 3 narrow}
532 {
533   \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
534   \edef\pgfpageoptionwidth{\the\paperheight}
535   \def\pgfpageoptionborder{0pt}
536   \def\pgfpageoptionfirstshipout{1}
537 }
538 {
539   \pgfpagesphysicalpageoptions
540   {%
541     logical pages=3,%
542     physical height=\pgfpageoptionheight,%
543     physical width=\pgfpageoptionwidth,%
544     current logical shipout=\pgfpageoptionfirstshipout%
545   }
546   \ifdim\paperheight>\paperwidth\relax
547     % put side-by-side
548     \pgfpageslogicalpageoptions{1}
549     {%
550       border shrink=\pgfpageoptionborder,%
551       border code=\beamerswitch@Border,%
552       resized width=.333\pgfphysicalwidth,%
553       resized height=.5\pgfphysicalheight,%
554       center=\ifbool{HL@beamerswitch@align}{%
555         \pgfpoint{.167\pgfphysicalwidth + 0.5\beamerswitch@margin}%
556         {.75\pgfphysicalheight - 0.5\beamerswitch@margin}%
557       }{%
558         \pgfpoint{.167\pgfphysicalwidth}{.75\pgfphysicalheight}%
559       }%
560     }%
561     \pgfpageslogicalpageoptions{2}
562     {%
563       border shrink=\pgfpageoptionborder,%
564       border code=\beamerswitch@Border,%
565       resized width=.333\pgfphysicalwidth,%
566       resized height=.5\pgfphysicalheight,%
567       center=\ifbool{HL@beamerswitch@align}{%
568         \pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight -
569           ↪ 0.5\beamerswitch@margin}%
570       }{%
571         \pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight}%
572       }%
573     }%
574     \pgfpageslogicalpageoptions{3}
575     {%
576       border shrink=\pgfpageoptionborder,%
577       border code=\beamerswitch@Border,%
578       resized width=.333\pgfphysicalwidth,%

```



```

578     resized height=.5\pgfphysicalheight,%
579     center=\ifbool{HL@beamerswitch@align}{%
580         \pgfpoint{.833\pgfphysicalwidth - 0.5\beamerswitch@margin}%
581         {.75\pgfphysicalheight - 0.5\beamerswitch@margin}%
582     }{%
583         \pgfpoint{.833\pgfphysicalwidth}{.75\pgfphysicalheight}%
584     }%
585 }%
586 \else
587 % stack on top of one another
588 \pgfpageslogicalpageoptions{1}
589 {%
590     border shrink=\pgfpageoptionborder,%
591     border code=\beamerswitch@Border,%
592     resized width=.5\pgfphysicalwidth,%
593     resized height=.333\pgfphysicalheight,%
594     center=\ifbool{HL@beamerswitch@align}{%
595         \pgfpoint{.25\pgfphysicalwidth + 0.5\beamerswitch@margin}%
596         {.833\pgfphysicalheight - 0.5\beamerswitch@margin}%
597     }{%
598         \pgfpoint{.25\pgfphysicalwidth}{.833\pgfphysicalheight}%
599     }%
600 }%
601 \pgfpageslogicalpageoptions{2}
602 {%
603     border shrink=\pgfpageoptionborder,%
604     border code=\beamerswitch@Border,%
605     resized width=.5\pgfphysicalwidth,%
606     resized height=.333\pgfphysicalheight,%
607     center=\ifbool{HL@beamerswitch@align}{%
608         \pgfpoint{.25\pgfphysicalwidth +
609             → 0.5\beamerswitch@margin}{.5\pgfphysicalheight}%
610     }{%
611         \pgfpoint{.25\pgfphysicalwidth}{.5\pgfphysicalheight}%
612     }%
613 }%
614 \pgfpageslogicalpageoptions{3}
615 {%
616     border shrink=\pgfpageoptionborder,%
617     border code=\beamerswitch@Border,%
618     resized width=.5\pgfphysicalwidth,%
619     resized height=.333\pgfphysicalheight,%
620     center=\ifbool{HL@beamerswitch@align}{%
621         \pgfpoint{.25\pgfphysicalwidth + 0.5\beamerswitch@margin}%
622         {.167\pgfphysicalheight + 0.5\beamerswitch@margin}%
623     }{%
624         \pgfpoint{.25\pgfphysicalwidth}{.167\pgfphysicalheight}%
625     }%
626 }%
627 \fi
}

```

The '2 by 2' layout is similar to the normal 4 on 1 layout.

```

628     \pgfpagesdeclarelayout{2 by 2}
629     {

```

```

630 \edef\pgfpageoptionheight{\the\paperheight}
631 \edef\pgfpageoptionwidth{\the\paperwidth}
632 \edef\pgfpageoptionborder{0pt}
633 }
634 {
635 \pgfpagesphysicalpageoptions
636 {%
637 logical pages=4,%
638 physical height=\pgfpageoptionheight,%
639 physical width=\pgfpageoptionwidth%
640 }
641 \pgfpageslogicalpageoptions{1}
642 {%
643 border shrink=\pgfpageoptionborder,%
644 border code=\beamerswitch@Border,%
645 resized width=.5\pgfphysicalwidth,%
646 resized height=.5\pgfphysicalheight,%
647 center=\ifbool{HL@beamerswitch@align}{%
648 \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
649 {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
650 }{%
651 \pgfpoint{.25\pgfphysicalwidth}{.75\pgfphysicalheight}%
652 }%
653 }%
654 \pgfpageslogicalpageoptions{2}
655 {%
656 border shrink=\pgfpageoptionborder,%
657 border code=\beamerswitch@Border,%
658 resized width=.5\pgfphysicalwidth,%
659 resized height=.5\pgfphysicalheight,%
660 center=\ifbool{HL@beamerswitch@align}{%
661 \pgfpoint{.75\pgfphysicalwidth - 0.333\beamerswitch@margin}%
662 {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
663 }{%
664 \pgfpoint{.75\pgfphysicalwidth}{.75\pgfphysicalheight}%
665 }%
666 }%
667 \pgfpageslogicalpageoptions{3}
668 {%
669 border shrink=\pgfpageoptionborder,%
670 border code=\beamerswitch@Border,%
671 resized width=.5\pgfphysicalwidth,%
672 resized height=.5\pgfphysicalheight,%
673 center=\ifbool{HL@beamerswitch@align}{%
674 \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
675 {.25\pgfphysicalheight + 0.333\beamerswitch@margin}%
676 }{%
677 \pgfpoint{.25\pgfphysicalwidth}{.25\pgfphysicalheight}%
678 }%
679 }%
680 \pgfpageslogicalpageoptions{4}
681 {%
682 border shrink=\pgfpageoptionborder,%
683 border code=\beamerswitch@Border,%
684 resized width=.5\pgfphysicalwidth,%
685 resized height=.5\pgfphysicalheight,%

```

```

686     center=\ifbool{HL@beamerswitch@align}{%
687         \pgfpoint{.75\pgfphysicalwidth - 0.333\beamerswitch@margin}%
688         {.25\pgfphysicalheight + 0.333\beamerswitch@margin}%
689     }{%
690         \pgfpoint{.75\pgfphysicalwidth}{.25\pgfphysicalheight}%
691     }%
692 }%
693 }

```

The ‘1 by 4 narrow’ layout puts four slides in a column on the left half of the page (or in a row on the top half).

```

694 \pgfpagesdeclarelAYOUT{1 by 4 narrow}
695 {
696     \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
697     \edef\pgfpageoptionwidth{\the\paperheight}
698     \def\pgfpageoptionborder{0pt}
699     \def\pgfpageoptionfirstshipout{1}
700 }
701 {
702     \pgfpagesphysicalpageoptions
703     {%
704         logical pages=4,%
705         physical height=\pgfpageoptionheight,%
706         physical width=\pgfpageoptionwidth,%
707         current logical shipout=\pgfpageoptionfirstshipout%
708     }
709     \ifdim\paperheight>\paperwidth\relax
710     % put side-by-side
711     \pgfpageslogicalpageoptions{1}
712     {%
713         border shrink=\pgfpageoptionborder,%
714         border code=\beamerswitch@Border,%
715         resized width=.25\pgfphysicalwidth,%
716         resized height=.5\pgfphysicalheight,%
717         center=\ifbool{HL@beamerswitch@align}{%
718             \pgfpoint{.125\pgfphysicalwidth + 0.6\beamerswitch@margin}%
719             {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
720         }{%
721             \pgfpoint{.125\pgfphysicalwidth}{.75\pgfphysicalheight}%
722         }%
723     }%
724     \pgfpageslogicalpageoptions{2}
725     {%
726         border shrink=\pgfpageoptionborder,%
727         border code=\beamerswitch@Border,%
728         resized width=.25\pgfphysicalwidth,%
729         resized height=.5\pgfphysicalheight,%
730         center=\ifbool{HL@beamerswitch@align}{%
731             \pgfpoint{.375\pgfphysicalwidth + 0.2\beamerswitch@margin}%
732             {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
733         }{%
734             \pgfpoint{.375\pgfphysicalwidth}{.75\pgfphysicalheight}%
735         }%
736     }%
737     \pgfpageslogicalpageoptions{3}

```

```

738 {%
739 border shrink=\pgfpageoptionborder,%
740 border code=\beamerswitch@Border,%
741 resized width=.25\pgfphysicalwidth,%
742 resized height=.5\pgfphysicalheight,%
743 center=\ifbool{HL@beamerswitch@align}{%
744 \pgfpoint{.625\pgfphysicalwidth - 0.2\beamerswitch@margin}%
745 {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
746 }{%
747 \pgfpoint{.625\pgfphysicalwidth}{.75\pgfphysicalheight}%
748 }%
749 }%
750 \pgfpageslogicalpageoptions{4}
751 {%
752 border shrink=\pgfpageoptionborder,%
753 border code=\beamerswitch@Border,%
754 resized width=.25\pgfphysicalwidth,%
755 resized height=.5\pgfphysicalheight,%
756 center=\ifbool{HL@beamerswitch@align}{%
757 \pgfpoint{.875\pgfphysicalwidth - 0.6\beamerswitch@margin}%
758 {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
759 }{%
760 \pgfpoint{.875\pgfphysicalwidth}{.75\pgfphysicalheight}%
761 }%
762 }%
763 \else
764 % stack on top of one another
765 \pgfpageslogicalpageoptions{1}
766 {%
767 border shrink=\pgfpageoptionborder,%
768 border code=\beamerswitch@Border,%
769 resized width=.5\pgfphysicalwidth,%
770 resized height=.25\pgfphysicalheight,%
771 center=\ifbool{HL@beamerswitch@align}{%
772 \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
773 {.875\pgfphysicalheight - 0.6\beamerswitch@margin}%
774 }{%
775 \pgfpoint{.25\pgfphysicalwidth}{.875\pgfphysicalheight}%
776 }%
777 }%
778 \pgfpageslogicalpageoptions{2}
779 {%
780 border shrink=\pgfpageoptionborder,%
781 border code=\beamerswitch@Border,%
782 resized width=.5\pgfphysicalwidth,%
783 resized height=.25\pgfphysicalheight,%
784 center=\ifbool{HL@beamerswitch@align}{%
785 \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
786 {.625\pgfphysicalheight - 0.2\beamerswitch@margin}%
787 }{%
788 \pgfpoint{.25\pgfphysicalwidth}{.625\pgfphysicalheight}%
789 }%
790 }%
791 \pgfpageslogicalpageoptions{3}
792 {%
793 border shrink=\pgfpageoptionborder,%

```

```

794 border code=\beamerswitch@Border,%
795 resized width=.5\pgfphysicalwidth,%
796 resized height=.25 \pgfphysicalheight,%
797 center=\ifbool{HL@beamerswitch@align}{%
798   \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
799   {.375\pgfphysicalheight + 0.2\beamerswitch@margin}%
800 }{%
801   \pgfpoint{.25\pgfphysicalwidth}{.375\pgfphysicalheight}%
802 }%
803 }%
804 \pgfpageslogicalpageoptions{4}
805 {%
806 border shrink=\pgfpageoptionborder,%
807 border code=\beamerswitch@Border,%
808 resized width=.5\pgfphysicalwidth,%
809 resized height=.25 \pgfphysicalheight,%
810 center=\ifbool{HL@beamerswitch@align}{%
811   \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
812   {.125\pgfphysicalheight + 0.6\beamerswitch@margin}%
813 }{%
814   \pgfpoint{.25\pgfphysicalwidth}{.125\pgfphysicalheight}%
815 }%
816 }%
817 \fi
818 }

```

The ‘2 by 3’ layout positions the slides as three rows of two slides each.

```

819 \pgfpagesdeclarelayers{2 by 3}
820 {
821   \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
822   \edef\pgfpageoptionwidth{\the\paperheight}
823   \def\pgfpageoptionborder{0pt}
824   \def\pgfpageoptionfirstshipout{1}
825 }
826 {
827   \pgfpagesphysicalpageoptions
828   {%
829     logical pages=6,%
830     physical height=\pgfpageoptionheight,%
831     physical width=\pgfpageoptionwidth,%
832     current logical shipout=\pgfpageoptionfirstshipout%
833   }
834   \ifdim\paperheight>\paperwidth\relax
835     % put side-by-side
836     \pgfpageslogicalpageoptions{1}
837     {%
838       border shrink=\pgfpageoptionborder,%
839       border code=\beamerswitch@Border,%
840       resized width=.333\pgfphysicalwidth,%
841       resized height=.5\pgfphysicalheight,%
842       center=\ifbool{HL@beamerswitch@align}{%
843         \pgfpoint{.167\pgfphysicalwidth + 0.5\beamerswitch@margin}%
844         {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
845       }{%
846         \pgfpoint{.167\pgfphysicalwidth}{.75\pgfphysicalheight}%

```

```

847 }%
848 }%
849 \pgfpageslogicalpageoptions{2}
850 {%
851 border shrink=\pgfpageoptionborder,%
852 border code=\beamerswitch@Border,%
853 resized width=.333\pgfphysicalwidth,%
854 resized height=.5\pgfphysicalheight,%
855 center=\ifbool{HL@beamerswitch@align}{%
856 \pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight -
      ↪ 0.333\beamerswitch@margin}}%
857 }{%
858 \pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight}}%
859 }%
860 }%
861 \pgfpageslogicalpageoptions{3}
862 {%
863 border shrink=\pgfpageoptionborder,%
864 border code=\beamerswitch@Border,%
865 resized width=.333\pgfphysicalwidth,%
866 resized height=.5\pgfphysicalheight,%
867 center=\ifbool{HL@beamerswitch@align}{%
868 \pgfpoint{.833\pgfphysicalwidth - 0.5\beamerswitch@margin}}%
869 {.75\pgfphysicalheight - 0.333\beamerswitch@margin}}%
870 }{%
871 \pgfpoint{.833\pgfphysicalwidth}{.75\pgfphysicalheight}}%
872 }%
873 }%
874 \pgfpageslogicalpageoptions{4}
875 {%
876 border shrink=\pgfpageoptionborder,%
877 border code=\beamerswitch@Border,%
878 resized width=.333\pgfphysicalwidth,%
879 resized height=.5\pgfphysicalheight,%
880 center=\ifbool{HL@beamerswitch@align}{%
881 \pgfpoint{.167\pgfphysicalwidth + 0.5\beamerswitch@margin}}%
882 {.25\pgfphysicalheight + 0.333\beamerswitch@margin}}%
883 }{%
884 \pgfpoint{.167\pgfphysicalwidth}{.25\pgfphysicalheight}}%
885 }%
886 }%
887 \pgfpageslogicalpageoptions{5}
888 {%
889 border shrink=\pgfpageoptionborder,%
890 border code=\beamerswitch@Border,%
891 resized width=.333\pgfphysicalwidth,%
892 resized height=.5\pgfphysicalheight,%
893 center=\ifbool{HL@beamerswitch@align}{%
894 \pgfpoint{.5\pgfphysicalwidth}{.25\pgfphysicalheight +
      ↪ 0.333\beamerswitch@margin}}%
895 }{%
896 \pgfpoint{.5\pgfphysicalwidth}{.25\pgfphysicalheight}}%
897 }%
898 }%
899 \pgfpageslogicalpageoptions{6}
900 {%

```

```

901 border shrink=\pgfpageoptionborder,%
902 border code=\beamerswitch@Border,%
903 resized width=.333\pgfphysicalwidth,%
904 resized height=.5\pgfphysicalheight,%
905 center=\ifbool{HL@beamerswitch@align}{%
906   \pgfpoint{.833\pgfphysicalwidth - 0.5\beamerswitch@margin}%
907   {.25\pgfphysicalheight + 0.333\beamerswitch@margin}%
908 }{%
909   \pgfpoint{.833\pgfphysicalwidth}{.25\pgfphysicalheight}%
910 }%
911 }%
912 \else
913 % stack on top of one another
914 \pgfpageslogicalpageoptions{1}
915 {%
916 border shrink=\pgfpageoptionborder,%
917 border code=\beamerswitch@Border,%
918 resized width=.5\pgfphysicalwidth,%
919 resized height=.333\pgfphysicalheight,%
920 center=\ifbool{HL@beamerswitch@align}{%
921   \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
922   {.833\pgfphysicalheight - 0.5\beamerswitch@margin}%
923 }{%
924   \pgfpoint{.25\pgfphysicalwidth}{.833\pgfphysicalheight}%
925 }%
926 }%
927 \pgfpageslogicalpageoptions{2}
928 {%
929 border shrink=\pgfpageoptionborder,%
930 border code=\beamerswitch@Border,%
931 resized width=.5\pgfphysicalwidth,%
932 resized height=.333\pgfphysicalheight,%
933 center=\ifbool{HL@beamerswitch@align}{%
934   \pgfpoint{.75\pgfphysicalwidth - 0.333\beamerswitch@margin}%
935   {.833\pgfphysicalheight - 0.5\beamerswitch@margin}%
936 }{%
937   \pgfpoint{.75\pgfphysicalwidth}{.833\pgfphysicalheight}%
938 }%
939 }%
940 \pgfpageslogicalpageoptions{3}
941 {%
942 border shrink=\pgfpageoptionborder,%
943 border code=\beamerswitch@Border,%
944 resized width=.5\pgfphysicalwidth,%
945 resized height=.333\pgfphysicalheight,%
946 center=\ifbool{HL@beamerswitch@align}{%
947   \pgfpoint{.25\pgfphysicalwidth +
948     ↪ 0.333\beamerswitch@margin}{.5\pgfphysicalheight}%
949 }{%
950   \pgfpoint{.25\pgfphysicalwidth}{.5\pgfphysicalheight}%
951 }%
952 }%
953 \pgfpageslogicalpageoptions{4}
954 {%
955 border shrink=\pgfpageoptionborder,%
956 border code=\beamerswitch@Border,%

```

```

956     resized width=.5\pgfphysicalwidth,%
957     resized height=.333\pgfphysicalheight,%
958     center=\ifbool{HL@beamerswitch@align}{%
959         \pgfpoint{.75\pgfphysicalwidth -
          ↪ 0.333\beamerswitch@margin}{.5\pgfphysicalheight}%
960     }{%
961         \pgfpoint{.75\pgfphysicalwidth}{.5\pgfphysicalheight}%
962     }%
963 }%
964 \pgfpageslogicalpageoptions{5}
965 {%
966     border shrink=\pgfpageoptionborder,%
967     border code=\beamerswitch@Border,%
968     resized width=.5\pgfphysicalwidth,%
969     resized height=.333\pgfphysicalheight,%
970     center=\ifbool{HL@beamerswitch@align}{%
971         \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
972         {.167\pgfphysicalheight + 0.5\beamerswitch@margin}%
973     }{%
974         \pgfpoint{.25\pgfphysicalwidth}{.167\pgfphysicalheight}%
975     }%
976 }%
977 \pgfpageslogicalpageoptions{6}
978 {%
979     border shrink=\pgfpageoptionborder,%
980     border code=\beamerswitch@Border,%
981     resized width=.5\pgfphysicalwidth,%
982     resized height=.333\pgfphysicalheight,%
983     center=\ifbool{HL@beamerswitch@align}{%
984         \pgfpoint{.75\pgfphysicalwidth - 0.333\beamerswitch@margin}%
985         {.167\pgfphysicalheight + 0.5\beamerswitch@margin}%
986     }{%
987         \pgfpoint{.75\pgfphysicalwidth}{.167\pgfphysicalheight}%
988     }%
989 }%
990 \fi
991 }

```

The ‘2 by 4’ layout layout positions the slides as four rows of two slides each.

```

992     \pgfpagesdeclarelayout{2 by 4}
993     {
994         \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
995         \edef\pgfpageoptionwidth{\the\paperheight}
996         \def\pgfpageoptionborder{0pt}
997         \def\pgfpageoptionfirstshipout{1}
998     }
999     {
1000     \pgfpagesphysicalpageoptions
1001     {%
1002         logical pages=8,%
1003         physical height=\pgfpageoptionheight,%
1004         physical width=\pgfpageoptionwidth,%
1005         current logical shipout=\pgfpageoptionfirstshipout%
1006     }
1007     \ifdim\paperheight>\paperwidth\relax

```



```

1008 % put side-by-side
1009 \pgfpageslogicalpageoptions{1}
1010 {%
1011 border shrink=\pgfpageoptionborder,%
1012 border code=\beamerswitch@Border,%
1013 resized width=.25\pgfphysicalwidth,%
1014 resized height=.5\pgfphysicalheight,%
1015 center=\ifbool{HL@beamerswitch@align}{%
1016 \pgfpoint{.125\pgfphysicalwidth + 0.6\beamerswitch@margin}%
1017 {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
1018 }{%
1019 \pgfpoint{.125\pgfphysicalwidth}{.75\pgfphysicalheight}%
1020 }%
1021 }%
1022 \pgfpageslogicalpageoptions{2}
1023 {%
1024 border shrink=\pgfpageoptionborder,%
1025 border code=\beamerswitch@Border,%
1026 resized width=.25\pgfphysicalwidth,%
1027 resized height=.5\pgfphysicalheight,%
1028 center=\ifbool{HL@beamerswitch@align}{%
1029 \pgfpoint{.375\pgfphysicalwidth + 0.2\beamerswitch@margin}%
1030 {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
1031 }{%
1032 \pgfpoint{.375\pgfphysicalwidth}{.75\pgfphysicalheight}%
1033 }%
1034 }%
1035 \pgfpageslogicalpageoptions{3}
1036 {%
1037 border shrink=\pgfpageoptionborder,%
1038 border code=\beamerswitch@Border,%
1039 resized width=.25\pgfphysicalwidth,%
1040 resized height=.5\pgfphysicalheight,%
1041 center=\ifbool{HL@beamerswitch@align}{%
1042 \pgfpoint{.625\pgfphysicalwidth - 0.2\beamerswitch@margin}%
1043 {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
1044 }{%
1045 \pgfpoint{.625\pgfphysicalwidth}{.75\pgfphysicalheight}%
1046 }%
1047 }%
1048 \pgfpageslogicalpageoptions{4}
1049 {%
1050 border shrink=\pgfpageoptionborder,%
1051 border code=\beamerswitch@Border,%
1052 resized width=.25\pgfphysicalwidth,%
1053 resized height=.5\pgfphysicalheight,%
1054 center=\ifbool{HL@beamerswitch@align}{%
1055 \pgfpoint{.875\pgfphysicalwidth - 0.6\beamerswitch@margin}%
1056 {.75\pgfphysicalheight - 0.333\beamerswitch@margin}%
1057 }{%
1058 \pgfpoint{.875\pgfphysicalwidth}{.75\pgfphysicalheight}%
1059 }%
1060 }%
1061 \pgfpageslogicalpageoptions{5}
1062 {%
1063 border shrink=\pgfpageoptionborder,%

```

```

1064 border code=\beamerswitch@Border,%
1065 resized width=.25\pgfphysicalwidth,%
1066 resized height=.5\pgfphysicalheight,%
1067 center=\ifbool{HL@beamerswitch@align}{%
1068   \pgfpoint{.125\pgfphysicalwidth + 0.6\beamerswitch@margin}%
1069   {.25\pgfphysicalheight + 0.333\beamerswitch@margin}%
1070 }{%
1071   \pgfpoint{.125\pgfphysicalwidth}{.25\pgfphysicalheight}%
1072 }%
1073 }%
1074 \pgfpageslogicalpageoptions{6}
1075 {%
1076 border shrink=\pgfpageoptionborder,%
1077 border code=\beamerswitch@Border,%
1078 resized width=.25\pgfphysicalwidth,%
1079 resized height=.5\pgfphysicalheight,%
1080 center=\ifbool{HL@beamerswitch@align}{%
1081   \pgfpoint{.375\pgfphysicalwidth + 0.2\beamerswitch@margin}%
1082   {.25\pgfphysicalheight + 0.333\beamerswitch@margin}%
1083 }{%
1084   \pgfpoint{.375\pgfphysicalwidth}{.25\pgfphysicalheight}%
1085 }%
1086 }%
1087 \pgfpageslogicalpageoptions{7}
1088 {%
1089 border shrink=\pgfpageoptionborder,%
1090 border code=\beamerswitch@Border,%
1091 resized width=.25\pgfphysicalwidth,%
1092 resized height=.5\pgfphysicalheight,%
1093 center=\ifbool{HL@beamerswitch@align}{%
1094   \pgfpoint{.625\pgfphysicalwidth - 0.2\beamerswitch@margin}%
1095   {.25\pgfphysicalheight + 0.333\beamerswitch@margin}%
1096 }{%
1097   \pgfpoint{.625\pgfphysicalwidth}{.25\pgfphysicalheight}%
1098 }%
1099 }%
1100 \pgfpageslogicalpageoptions{8}
1101 {%
1102 border shrink=\pgfpageoptionborder,%
1103 border code=\beamerswitch@Border,%
1104 resized width=.25\pgfphysicalwidth,%
1105 resized height=.5\pgfphysicalheight,%
1106 center=\ifbool{HL@beamerswitch@align}{%
1107   \pgfpoint{.875\pgfphysicalwidth - 0.6\beamerswitch@margin}%
1108   {.25\pgfphysicalheight + 0.333\beamerswitch@margin}%
1109 }{%
1110   \pgfpoint{.875\pgfphysicalwidth}{.25\pgfphysicalheight}%
1111 }%
1112 }%
1113 \else
1114 % stack on top of one another
1115 \pgfpageslogicalpageoptions{1}
1116 {%
1117 border shrink=\pgfpageoptionborder,%
1118 border code=\beamerswitch@Border,%
1119 resized width=.5\pgfphysicalwidth,%

```

```

1120 resized height=.25\pgfphysicalheight,%
1121 center=\ifbool{HL@beamerswitch@align}{%
1122   \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
1123   {.875\pgfphysicalheight - 0.6\beamerswitch@margin}%
1124 }{%
1125   \pgfpoint{.25\pgfphysicalwidth}{.875\pgfphysicalheight}%
1126 }%
1127 }%
1128 \pgfpageslogicalpageoptions{2}
1129 {%
1130 border shrink=\pgfpageoptionborder,%
1131 border code=\beamerswitch@Border,%
1132 resized width=.5\pgfphysicalwidth,%
1133 resized height=.25\pgfphysicalheight,%
1134 center=\ifbool{HL@beamerswitch@align}{%
1135   \pgfpoint{.75\pgfphysicalwidth - 0.333\beamerswitch@margin}%
1136   {.875\pgfphysicalheight - 0.6\beamerswitch@margin}%
1137 }{%
1138   \pgfpoint{.75\pgfphysicalwidth}{.875\pgfphysicalheight}%
1139 }%
1140 }%
1141 \pgfpageslogicalpageoptions{3}
1142 {%
1143 border shrink=\pgfpageoptionborder,%
1144 border code=\beamerswitch@Border,%
1145 resized width=.5\pgfphysicalwidth,%
1146 resized height=.25\pgfphysicalheight,%
1147 center=\ifbool{HL@beamerswitch@align}{%
1148   \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
1149   {.625\pgfphysicalheight - 0.2\beamerswitch@margin}%
1150 }{%
1151   \pgfpoint{.25\pgfphysicalwidth}{.625\pgfphysicalheight}%
1152 }%
1153 }%
1154 \pgfpageslogicalpageoptions{4}
1155 {%
1156 border shrink=\pgfpageoptionborder,%
1157 border code=\beamerswitch@Border,%
1158 resized width=.5\pgfphysicalwidth,%
1159 resized height=.25\pgfphysicalheight,%
1160 center=\ifbool{HL@beamerswitch@align}{%
1161   \pgfpoint{.75\pgfphysicalwidth - 0.333\beamerswitch@margin}%
1162   {.625\pgfphysicalheight - 0.2\beamerswitch@margin}%
1163 }{%
1164   \pgfpoint{.75\pgfphysicalwidth}{.625\pgfphysicalheight}%
1165 }%
1166 }%
1167 \pgfpageslogicalpageoptions{5}
1168 {%
1169 border shrink=\pgfpageoptionborder,%
1170 border code=\beamerswitch@Border,%
1171 resized width=.5\pgfphysicalwidth,%
1172 resized height=.25 \pgfphysicalheight,%
1173 center=\ifbool{HL@beamerswitch@align}{%
1174   \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
1175   {.375\pgfphysicalheight + 0.2\beamerswitch@margin}%

```

```

1176     }{%
1177     \pgfpoint{.25\pgfphysicalwidth}{.375\pgfphysicalheight}%
1178     }%
1179   }%
1180   \pgfpageslogicalpageoptions{6}
1181   {%
1182     border shrink=\pgfpageoptionborder,%
1183     border code=\beamerswitch@Border,%
1184     resized width=.5\pgfphysicalwidth,%
1185     resized height=.25 \pgfphysicalheight,%
1186     center=\ifbool{HL@beamerswitch@align}{%
1187       \pgfpoint{.75\pgfphysicalwidth - 0.333\beamerswitch@margin}%
1188         {.375\pgfphysicalheight + 0.2\beamerswitch@margin}%
1189     }{%
1190       \pgfpoint{.75\pgfphysicalwidth}{.375\pgfphysicalheight}%
1191     }%
1192   }%
1193   \pgfpageslogicalpageoptions{7}
1194   {%
1195     border shrink=\pgfpageoptionborder,%
1196     border code=\beamerswitch@Border,%
1197     resized width=.5\pgfphysicalwidth,%
1198     resized height=.25 \pgfphysicalheight,%
1199     center=\ifbool{HL@beamerswitch@align}{%
1200       \pgfpoint{.25\pgfphysicalwidth + 0.333\beamerswitch@margin}%
1201         {.125\pgfphysicalheight + 0.6\beamerswitch@margin}%
1202     }{%
1203       \pgfpoint{.25\pgfphysicalwidth}{.125\pgfphysicalheight}%
1204     }%
1205   }%
1206   \pgfpageslogicalpageoptions{8}
1207   {%
1208     border shrink=\pgfpageoptionborder,%
1209     border code=\beamerswitch@Border,%
1210     resized width=.5\pgfphysicalwidth,%
1211     resized height=.25 \pgfphysicalheight,%
1212     center=\ifbool{HL@beamerswitch@align}{%
1213       \pgfpoint{.75\pgfphysicalwidth - 0.333\beamerswitch@margin}%
1214         {.125\pgfphysicalheight + 0.6\beamerswitch@margin}%
1215     }{%
1216       \pgfpoint{.75\pgfphysicalwidth}{.125\pgfphysicalheight}%
1217     }%
1218   }%
1219   \fi
1220 }
1221 }

```

## 9.7 Article layout

We provide some options for configuring the appearance of article mode.

The `maketitle` option triggers adjustments in how the title block is printed.

```

1222 \define@boolkey[AL]{beamerswitch}{maketitle}[true]{}

```

One will be to join the title and subtitle with a colon. There is an edge case where, if the user provides a title that ends in ‘!’ or ‘?’ *and* provides a subtitle while this option is in effect, they will end up with clashing punctuation in the middle of the displayed title (‘!.’ or ‘?.’). We therefore introduce a toggle that, if set true, suppresses the additional colon.

```
1223 \newtoggle{titlepunct}
```

Of course, we would rather not bother the user with this, so we introduce a command for testing the title for final punctuation.

The only way I can seem to do this is by switching to `expl3` syntax. Rather than introduce extra hard dependencies to cope with what will probably be quite a rare issue, we make the dependency soft: it will only be applied if `xparse` is available. If there is demand for it, we could introduce a class option to switch this code on or off, but let’s see how we go.

```
1224 \IfFileExists{xparse.sty}{\@tempswatrue}{\@tempswafalse}
1225 \if@tempswa
1226   \RequirePackage{xparse}
1227   \ExplSyntaxOn
1228   \NewDocumentCommand{\bsw@punct@test}{m}{\l_bsw_punct_test:n {#1}}
1229   \cs_new_protected:Nn \l_bsw_punct_test:n
1230   {
1231     \str_case:nnTF { \str_item:nn {#1} {-1} }
1232     {
1233       { , } { }
1234       { ; } { }
1235       { : } { }
1236       { . } { }
1237       { ! } { }
1238       { ? } { }
1239     }
1240     { \global\toggletrue{titlepunct} }
1241     { \global\togglefalse{titlepunct} }
1242   }
1243   \ExplSyntaxOff
```

We insert this test into the definitions for `\title` introduced by `beamer/beamerarticle`.

```
1244 \mode<article>{%
1245   \renewcommand{\title}[2][]{\beamer@origtitle{#2}\bsw@punct@test{#2}}
1246 }
1247 \mode<presentation>{%
1248   \long\def\beamer@title[#1]#2{%
1249     \def\inserttitle{#2}%
1250     \def\beamer@shorttitle{#1}%
1251     \bsw@punct@test{#2}%
1252   }
1253 }
1254 \else
1255   \wlog{Beamerswitch: Auto-detection of title punctuation not available.}
1256 \fi
```

We offer some alternatives for handling frame titles in article mode.

- `para` is what `beamerarticle` normally does.
- `margin` puts the frame titles in the margin.
- `none` gets rid of them entirely.

```

1257 \define@choicekey+{AL}{beamer@switch}{frametitles}{para, margin, none}{%
1258 \def\beamer@switch@articleframetitles{#1}%
1259 }{%
1260 \ClassWarning{beamer@switch}{Value of `frametitles' not recognized.
1261   Allowed values are para, margin, and none.}%
1262 }

```

We offer an easy way of customizing how institutes are strung together.

```

1263 \let\beamer@switch@andinst\beamer@andinst
1264 \define@key{AL}{beamer@switch}{instbreak}{%
1265 \def\beamer@switch@andinst{#1}%
1266 }

```

We provide a command for setting these options.

```

1267 \newcommand{\articlelayout}[1]{%
1268 \setkeys{AL}{beamer@switch}{#1}%

```

The following options are mode specific.

```

1269 \mode<article>{%

```

Personally I find slide titles somewhat intrusive in article mode. They can easily end up duplicating section headings in running text, or captions in figures. You may have other ideas, so we keep this behaviour configurable.

The `margin` value is implemented using `\marginpar`.

```

1270 \ifcsstring{beamer@switch@articleframetiles}{margin}{%
1271 \setbeamertemplate{frametitle}{%
1272 \marginpar[%
1273 \raggedleft\noindent\itshape\textbf{\insertframetitle}\par
1274 \noindent\insertframesubtitle\par
1275 ]{%
1276 \raggedright\noindent\itshape\textbf{\insertframetitle}\par
1277 \noindent\insertframesubtitle\par
1278 }%
1279 }%
1280 }{%
1281 \ifcsstring{beamer@switch@articleframetiles}{none}{%
1282 \setbeamertemplate{frametitle}{}%
1283 }{%
1284 \ifcsstring{beamer@switch@articleframetiles}{para}{%
1285 \setbeamertemplate{frametitle}[default]%
1286 }{}%
1287 }%
1288 }

```

This is where the `instbreak` option takes effect.

```
1289 \let\beamer@andinst\beamerswitch@andinst
```

This is where we make our adjustments to `\maketitle`. We start by joining the subtitle to the title by means of a colon instead of a newline.

```
1290 \ifbool{AL@beamerswitch@maketitle}{%
1291 \renewcommand{\subtitle}[2][]{%
1292 \def\insertsubtitle{##2}\gappto\@title{\iftoggle{titlepunct}{:} ##2}%
1293 }
```

We add support for printing the institute information.

```
1294 \ifundef{\beamer@originstitute}{%
1295 \renewcommand{\institute}[2][]{%
1296
1297     ↪ \def\insertinstitute{\def\inst{\beamer@instinst}\def\and{\beamer@andinst}##2}}%
1298 \renewcommand{\institute}[2][]{%
1299
1300     ↪ \def\insertinstitute{\def\inst{\beamer@instinst}\def\and{\beamer@andinst}##2}%
1301 \beamer@originstitute{##2}}%
```

Our first change to `\maketitle` itself is to remove the initial vertical space.

```
1302 \def\@maketitle{%
1303 \newpage
1304 \null
1305 \begin{center}%
1306 \let\footnote\thanks
1307 {\LARGE \@title \par}%
1308 \vskip 1.5em%
1309 {%
1310 \large\lineskip .5em%
```

The second is to add the beamer definitions for `\inst` and `\and` in the author row.

```
1311 \begin{tabular}[t]{c}%
1312 \def\inst{\beamer@insttitle}\def\and{\beamer@andtitle}%
1313 \@author
1314 \end{tabular}\par
1315 }%
```

The third is to add in a row for the institute information.

```
1316 \ifdefvoid{\insertinstitute}{%
1317 {%
1318 \normalsize\lineskip .5em%
1319 \insertinstitute\par
1320 }%
1321 }%
1322 \vskip 1em%
1323 {\large \@date}%
1324 \end{center}%
1325 \par\vskip 1.5em%
```

```

1326     }%
1327   }}%
1328 }%

```

For consistency, if the `maketitle` option has been passed, we change the PDF metadata in the other modes to use the colon convention for joining the title and subtitle.

```

1329   \mode<presentation>{%
1330     \ifbool{AL@beamerswitch@maketitle}{%
1331       \ifbool{beamer@autopdfinfo}{%
1332         \patchcmd{\beamer@firstminutepatches}{%
1333           \inserttitle\ifx\insertsubtitle\@empty\else\ - \insertsubtitle\fi
1334         }{%
1335           \inserttitle\ifx\insertsubtitle\@empty\else\iftoggle{titlepunct}{:}{:}
1336             ↪ \insertsubtitle\fi
1337         }}{}%
1338       }}{}%
1339     }%
1340 }

```

There is no more.

```

1341   \endinput

```



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