

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. Have you specified class options other than `ignorenonframetext`? If so, start by rewriting your `\documentclass` line in terms of `\PassOptionsToClass`:

Before	After
<code>\documentclass[10pt]{beamer}</code>	<code>\PassOptionsToClass{10pt}{beamer}</code>

Then add `\documentclass{beamerswitch}` directly below.

Otherwise, simply replace your `\documentclass` line with the `beamerswitch` one.

2. If you did *not* specify `ignorenonframetext` as one of your `beamer` options, add a `\mode<all>` line directly after `\begin{document}`.
3. 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>\PassOptionsToClass{10pt}{beamer} \documentclass{beamerswitch} \mode<presentation>{% \usetheme{metropolis} } \title{Test presentation} \begin{document} \mode<all> \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 without the ‘`\mode<all>`’ line. 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 \TeX distributions.

- | | | |
|-------------------------|-------------------------|------------------------|
| • <code>beamer</code> | • <code>iftex</code> | • <code>xkeyval</code> |
| • <code>etoolbox</code> | • <code>pgf</code> | • <code>xstring</code> |
| • <code>hyperref</code> | • <code>shellesc</code> | |

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 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`. Note that it loads `beamer` with the `ignorenonframetext` option, so that text outside frames is only shown in `article` mode.

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 \LaTeX file minus the `.tex` extension, but you can set it to something else when you run \LaTeX . 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 \LaTeX 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}
```

4.2 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 manage 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, simply pre-define `\BeamerswitchSpawn` to do whatever you need it to do:

```
\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}
```

4.3 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.

textinst (no value, initially unset)

In all modes, patches the `\inst` command so that it prints its argument using `\textsuperscript` instead of a mathematical superscript. This helps avoid unnecessary font changes.

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=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.

`border=<length>` (default `0.4pt`, initially `0pt`)

Puts a rectangular border of thickness `<length>` around each slide. Note that the borders are drawn regardless of whether a slide is actually printed, so you may end up with empty boxes on the last page.

`pnos` (no value, initially unset)

Adds page numbers to the bottom of each page.

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).

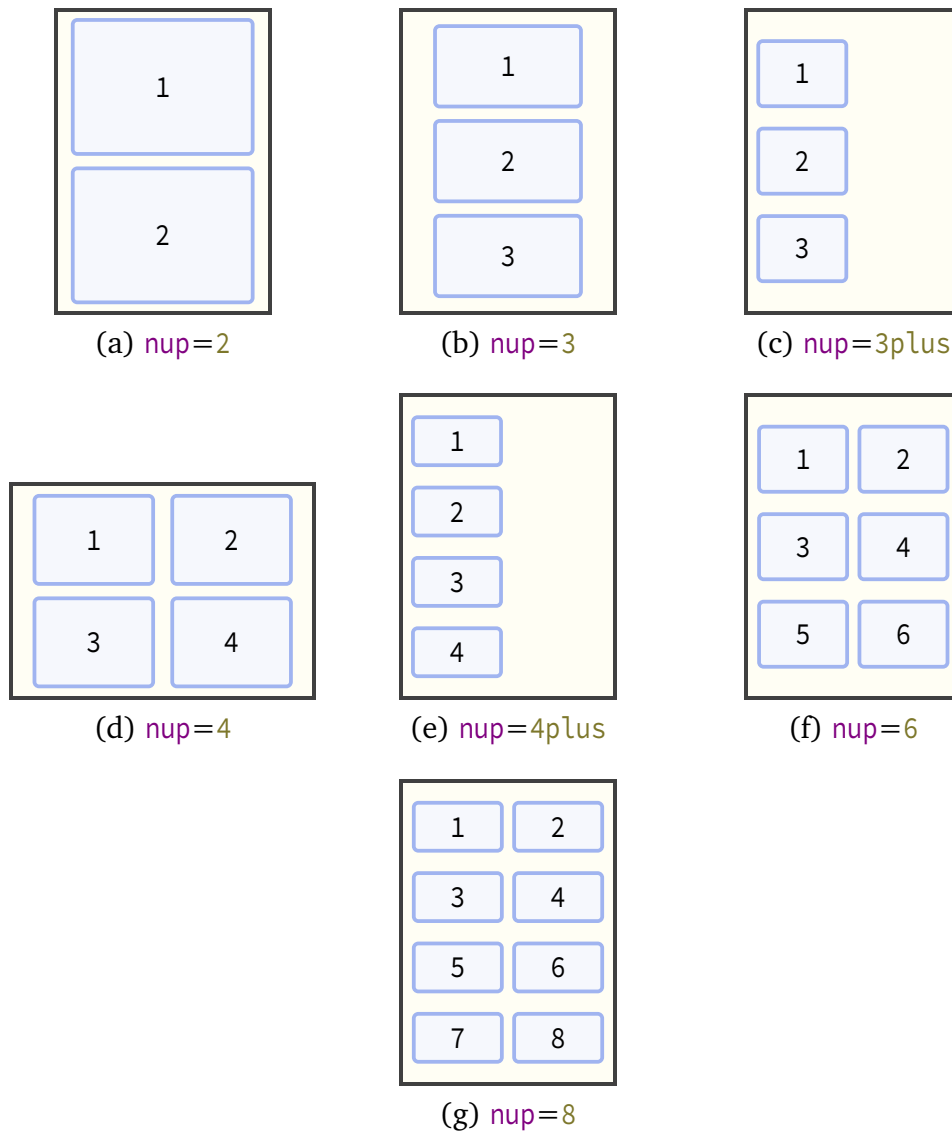


Figure 1: Handout layouts provided by `beamerswitch`

- 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}
```

7 Tips for further configuration

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

You can use the standard \LaTeX methods for customizing how the `article` and `beamer`

classes are loaded:

```
\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{beamerswitch}
\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
- `shellesc` for running parallel compilations
- `iftex` for determining which engine to use

```
19 \RequirePackage{xkeyval,xkvltxp,etoolbox,xstring,shellesc,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]{beamer-switch}{article}[true]{%
42   \ifbool{DC@beamer-switch@article}{%
43     \setkeys[DC]{beamer-switch}{beamer=false}
44     \setkeys[DC]{beamer-switch}{trans=false}
45     \setkeys[DC]{beamer-switch}{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]{beamer-switch}{also-beamer}[true]{}
49 \define@boolkey[DC]{beamer-switch}{also-trans}[true]{}
50 \define@boolkey[DC]{beamer-switch}{also-handout}[true]{}
51 \define@boolkey[DC]{beamer-switch}{also-article}[true]{}
52 \newcommand{\beamer-switch@SetAlso}[1]{%
53   \key@ifundefined[DC]{beamer-switch}{also#1}{%
54     \ClassWarning{beamer-switch}{`#1' is not a valid value for option `also'}%
55   }{}%
56   \setkeys[DC]{beamer-switch}{also#1}%
57 }%
58 }
59 \define@key[DC]{beamer-switch}{also}{%
60   \forcsvlist{\beamer-switch@SetAlso}{#1}%
61 }

```

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

```

62 \define@boolkey[DC]{beamer-switch}{nohyperref}[true]{}

```

The `textinst` option adjusts the superscript used for institution markers.

```

63 \define@boolkey[DC]{beamer-switch}{textinst}[true]{}

```

The default behaviour is to use beamer mode only.

```

64 \setkeys[DC]{beamer-switch}{beamer=true,also-beamer=false,also-trans=false,%
65   also-handout=false,also-article=false}

```

Now we process the options given by the user.

```

66 \ProcessOptionsX[DC]<beamer-switch>

```

9.3 Jobname-based mode switching

We define some default values for the special suffixes.

```

67 \providecommand*\BeamerSuffix{-slides}
68 \providecommand*\TransSuffix{-trans}
69 \providecommand*\HandoutSuffix{-handout}

```

```
70 \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.

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

We check for special jobnames and use them to override the above mode-related options. Note that if this happens, the `also*` options are ignored.

```
91 \IfEndWith*\jobname{\BeamerSuffix}{%
92   \setkeys[DC]{beamerswitch}{beamer=true}
93 }{%
94   \IfEndWith*\jobname{\TransSuffix}{%
95     \setkeys[DC]{beamerswitch}{trans=true}
96   }{%
97     \IfEndWith*\jobname{\HandoutSuffix}{%
98       \setkeys[DC]{beamerswitch}{handout=true}
99     }{%
100       \IfEndWith*\jobname{\ArticleSuffix}{%
101         \setkeys[DC]{beamerswitch}{article=true}
102       }{%
103         \ifbool{DC@beamerswitch@alsobeamer}{%
104           \BeamerswitchSpawn\BeamerSuffix%
105         }{}
106         \ifbool{DC@beamerswitch@alsotrans}{%
107           \BeamerswitchSpawn\TransSuffix%
108         }{}
109         \ifbool{DC@beamerswitch@alsohandout}{%
110           \BeamerswitchSpawn\HandoutSuffix%
111         }{}
112         \ifbool{DC@beamerswitch@alsoarticle}{%
113           \BeamerswitchSpawn\ArticleSuffix%
114         }{}

```

```

115     }%
116   }%
117 }%
118 }%

```

9.4 Setting up modes

For article mode, we load the `article` class and the `beamerarticle` support package. Apologies for anyone hoping for `scrartcl` or `memoir` alternatives.

```

119 \ifbool{DC@beamerswitch@article}{%
120   \LoadClass{article}
121   \RequirePackage{beamerarticle}

```

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`.

```

122 \ifbool{DC@beamerswitch@nohyperref}{}{%
123   \RequirePackage[bookmarks=true,%
124     bookmarksopen=true,%
125     pdfborder={0 0 0},%
126     pdfhighlight={/N},%
127     linkbordercolor={.5 .5 .5}]{hyperref}%
128 }

```

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`.

```

129 \AtBeginDocument{%
130   \@ifpackageloaded{hyperref}{%
131     \pdfstringdefDisableCommands{\def\<#1>#2{ - #2}}
132     \begingroup
133     \hypersetup{pdftitle={\@title}}%
134     \def\and{\unskip, }%
135     \let\thanks=\@gobble
136     \let\inst=\@gobble
137     \hypersetup{pdfauthor={\@author}}%
138     \endgroup
139   }{}%
140 }
141 {}%

```

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`.

```

142 \ifbool{DC@beamerswitch@handout}{%
143   \LoadClass[ignorenonframetext,handout]{beamer}

```

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

```
144 \RequirePackage{pgfpages}
```

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

```
145 }{%
146 \ifbool{DC@beamerswitch@trans}{%
147 \LoadClass[ignorenonframetext,trans]{beamer}
148 }{%
149 \LoadClass[ignorenonframetext]{beamer}
150 }%
151 }
152 }
```

9.5 Mode-independent layout

We implement the option that formats institution markers in text mode rather than math mode.

```
153 \ifbool{DC@beamerswitch@textinst}{%
154 \def\beamer@insttitle#1{\textsuperscript{#1}}
155 \def\beamer@instinst#1{\textsuperscript{#1}\ignorespaces}
156 }{}
```

9.6 Handout layout

We set up a command for drawing borders around the slides in handout mode. This is initially set up to do nothing.

```
157 \newcommand*{\beamerswitch@border}{\relax}
```

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

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

```
158 \mode<handout>{%
159 \pgfpagesdeclarelayout{1 by 2}
160 {
161 \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
162 \edef\pgfpageoptionwidth{\the\paperheight}
163 \def\pgfpageoptionborder{0pt}
164 \def\pgfpageoptionfirstshipout{1}
165 }
166 {
167 \pgfpagesphysicalpageoptions
168 {%
169 logical pages=2,%
170 physical height=\pgfpageoptionheight,%
```

```

171     physical width=\pgfpageoptionwidth,%
172     current logical shipout=\pgfpageoptionfirstshipout%
173 }
174 \ifdim\paperheight>\paperwidth\relax
175 % put side-by-side
176 \pgfpageslogicalpageoptions{1}
177 {%
178     border shrink=\pgfpageoptionborder,%
179     border code=\beamerswitch@Border,%
180     resized width=.5\pgfphysicalwidth,%
181     resized height=\pgfphysicalheight,%
182     center=\pgfpoint{.25\pgfphysicalwidth}{.5\pgfphysicalheight}%
183 }%
184 \pgfpageslogicalpageoptions{2}
185 {%
186     border shrink=\pgfpageoptionborder,%
187     border code=\beamerswitch@Border,%
188     resized width=.5\pgfphysicalwidth,%
189     resized height=\pgfphysicalheight,%
190     center=\pgfpoint{.75\pgfphysicalwidth}{.5\pgfphysicalheight}%
191 }%
192 \else
193 % stack on top of one another
194 \pgfpageslogicalpageoptions{1}
195 {%
196     border shrink=\pgfpageoptionborder,%
197     border code=\beamerswitch@Border,%
198     resized width=\pgfphysicalwidth,%
199     resized height=.5\pgfphysicalheight,%
200     center=\pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight}%
201 }%
202 \pgfpageslogicalpageoptions{2}
203 {%
204     border shrink=\pgfpageoptionborder,%
205     border code=\beamerswitch@Border,%
206     resized width=\pgfphysicalwidth,%
207     resized height=.5\pgfphysicalheight,%
208     center=\pgfpoint{.5\pgfphysicalwidth}{.25\pgfphysicalheight}%
209 }%
210 \fi
211 }

```

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

```

212 \pgfpagesdeclarelayout{1 by 3}
213 {
214     \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
215     \edef\pgfpageoptionwidth{\the\paperheight}
216     \def\pgfpageoptionborder{0pt}
217     \def\pgfpageoptionfirstshipout{1}
218 }
219 {
220     \pgfpagesphysicalpageoptions
221     {%
222         logical pages=3,%
223         physical height=\pgfpageoptionheight,%

```

```

224     physical width=\pgfpageoptionwidth,%
225     current logical shipout=\pgfpageoptionfirstshipout%
226 }
227 \ifdim\paperheight>\paperwidth\relax
228 % put side-by-side
229 \pgfpageslogicalpageoptions{1}
230 {%
231     border shrink=\pgfpageoptionborder,%
232     border code=\beamerswitch@Border,%
233     resized width=.333\pgfphysicalwidth,%
234     resized height=\pgfphysicalheight,%
235     center=\pgfpoint{.167\pgfphysicalwidth}{.5\pgfphysicalheight}%
236 }%
237 \pgfpageslogicalpageoptions{2}
238 {%
239     border shrink=\pgfpageoptionborder,%
240     border code=\beamerswitch@Border,%
241     resized width=.333\pgfphysicalwidth,%
242     resized height=\pgfphysicalheight,%
243     center=\pgfpoint{.5\pgfphysicalwidth}{.5\pgfphysicalheight}%
244 }%
245 \pgfpageslogicalpageoptions{3}
246 {%
247     border shrink=\pgfpageoptionborder,%
248     border code=\beamerswitch@Border,%
249     resized width=.333\pgfphysicalwidth,%
250     resized height=\pgfphysicalheight,%
251     center=\pgfpoint{.833\pgfphysicalwidth}{.5\pgfphysicalheight}%
252 }%
253 \else
254 % stack on top of one another
255 \pgfpageslogicalpageoptions{1}
256 {%
257     border shrink=\pgfpageoptionborder,%
258     border code=\beamerswitch@Border,%
259     resized width=\pgfphysicalwidth,%
260     resized height=.333\pgfphysicalheight,%
261     center=\pgfpoint{.5\pgfphysicalwidth}{.833\pgfphysicalheight}%
262 }%
263 \pgfpageslogicalpageoptions{2}
264 {%
265     border shrink=\pgfpageoptionborder,%
266     border code=\beamerswitch@Border,%
267     resized width=\pgfphysicalwidth,%
268     resized height=.333\pgfphysicalheight,%
269     center=\pgfpoint{.5\pgfphysicalwidth}{.5\pgfphysicalheight}%
270 }%
271 \pgfpageslogicalpageoptions{3}
272 {%
273     border shrink=\pgfpageoptionborder,%
274     border code=\beamerswitch@Border,%
275     resized width=\pgfphysicalwidth,%
276     resized height=.333\pgfphysicalheight,%
277     center=\pgfpoint{.5\pgfphysicalwidth}{.167\pgfphysicalheight}%
278 }%
279 \fi

```


280

}

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

```

281 \pgfpagesdeclarelayout{1 by 3 narrow}
282 {
283   \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
284   \edef\pgfpageoptionwidth{\the\paperheight}
285   \def\pgfpageoptionborder{0pt}
286   \def\pgfpageoptionfirstshipout{1}
287 }
288 {
289   \pgfpagesphysicalpageoptions
290   {%
291     logical pages=3,%
292     physical height=\pgfpageoptionheight,%
293     physical width=\pgfpageoptionwidth,%
294     current logical shipout=\pgfpageoptionfirstshipout%
295   }
296   \ifdim\paperheight>\paperwidth\relax
297   % put side-by-side
298   \pgfpageslogicalpageoptions{1}
299   {%
300     border shrink=\pgfpageoptionborder,%
301     border code=\beamerswitch@Border,%
302     resized width=.333\pgfphysicalwidth,%
303     resized height=.5\pgfphysicalheight,%
304     center=\pgfpoint{.167\pgfphysicalwidth}{.75\pgfphysicalheight}%
305   }%
306   \pgfpageslogicalpageoptions{2}
307   {%
308     border shrink=\pgfpageoptionborder,%
309     border code=\beamerswitch@Border,%
310     resized width=.333\pgfphysicalwidth,%
311     resized height=.5\pgfphysicalheight,%
312     center=\pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight}%
313   }%
314   \pgfpageslogicalpageoptions{3}
315   {%
316     border shrink=\pgfpageoptionborder,%
317     border code=\beamerswitch@Border,%
318     resized width=.333\pgfphysicalwidth,%
319     resized height=.5\pgfphysicalheight,%
320     center=\pgfpoint{.833\pgfphysicalwidth}{.75\pgfphysicalheight}%
321   }%
322   \else
323   % stack on top of one another
324   \pgfpageslogicalpageoptions{1}
325   {%
326     border shrink=\pgfpageoptionborder,%
327     border code=\beamerswitch@Border,%
328     resized width=.5\pgfphysicalwidth,%
329     resized height=.333\pgfphysicalheight,%
330     center=\pgfpoint{.25\pgfphysicalwidth}{.833\pgfphysicalheight}%
331   }%

```

```

332 \pgfpageslogicalpageoptions{2}
333 {%
334     border shrink=\pgfpageoptionborder,%
335     border code=\beamerswitch@Border,%
336     resized width=.5\pgfphysicalwidth,%
337     resized height=.333\pgfphysicalheight,%
338     center=\pgfpoint{.25\pgfphysicalwidth}{.5\pgfphysicalheight}%
339 }%
340 \pgfpageslogicalpageoptions{3}
341 {%
342     border shrink=\pgfpageoptionborder,%
343     border code=\beamerswitch@Border,%
344     resized width=.5\pgfphysicalwidth,%
345     resized height=.333\pgfphysicalheight,%
346     center=\pgfpoint{.25\pgfphysicalwidth}{.167\pgfphysicalheight}%
347 }%
348 \fi
349 }

```

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

```

350 \pgfpagesdeclarelayout{2 by 2}
351 {
352     \edef\pgfpageoptionheight{\the\paperheight}
353     \edef\pgfpageoptionwidth{\the\paperwidth}
354     \edef\pgfpageoptionborder{0pt}
355 }
356 {
357     \pgfpagesphysicalpageoptions
358     {%
359         logical pages=4,%
360         physical height=\pgfpageoptionheight,%
361         physical width=\pgfpageoptionwidth%
362     }
363     \pgfpageslogicalpageoptions{1}
364     {%
365         border shrink=\pgfpageoptionborder,%
366         border code=\beamerswitch@Border,%
367         resized width=.5\pgfphysicalwidth,%
368         resized height=.5\pgfphysicalheight,%
369         center=\pgfpoint{.25\pgfphysicalwidth}{.75\pgfphysicalheight}%
370     }%
371     \pgfpageslogicalpageoptions{2}
372     {%
373         border shrink=\pgfpageoptionborder,%
374         border code=\beamerswitch@Border,%
375         resized width=.5\pgfphysicalwidth,%
376         resized height=.5\pgfphysicalheight,%
377         center=\pgfpoint{.75\pgfphysicalwidth}{.75\pgfphysicalheight}%
378     }%
379     \pgfpageslogicalpageoptions{3}
380     {%
381         border shrink=\pgfpageoptionborder,%
382         border code=\beamerswitch@Border,%
383         resized width=.5\pgfphysicalwidth,%
384         resized height=.5\pgfphysicalheight,%

```

```

385     center=\pgfpoint{.25\pgfphysicalwidth}{.25\pgfphysicalheight}%
386 }%
387 \pgfpageslogicalpageoptions{4}
388 {%
389     border shrink=\pgfpageoptionborder,%
390     border code=\beamerswitch@Border,%
391     resized width=.5\pgfphysicalwidth,%
392     resized height=.5\pgfphysicalheight,%
393     center=\pgfpoint{.75\pgfphysicalwidth}{.25\pgfphysicalheight}%
394 }%
395 }

```

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).

```

396 \pgfpagesdeclarelayout{1 by 4 narrow}
397 {
398     \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
399     \edef\pgfpageoptionwidth{\the\paperheight}
400     \def\pgfpageoptionborder{0pt}
401     \def\pgfpageoptionfirstshipout{1}
402 }
403 {
404     \pgfpagesphysicalpageoptions
405     {%
406         logical pages=4,%
407         physical height=\pgfpageoptionheight,%
408         physical width=\pgfpageoptionwidth,%
409         current logical shipout=\pgfpageoptionfirstshipout%
410     }
411     \ifdim\paperheight>\paperwidth\relax
412     % put side-by-side
413     \pgfpageslogicalpageoptions{1}
414     {%
415         border shrink=\pgfpageoptionborder,%
416         border code=\beamerswitch@Border,%
417         resized width=.25\pgfphysicalwidth,%
418         resized height=.5\pgfphysicalheight,%
419         center=\pgfpoint{.125\pgfphysicalwidth}{.75\pgfphysicalheight}%
420     }%
421     \pgfpageslogicalpageoptions{2}
422     {%
423         border shrink=\pgfpageoptionborder,%
424         border code=\beamerswitch@Border,%
425         resized width=.25\pgfphysicalwidth,%
426         resized height=.5\pgfphysicalheight,%
427         center=\pgfpoint{.375\pgfphysicalwidth}{.75\pgfphysicalheight}%
428     }%
429     \pgfpageslogicalpageoptions{3}
430     {%
431         border shrink=\pgfpageoptionborder,%
432         border code=\beamerswitch@Border,%
433         resized width=.25\pgfphysicalwidth,%
434         resized height=.5\pgfphysicalheight,%
435         center=\pgfpoint{.625\pgfphysicalwidth}{.75\pgfphysicalheight}%
436     }%

```

```

437 \pgfpageslogicalpageoptions{4}
438 {%
439   border shrink=\pgfpageoptionborder,%
440   border code=\beamerswitch@Border,%
441   resized width=.25\pgfphysicalwidth,%
442   resized height=.5\pgfphysicalheight,%
443   center=\pgfpoint{.875\pgfphysicalwidth}{.75\pgfphysicalheight}%
444 }%
445 \else
446 % stack on top of one another
447 \pgfpageslogicalpageoptions{1}
448 {%
449   border shrink=\pgfpageoptionborder,%
450   border code=\beamerswitch@Border,%
451   resized width=.5\pgfphysicalwidth,%
452   resized height=.25\pgfphysicalheight,%
453   center=\pgfpoint{.25\pgfphysicalwidth}{.875\pgfphysicalheight}%
454 }%
455 \pgfpageslogicalpageoptions{2}
456 {%
457   border shrink=\pgfpageoptionborder,%
458   border code=\beamerswitch@Border,%
459   resized width=.5\pgfphysicalwidth,%
460   resized height=.25\pgfphysicalheight,%
461   center=\pgfpoint{.25\pgfphysicalwidth}{.625\pgfphysicalheight}%
462 }%
463 \pgfpageslogicalpageoptions{3}
464 {%
465   border shrink=\pgfpageoptionborder,%
466   border code=\beamerswitch@Border,%
467   resized width=.5\pgfphysicalwidth,%
468   resized height=.25 \pgfphysicalheight,%
469   center=\pgfpoint{.25\pgfphysicalwidth}{.375\pgfphysicalheight}%
470 }%
471 \pgfpageslogicalpageoptions{4}
472 {%
473   border shrink=\pgfpageoptionborder,%
474   border code=\beamerswitch@Border,%
475   resized width=.5\pgfphysicalwidth,%
476   resized height=.25 \pgfphysicalheight,%
477   center=\pgfpoint{.25\pgfphysicalwidth}{.125\pgfphysicalheight}%
478 }%
479 \fi
480 }

```

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

```

481 \pgfpagesdeclarelayout{2 by 3}
482 {
483   \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
484   \edef\pgfpageoptionwidth{\the\paperheight}
485   \def\pgfpageoptionborder{0pt}
486   \def\pgfpageoptionfirstshipout{1}
487 }
488 {
489   \pgfpagesphysicalpageoptions

```

```

490 {%
491   logical pages=6,%
492   physical height=\pgfpageoptionheight,%
493   physical width=\pgfpageoptionwidth,%
494   current logical shipout=\pgfpageoptionfirstshipout%
495 }
496 \ifdim\paperheight>\paperwidth\relax
497 % put side-by-side
498 \pgfpageslogicalpageoptions{1}
499 {%
500   border shrink=\pgfpageoptionborder,%
501   border code=\beamerswitch@Border,%
502   resized width=.333\pgfphysicalwidth,%
503   resized height=.5\pgfphysicalheight,%
504   center=\pgfpoint{.167\pgfphysicalwidth}{.75\pgfphysicalheight}%
505 }%
506 \pgfpageslogicalpageoptions{2}
507 {%
508   border shrink=\pgfpageoptionborder,%
509   border code=\beamerswitch@Border,%
510   resized width=.333\pgfphysicalwidth,%
511   resized height=.5\pgfphysicalheight,%
512   center=\pgfpoint{.5\pgfphysicalwidth}{.75\pgfphysicalheight}%
513 }%
514 \pgfpageslogicalpageoptions{3}
515 {%
516   border shrink=\pgfpageoptionborder,%
517   border code=\beamerswitch@Border,%
518   resized width=.333\pgfphysicalwidth,%
519   resized height=.5\pgfphysicalheight,%
520   center=\pgfpoint{.833\pgfphysicalwidth}{.75\pgfphysicalheight}%
521 }%
522 \pgfpageslogicalpageoptions{4}
523 {%
524   border shrink=\pgfpageoptionborder,%
525   border code=\beamerswitch@Border,%
526   resized width=.333\pgfphysicalwidth,%
527   resized height=.5\pgfphysicalheight,%
528   center=\pgfpoint{.167\pgfphysicalwidth}{.25\pgfphysicalheight}%
529 }%
530 \pgfpageslogicalpageoptions{5}
531 {%
532   border shrink=\pgfpageoptionborder,%
533   border code=\beamerswitch@Border,%
534   resized width=.333\pgfphysicalwidth,%
535   resized height=.5\pgfphysicalheight,%
536   center=\pgfpoint{.5\pgfphysicalwidth}{.25\pgfphysicalheight}%
537 }%
538 \pgfpageslogicalpageoptions{6}
539 {%
540   border shrink=\pgfpageoptionborder,%
541   border code=\beamerswitch@Border,%
542   resized width=.333\pgfphysicalwidth,%
543   resized height=.5\pgfphysicalheight,%
544   center=\pgfpoint{.833\pgfphysicalwidth}{.25\pgfphysicalheight}%
545 }%

```

```

546 \else
547 % stack on top of one another
548 \pgfpageslogicalpageoptions{1}
549 {%
550   border shrink=\pgfpageoptionborder,%
551   resized width=.5\pgfphysicalwidth,%
552   resized height=.333\pgfphysicalheight,%
553   center=\pgfpoint{.25\pgfphysicalwidth}{.833\pgfphysicalheight}%
554 }%
555 \pgfpageslogicalpageoptions{2}
556 {%
557   border shrink=\pgfpageoptionborder,%
558   border code=\beamerswitch@Border,%
559   resized width=.5\pgfphysicalwidth,%
560   resized height=.333\pgfphysicalheight,%
561   center=\pgfpoint{.75\pgfphysicalwidth}{.833\pgfphysicalheight}%
562 }%
563 \pgfpageslogicalpageoptions{3}
564 {%
565   border shrink=\pgfpageoptionborder,%
566   border code=\beamerswitch@Border,%
567   resized width=.5\pgfphysicalwidth,%
568   resized height=.333\pgfphysicalheight,%
569   center=\pgfpoint{.25\pgfphysicalwidth}{.5\pgfphysicalheight}%
570 }%
571 \pgfpageslogicalpageoptions{4}
572 {%
573   border shrink=\pgfpageoptionborder,%
574   border code=\beamerswitch@Border,%
575   resized width=.5\pgfphysicalwidth,%
576   resized height=.333\pgfphysicalheight,%
577   center=\pgfpoint{.75\pgfphysicalwidth}{.5\pgfphysicalheight}%
578 }%
579 \pgfpageslogicalpageoptions{5}
580 {%
581   border shrink=\pgfpageoptionborder,%
582   border code=\beamerswitch@Border,%
583   resized width=.5\pgfphysicalwidth,%
584   resized height=.333\pgfphysicalheight,%
585   center=\pgfpoint{.25\pgfphysicalwidth}{.167\pgfphysicalheight}%
586 }%
587 \pgfpageslogicalpageoptions{6}
588 {%
589   border shrink=\pgfpageoptionborder,%
590   border code=\beamerswitch@Border,%
591   resized width=.5\pgfphysicalwidth,%
592   resized height=.333\pgfphysicalheight,%
593   center=\pgfpoint{.75\pgfphysicalwidth}{.167\pgfphysicalheight}%
594 }%
595 \fi
596 }

```

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

```

597 \pgfpagesdeclarelayout{2 by 4}
598 {

```

```

599 \edef\pgfpageoptionheight{\the\paperwidth} % landscaped by default
600 \edef\pgfpageoptionwidth{\the\paperheight}
601 \def\pgfpageoptionborder{0pt}
602 \def\pgfpageoptionfirstshipout{1}
603 }
604 {
605 \pgfpagesphysicalpageoptions
606 {%
607 logical pages=8,%
608 physical height=\pgfpageoptionheight,%
609 physical width=\pgfpageoptionwidth,%
610 current logical shipout=\pgfpageoptionfirstshipout%
611 }
612 \ifdim\paperheight>\paperwidth\relax
613 % put side-by-side
614 \pgfpageslogicalpageoptions{1}
615 {%
616 border shrink=\pgfpageoptionborder,%
617 border code=\beamerswitch@Border,%
618 resized width=.25\pgfphysicalwidth,%
619 resized height=.5\pgfphysicalheight,%
620 center=\pgfpoint{.125\pgfphysicalwidth}{.75\pgfphysicalheight}%
621 }%
622 \pgfpageslogicalpageoptions{2}
623 {%
624 border shrink=\pgfpageoptionborder,%
625 border code=\beamerswitch@Border,%
626 resized width=.25\pgfphysicalwidth,%
627 resized height=.5\pgfphysicalheight,%
628 center=\pgfpoint{.375\pgfphysicalwidth}{.75\pgfphysicalheight}%
629 }%
630 \pgfpageslogicalpageoptions{3}
631 {%
632 border shrink=\pgfpageoptionborder,%
633 border code=\beamerswitch@Border,%
634 resized width=.25\pgfphysicalwidth,%
635 resized height=.5\pgfphysicalheight,%
636 center=\pgfpoint{.625\pgfphysicalwidth}{.75\pgfphysicalheight}%
637 }%
638 \pgfpageslogicalpageoptions{4}
639 {%
640 border shrink=\pgfpageoptionborder,%
641 border code=\beamerswitch@Border,%
642 resized width=.25\pgfphysicalwidth,%
643 resized height=.5\pgfphysicalheight,%
644 center=\pgfpoint{.875\pgfphysicalwidth}{.75\pgfphysicalheight}%
645 }%
646 \pgfpageslogicalpageoptions{5}
647 {%
648 border shrink=\pgfpageoptionborder,%
649 border code=\beamerswitch@Border,%
650 resized width=.25\pgfphysicalwidth,%
651 resized height=.5\pgfphysicalheight,%
652 center=\pgfpoint{.125\pgfphysicalwidth}{.25\pgfphysicalheight}%
653 }%
654 \pgfpageslogicalpageoptions{6}

```

```

655 {%
656   border shrink=\pgfpageoptionborder,%
657   border code=\beamerswitch@Border,%
658   resized width=.25\pgfphysicalwidth,%
659   resized height=.5\pgfphysicalheight,%
660   center=\pgfpoint{.375\pgfphysicalwidth}{.25\pgfphysicalheight}%
661 }%
662 \pgfpageslogicalpageoptions{7}
663 {%
664   border shrink=\pgfpageoptionborder,%
665   border code=\beamerswitch@Border,%
666   resized width=.25\pgfphysicalwidth,%
667   resized height=.5\pgfphysicalheight,%
668   center=\pgfpoint{.625\pgfphysicalwidth}{.25\pgfphysicalheight}%
669 }%
670 \pgfpageslogicalpageoptions{8}
671 {%
672   border shrink=\pgfpageoptionborder,%
673   border code=\beamerswitch@Border,%
674   resized width=.25\pgfphysicalwidth,%
675   resized height=.5\pgfphysicalheight,%
676   center=\pgfpoint{.875\pgfphysicalwidth}{.25\pgfphysicalheight}%
677 }%
678 \else
679 % stack on top of one another
680 \pgfpageslogicalpageoptions{1}
681 {%
682   border shrink=\pgfpageoptionborder,%
683   border code=\beamerswitch@Border,%
684   resized width=.5\pgfphysicalwidth,%
685   resized height=.25\pgfphysicalheight,%
686   center=\pgfpoint{.25\pgfphysicalwidth}{.875\pgfphysicalheight}%
687 }%
688 \pgfpageslogicalpageoptions{2}
689 {%
690   border shrink=\pgfpageoptionborder,%
691   border code=\beamerswitch@Border,%
692   resized width=.5\pgfphysicalwidth,%
693   resized height=.25\pgfphysicalheight,%
694   center=\pgfpoint{.75\pgfphysicalwidth}{.875\pgfphysicalheight}%
695 }%
696 \pgfpageslogicalpageoptions{3}
697 {%
698   border shrink=\pgfpageoptionborder,%
699   border code=\beamerswitch@Border,%
700   resized width=.5\pgfphysicalwidth,%
701   resized height=.25\pgfphysicalheight,%
702   center=\pgfpoint{.25\pgfphysicalwidth}{.625\pgfphysicalheight}%
703 }%
704 \pgfpageslogicalpageoptions{4}
705 {%
706   border shrink=\pgfpageoptionborder,%
707   border code=\beamerswitch@Border,%
708   resized width=.5\pgfphysicalwidth,%
709   resized height=.25\pgfphysicalheight,%
710   center=\pgfpoint{.75\pgfphysicalwidth}{.625\pgfphysicalheight}%

```



```

711 }%
712 \pgfpageslogicalpageoptions{5}
713 {%
714   border shrink=\pgfpageoptionborder,%
715   border code=\beamerswitch@Border,%
716   resized width=.5\pgfphysicalwidth,%
717   resized height=.25 \pgfphysicalheight,%
718   center=\pgfpoint{.25\pgfphysicalwidth}{.375\pgfphysicalheight}%
719 }%
720 \pgfpageslogicalpageoptions{6}
721 {%
722   border shrink=\pgfpageoptionborder,%
723   border code=\beamerswitch@Border,%
724   resized width=.5\pgfphysicalwidth,%
725   resized height=.25 \pgfphysicalheight,%
726   center=\pgfpoint{.75\pgfphysicalwidth}{.375\pgfphysicalheight}%
727 }%
728 \pgfpageslogicalpageoptions{7}
729 {%
730   border shrink=\pgfpageoptionborder,%
731   border code=\beamerswitch@Border,%
732   resized width=.5\pgfphysicalwidth,%
733   resized height=.25 \pgfphysicalheight,%
734   center=\pgfpoint{.25\pgfphysicalwidth}{.125\pgfphysicalheight}%
735 }%
736 \pgfpageslogicalpageoptions{8}
737 {%
738   border shrink=\pgfpageoptionborder,%
739   border code=\beamerswitch@Border,%
740   resized width=.5\pgfphysicalwidth,%
741   resized height=.25 \pgfphysicalheight,%
742   center=\pgfpoint{.75\pgfphysicalwidth}{.125\pgfphysicalheight}%
743 }%
744 \fi
745 }
746 }

```

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.

```

747 \define@key[HL]{beamerswitch}{paper}{%
748   \def\beamerswitch@handoutpaper{#1}%
749 }

```

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

```

750 \newcounter{beamerswitch@nupcase}
751 \define@choicekey+[HL]{beamerswitch}{nup}[\val\nr]{2, 3, 3plus, 4, 4plus, 6, 8}{%
752   \setcounter{beamerswitch@nupcase}{\nr}
753 }{%
754   \ClassWarning{beamerswitch}{Value of `nup' not recognized.
755     Allowed values are 2, 3, 3plus, 4, 4plus, 6, and 8.}%
756 }

```

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.

```

757 \define@key[HL]{beamerswitch}{border}[0.4pt]{%
758   \RequirePackage{pgf}%
759   \renewcommand*{\beamerswitch@Border}{\pgfsetlinewidth{#1}\pgfstroke}%
760 }

```

The `pnos` option switches on page numbers for handout pages.

```

761 \define@boolkey[HL]{beamerswitch}{pnos}[true]{}

```

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

```

762 \newcommand*{\handoutlayout}[1]{%
763   \only<handout>{%
764     \setkeys[HL]{beamerswitch}{#1}%
765     \ifcase\value{beamerswitch@nupcase}\relax
766     \def\beamerswitch@nup{2}
767     \pgfpagesuselayout{1 by 2}[\beamerswitch@handoutpaper,border shrink=5mm]%
768   \or
769     \def\beamerswitch@nup{3}
770     \pgfpagesuselayout{1 by 3}[\beamerswitch@handoutpaper,border shrink=5mm]%
771   \or
772     \def\beamerswitch@nup{3}
773     \pgfpagesuselayout{1 by 3 narrow}[\beamerswitch@handoutpaper,border
774       ↪ shrink=5mm]%
775   \or
776     \def\beamerswitch@nup{4}
777     \pgfpagesuselayout{2 by 2}[\beamerswitch@handoutpaper,landscape,border
778       ↪ shrink=5mm]%
779   \or
780     \def\beamerswitch@nup{4}
781     \pgfpagesuselayout{1 by 4 narrow}[\beamerswitch@handoutpaper,border
782       ↪ shrink=5mm]%
783   \or
784     \def\beamerswitch@nup{6}
785     \pgfpagesuselayout{2 by 3}[\beamerswitch@handoutpaper,border shrink=5mm]%
786   \or
787     \def\beamerswitch@nup{8}
788     \pgfpagesuselayout{2 by 4}[\beamerswitch@handoutpaper,border shrink=5mm]%
789   \fi
790   \ifbool{HL@beamer@pnos}{%
791     \def\pgfsys@endpicture{%
792       \raisebox{5mm}[0pt][0pt]{%
793         \makebox[\pgfphysicalwidth]{%
794           \the\numexpr\value{page}/\beamerswitch@nup\relax
795         }%
796       }%
797     }%

```

We initialize the class with a layout of six slides on A4 paper.

```
798 \handoutlayout{paper=a4paper,nup=6}
```

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.

```
799 \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.

```
800 \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.

```
801 \IfFileExists{xparse.sty}{\@tempwattrue}{\@tempwafalse}
802 \if@tempwa
803   \RequirePackage{xparse}
804   \ExplSyntaxOn
805   \NewDocumentCommand{\bsw@punct@test}{m}{\l_bsw_punct_test:n {#1}}
806   \cs_new_protected:Nn \l_bsw_punct_test:n
807   {
808     \str_case:x:nnTF { \str_item:nn {#1} {-1} }
809     {
810       { , } { }
811       { ; } { }
812       { : } { }
813       { . } { }
814       { ! } { }
815       { ? } { }
816     }
817     { \global\toggletrue{titlepunct} }
818     { \global\togglefalse{titlepunct} }
819   }
820   \ExplSyntaxOff
```

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

```
821 \mode<article>{%
822   \renewcommand{\title}[2][\beamer@origtitle{#2}\bsw@punct@test{#2}]
```

```

823     }
824     \mode<presentation>{%
825         \long\def\beamer@title[#1]#2{%
826             \def\inserttitle{#2}%
827             \def\beamer@shorttitle{#1}%
828             \bsw@punct@test{#2}%
829         }
830     }
831 \else
832 \wlog{Beamerswitch: Auto-detection of title punctuation not available.}
833 \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.

```

834 \define@choicekey+{AL}{beamerswitch}{frametitles}{para, margin, none}{%
835 \def\beamerswitch@articleframetitles{#1}%
836 }{%
837 \ClassWarning{beamerswitch}{Value of `frametitles' not recognized.
838     Allowed values are para, margin, and none.}%
839 }

```

We provide a command for setting these options.

```

840 \newcommand{\articlelayout}[1]{%
841     \setkeys{AL}{beamerswitch}{#1}%

```

The following options are mode specific.

```

842 \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`.

```

843     \ifcsstring{beamerswitch@articleframetitles}{margin}{%
844         \setbeamertemplate{frametitle}{%
845             \marginpar[%
846                 \raggedleft\noindent\emshape\textbf{\insertframetitle}\par
847                 \noindent\insertframesubtitle\par
848             ]{%
849                 \raggedright\noindent\emshape\textbf{\insertframetitle}\par
850                 \noindent\insertframesubtitle\par
851             }%
852         }
853     }{%
854         \ifcsstring{beamerswitch@articleframetitles}{none}{%
855             \setbeamertemplate{frametitle}{}
856         }{%

```

```

857     \ifcsstring{beamer@switch@articleframetitles}{para}{%
858         \setbeamertemplate{frametitle}[default]
859     }{}%
860 }%
861 }

```

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.

```

862 \ifbool{AL@beamer@switch@maketitle}{%
863     \renewcommand{\subtitle}[2][]{%
864         \def\insertsubtitle{##2}\gappto{@title{\iftoggle{titlepunct}{}{:} ##2}}%
865     }

```

We add support for printing the institute information.

```

866 \ifundef{\beamer@originstitute}{%
867     \renewcommand{\institute}[2][]{\def\insertinstitute{##2}}%
868 }{%
869     ↪ \renewcommand{\institute}[2][]{\def\insertinstitute{##2}\beamer@originstitute{##2}}%
870 }%

```

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

```

871 \def\@maketitle{%
872     \newpage
873     \null
874     \begin{center}%
875         \let\footnote\thanks
876         {\LARGE \@title \par}%
877         \vskip 1.5em%
878         {%
879             \large\lineskip .5em%
880             \begin{tabular}[t]{c}%
881                 \@author
882             \end{tabular}\par
883         }%

```

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

```

884     \ifdefvoid{\insertinstitute}{}{%
885         {%
886             \normalsize\lineskip .5em%
887             \begin{tabular}[t]{c}%
888                 \insertinstitute
889             \end{tabular}\par
890         }%
891     }%
892     \vskip 1em%
893     {\LARGE \@date}%
894 \end{center}%
895 \par\vskip 1.5em%
896 }%
897 }{}%

```

```
898 }%
```

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.

```
899 \mode<presentation>{%
900   \ifbool{AL@beamerswitch@maketitle}{%
901     \ifbool{beamer@autopdfinfo}{%
902       \patchcmd{\beamer@firstminutepatches}{%
903         \inserttitle\ifx\insertsubtitle\@empty\else\ - \insertsubtitle\fi
904       }{%
905         \inserttitle\ifx\insertsubtitle\@empty\else\iftoggle{titlepunct}{:}{:}
906           \insertsubtitle\fi
907       }{}{}%
908     }{}%
909   }%
910 }
```

There is no more.

```
911 \endinput
```

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