The afperpack Package
Personal settings and preferences
Version 1.1

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Abstract

This is a personal package, which (selectively) loads package sets with the author's preferences.

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1 Introduction

This is what is left from "my personal packages". I started, a few years ago (2022), to untangle the many personal packs/hacks that I was using, documenting them and publishing them at CTAN, and, finally, after almost 3 years (2025), this is what is left: Just an auxiliary package that preloads the packages I use the most, and define a few command(s). So, now, when I share a LaTeX file with a colleague, he/she won't come back asking me how to compile it (because they lack "my hacks").

2 Package Options

`showframe` For geometry/format proofing. This will just load the *showframe* package.

`showlabels` For labels placement/location proofing. This will just load the *showlabels* package.

`english` Babel will be loaded with `english` option. Otherwise `brazilian`.

`beamer` This will suppress the loading of the *geometry*, *titlesec* and *listings* packages. This doesn't load the package *beamer* itself.

`xpacks` The packages *longtable*, *xpacks*, *csquotes*, *caption*, *supcaption*, *url*, *multirow* and *bigdelim* will be loaded.

`times` This will load the *mathptmx* package (times roman) instead of (default) *lmodern*.

`noquests` This will suppress the loading of the *tikzquests* package.

`tikz` This will load *tikz*, *circuitikz*, *tikzquads*, *tikzdotncross*, *pgfplots* and *tikzfxgraph* packages (and *tikzquests*, if not suppressed).

`graphicx` This will load the *graphicx* package.

`math` This will load the *amsmath*, *amsfonts*, *amssymb*, *amsthm*, *mathrsfs*, *mathtools*, *empheq*, *extarrows*, *steinmetz*, *mathfixs*, *siunitx* and *cases* packages.

`listings` This will load the *listings* package. (if `beamer` is false)

*https://github.com/alceu-frigeri/afperpack

`landscape` Sets geometry for a landscape document

`fxgraph` (defaults to nothing) Options passed along to *tikzfxgraph* package, e.g. `fxgraph={use file}`.

`quests` (defaults to nothing) Options passed along to *tikzquests* package, e.g. `quests={xtrakeys={D}}`.

`dotncross` (defaults to nothing) Options passed along to *tikzdotncross* package, e.g. `dotncross={coordcolor={blue}}`.

Note that *etoolbox*, *fontenc*, *inputenc*, *xcolors* and *enumitem* will always be loaded. Besides those *geometry* will (if not already) as well *titlesec* and *listings* if `beamer` is false.

3 Commands

`\cab` `\cab {⟨options⟩} [⟨extra⟩]`

This will typesets, in a new page, a typical exam header. ⟨extra⟩ will be (if present) typeset as is, in a box below the main cab. ⟨options⟩ is a key=val list of:

`uni`	University's name. (default: Universidade Federal do Rio Grande do Sul)
`dept`	Department's name. (default: Escola de Engenharia / DELAE)
`class`	Class' name. (default: disciplina)
`classcode`	Class' code. (default: ENGcode)
`exam`	Exam text. (default: Verificação de Aproveitamento)
`sem`	Semester. (default: 202x/Y)
`semester`	alias to *sem*.
`name label`	Student's label. (default: Nome)
`id label`	Student's ID label. (default: Cartão)
`duo label`	Duo label. (default: Dupla)
`duo`	If true, a duo label will be added to the identification lines (default: false)
`nonames`	If true, the identification lines will be suppressed.
`simplegrad`	If true, the grad option box will be used, with a preset text. (default: false)
`simplegrad text`	Changes the default text of a simplegrad box.

For example:

LaTeXCode:

```
\cab{
  class={Eletrônica I} , classcode=ENG10044 ,
  exam = {$1^a$ Verificação} , sem = {2025/1} , simplegrad
}
```

`\pgfmathparseFPU` `\pgfmathparseFPU {⟨math-expr⟩}`

This command is defined if, and only if, the `tikz` option is used. It will process ⟨math-expr⟩ with `\pgfmathparse` whilst the */pgf/fpu* key is active, which greatly extends the TeX number's range. See the *fpu* library from *tikz* for more details.

\SetHs

new: 2026/11/28

`\SetHs` [⟨options⟩] {⟨num⟩} {⟨den⟩}

Options can be any combination of the following keys:

`base name` (default: *Hs*) The ⟨base⟩ name to be used.

`prefix` (default: `&&` two alignment marks) When constructing `\<base>db` and `\<base>phi`, these tokens will prefix each term, starting by the second one. The default value is meant to be used, for instance, in a *eqarray* environment.

`postfix` (default: `\\`) When constructing `\<base>db` and `\<base>phi`, these tokens will postfix each term. The default value is meant to be used, for instance, in a *eqarray* environment.

`infix` (default: empty) When constructing `\<base>db` and `\<base>phi`, these tokens will be inserted between the ⟨num⟩ and ⟨den⟩ terms.

⟨num⟩ and ⟨den⟩ are supposed to be two comma separated lists of terms, defining a transfer function

$$H(s) = \frac{\prod \langle num \rangle_i}{\prod \langle den \rangle_i}$$

This will create 4 commands, `\<base>frac`, `\<base>db`, `\<base>phi` and `\<base>fx`, as follow:

`\<base>frac` Will be defined as
`\frac`
`{` $(\langle num \rangle_1)*(\langle num \rangle_2) * \ldots \ (\langle num \rangle_n)$ `}`
`{` $(\langle den \rangle_1)*(\langle den \rangle_2) * \ldots \ (\langle den \rangle_m)$ `}`

`\<base>db` Will be defined as
`20\!\cdot\!log_{10}\left|` $\langle num \rangle_1$ `\right| +20\!\cdot\!log_{10}\left|` $\langle num \rangle_2$ `\right|`
`...` `+20\!\cdot\!log_{10}\left|` $\langle num \rangle_n$ `\right|`
`-20\!\cdot\!log_{10}\left|` $\langle den \rangle_1$ `\right| -20\!\cdot\!log_{10}\left|` $\langle den \rangle_2$ `\right|`
`...` `-20\!\cdot\!log_{10}\left|` $\langle den \rangle_m$ `\right|`
with the variable s replaced by jw.

`\<base>phi` Similarly this will be defined as
`\phi(` $\langle num \rangle_1$ `) +\phi(` $\langle num \rangle_2$ `) ... +\phi(` $\langle num \rangle_n$ `)`
`-\phi(` $\langle den \rangle_1$ `) -\phi(` $\langle den \rangle_2$ `) ... -\phi(` $\langle den \rangle_m$ `)`
with the variable s replaced by jw.

`\<base>fx` Finally, this will be defined as:
`(` $(\langle num \rangle_1)*(\langle num \rangle_2) * \ldots \ (\langle num \rangle_n)$ `) / (` $(\langle den \rangle_1)*(\langle den \rangle_2) * \ldots \ (\langle den \rangle_m)$ `)`
with the variable s replaced by $x * \{0, 1\}$. Note this is meant to construct a *gnuplot* function.

For example:

```
\SetHs [ prefix={},  postfix={}, infix = { \\ && } ]
  { 2*800 , s+0.1 }
  { 0.1 , s+2 ,  s+800 }

\[ H(s) = \Hsfrac \]

\begin{eqnarray*}
  20\!\cdot\!log_{10}\left|H(jw)\right| &=& \Hsdb
\end{eqnarray*}

\begin{eqnarray*}
  \phi (H(jw)) &=& \Hsphi
\end{eqnarray*}

Definition of \string\Hsfx\,: \
\meaning\Hsfx
```

$$H(s) = \frac{(2 * 800) * (s + 0.1)}{(0.1) * (s + 2) * (s + 800)}$$

$$\begin{aligned} 20 \cdot log_{10} |H(jw)| &= 20 \cdot log_{10} |2 * 800| + 20 \cdot log_{10} |jw + 0.1| \\ &\quad -20 \cdot log_{10} |0.1| - 20 \cdot log_{10} |jw + 2| - 20 \cdot log_{10} |jw + 800| \end{aligned}$$

$$\begin{aligned} \phi(H(jw)) &= \phi(2 * 800) + \phi(jw + 0.1) \\ &\quad -\phi(0.1) - \phi(jw + 2) - \phi(jw + 800) \end{aligned}$$

Definition of \Hsfx: macro:->((2*800)*(x*{0,1}+0.1))/((0.1)*(x*{0,1}+2)*(x*{0,1}+800))