The pbsheet class*

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1 Introduction

The pbsheet $\LaTeX\,2_\varepsilon$ class is designed to simplify the typesetting of problems sheets with Mathematics and Computer Science content. It is intended to simplify teachers work. The author uses it for his French Agrégation teaching activities, cf. `http://www.lsp.ups-tlse.fr/Chafai/agregteam.html`. Also, only the French language is handled in the current version of pbsheet. An example is provided, in French too. Please be patient.

2 Usage

In the future versions of pbsheet, I will put here the description of all the macros and environments provided by `pbsheet.cls`. However, the example provided is very explicit and will help you a lot.

3 Remark on EPS and PDF graphics

To add a Bounding Box to an EPS file, one can use the `epsffit` program:

```
epsffit -c llx lly urx ury oldfile.eps newfile.eps
```

The `epsffit` binary is provided by the Debian package `psutils`. To convert an EPS file to a PDF file, one can use the `epstopdf` program:

```
epstopdf file.eps
```

which produces `file.pdf`. The `epstopdf` binary is provided by the Debian package `tetex-bin`.

4 To do for next version

- Translate everything in English, including the Matlab files;
- Add Scilab examples;

*This document corresponds to pbsheet v0.1, dated 2004/02/14, .dtx pbsheet file.

- Check for packages versions (recent listings for Scilab for example);
- Add automatic inclusion of macros via a suitable class option;
- Add multilingual support via Babel;
- Provide more examples;
- Enhence the help file generated via `pbsheet.dtx`. Add documentation for macros and environments;
- Provide scripts for EPS to PDF conversion;
- Modify the `\bibliography` macro to automatically extract the BibTeX `.bib` filename by using the `.tex` filename of the TeX file. This will ensure interoperability with AUCTeX/RefTeX/BibCite.

5 Implementation

```
%%
\LoadClassWithOptions{article} \ProcessOptions\relax
%%
\ifx\pdfoutput\undefined
 \usepackage[latin1]{inputenc}
 \usepackage[T1]{fontenc}
 \usepackage{url}
 \usepackage[dvips]{graphicx}
 \newcommand{\phantomsection}{\null} %% provided by hyperref.
\else
 \pdfoutput=1\pdfcompresslevel=9\pdfadjustspacing=1
 \usepackage[pdftex,bookmarks,a4paper,colorlinks]{hyperref}
 \usepackage{aeguill}
 \usepackage[pdftex]{graphicx}
 \hypersetup{bookmarksnumbered,plainpages=false,hypertexnames=false}
 \hypersetup{pagecolor=blue,linkcolor=blue,citecolor=blue,urlcolor=blue}
 \hypersetup{pdfcreator=PDFLaTeX with pbsheet class}
\fi
\RequirePackage{amsmath,amsfonts,amssymb,amsthm,latexsym}
\RequirePackage[a4paper,portrait]{geometry}
\RequirePackage{rotating}
\RequirePackage{moreverb}
\RequirePackage[latin1]{inputenc}
\RequirePackage{xspace}
\RequirePackage[francais]{babel}
\RequirePackage{color}
\RequirePackage{listings}
\ifx\pdfoutput\undefined
\else %% listings/hyperref compatibility.
 \makeatletter
 \providecommand*{\toclevel@lstlisting}{0}
 \makeatother
\fi
%%%%
%%%% Macros et Environments
```

```
%%%%
%%
\newcommand{\MFILE}[1]{
  \begin{lstinputlisting}[language=Matlab]{#1.m}%
   \label{code:#1}%
  \end{lstinputlisting}
}
%%
\newcommand{\SCEFILE}[1]{
  \begin{lstinputlisting}[language=Scilab]{#1.sce}%
   \label{code:#1}%
  \end{lstinputlisting}
}
%%
\newcommand{\SCIFILE}[1]{
  \begin{lstinputlisting}[language=Scilab]{#1.sci}%
   \label{code:#1}%
  \end{lstinputlisting}
}
%%
\newcommand{\FFIG}[5]{%%  fname cm scale floatparams caption
%% here, floatparams is in the set {vflt,rflt,lflt}, cf. floatflt doc.
  \begin{floatingfigure}[#4]{#2}%
    \begin{center}%
      \includegraphics[scale=#3]{#1}%
      \caption{#5}%
      \label{fi:#1}%
    \end{center}%
 \end{floatingfigure}%
}
%%
\newcommand{\FIG}[4]{%% fname scale floatparams caption
 \begin{figure}[#3]%
  \begin{center}%
  \includegraphics[scale=#2]{#1}%
  \caption{{#4}}%
  \label{fi:#1}%
  \end{center}%
 \end{figure}
}
%%
\makeatletter%
\newcommand{\@TITRE}{Feuille de Travaux Pratiques}
\newcommand{\@AUTEUR}{Anonyme}
\newcommand{\@DATE}{\today}
\newcommand{\@FORMATION}{Agr\'egation de math\'ematiques%
  -- Oral de mod\'elisation stochastique}
\newcommand{\@ANNEE}{Ann\'ee}
\newcommand{\@ETABLISSEMENT}{\'Etablissement}
\newcommand{\@WEB}{http://www.lsp.ups-tlse.fr/Chafai/agregteam.html}
\newcommand{\@MEL}{anonyme@pas.net}
\newcommand{\TITRE}[1]{%
  \renewcommand{\@TITRE}{#1}}
\newcommand{\AUTEUR}[1]{%
```

```
  \renewcommand{\@AUTEUR}{#1}}
\newcommand{\DATE}[1]{%
  \renewcommand{\@DATE}{#1}}
\newcommand{\FORMATION}[1]{%
  \renewcommand{\@FORMATION}{#1}}
\newcommand{\ANNEE}[1]{%
  \renewcommand{\@ANNEE}{#1}}
\newcommand{\ETABLISSEMENT}[1]{%
  \renewcommand{\@ETABLISSEMENT}{#1}}
\newcommand{\WEB}[1]{%
  \renewcommand{\@WEB}{#1}}
\newcommand{\MEL}[1]{%
  \renewcommand{\@MEL}{#1}}
\makeatother
%%
\makeatletter
\newcommand{\PREMIEREPAGE}{%
  \newpage\null%
  \begin{center}%
    \hrule height .2pt%
    \medskip{\Large\bfseries\@TITRE\par}\medskip%
    \hrule height .2pt%
  \end{center}%
  \bigskip%\vfil%
}
\makeatother
%%
\theoremstyle{plain}%
\newtheorem{thm}{Theor\`eme}[section]%
\newtheorem{cor}[thm]{Corollaire}%
\newtheorem{prop}[thm]{Proposition}%
\newtheorem{lem}[thm]{Lemme}%
\theoremstyle{definition}%
\newtheorem{defi}[thm]{D\'efinition}%
\newtheorem{xpl}[thm]{Exemple}%
\newtheorem{exo}[thm]{Exercice}%
\newtheorem{hyp}[thm]{Hypoth\`ese}%
\newtheorem{eur}[thm]{Heuristique}%
\newtheorem{pro}[thm]{Probl\`eme}%
\theoremstyle{remark}%
\newtheorem{rem}[thm]{Remarque}%
%%%%
%%%% Commands to be executed before \begin{document}
%%%%
%%
\geometry{left=2.5cm,right=2.5cm}
%%
\lstset{extendedchars=true,%
        basicstyle=\small,%
        commentstyle=\ttfamily\color[rgb]{0,0,0.5},%
        stringstyle=\color[rgb]{0,0.5,0},%
        frame=tblr,frameround=tttt,%
        %%labelstyle=\tiny,labelstep=1,labelsep=10pt
}
```

```
%%
\makeatletter
\renewcommand{\@evenfoot}
{\tiny\normalfont
  \@DATE. Copyright  \@AUTEUR\ \@MEL. GNU FDL Copyleft.
%%  \url{http://www.gnu.org/copyleft/fdl.html}.
  \hfil \upshape Page n{\thepage}.}
\renewcommand{\@evenhead}
{\tiny\scshape \@ETABLISSEMENT\ -- \@FORMATION\ --
  \normalfont\bfseries\@ANNEE.
  \normalfont\hfil \upshape Page n{\thepage}.}
\renewcommand{\@oddfoot}{\@evenfoot}
\renewcommand{\@oddhead}{\@evenhead}
\makeatother
%% smaller sections titles
\makeatletter
\renewcommand{\section}{\@startsection%
  {section}%                             % name
  {1}%                                   % level
  {0em}%                                 % indent
  {\baselineskip}%                       % beforeskip
  {0.5\baselineskip}%                    % afterskip
  {\normalfont\large\bfseries}}%         % style
\renewcommand{\subsection}{\@startsection%
  {subsection}%                          % name
  {2}%                                   % level
  {0em}%                                 % indent
  {\baselineskip}%                       % beforeskip
  {0.25\baselineskip}%                   % afterskip
  {\normalfont\bfseries}%                % style
}
\makeatother
%%
%% Macros
%%
\newcommand{\DOIFPDF}[2]{\ifx\pdfoutput\undefined #2\else#1\fi}
%% For nice typesetting of the actual engine name.
\newcommand{\EngineName}{\DOIFPDF{\texttt{pdf}\LaTeX}{\LaTeXe}}
%% For short rough notes and warnings.
\newcommand{\NB}[1]{{\large\textbf{*** #1 ***}}}
%% To force maths mode.
\newcommand{\EM}{\ensuremath}
%%% Limits
\newcommand{\limLeb}[2]
 {\underset{#1\to+\infty}{\overset{\bL^{#2}}{\longrightarrow}}}
\newcommand{\limE}[1]
 {\underset{#1\to+\infty}{\overset{\text{tr.}}{\longrightarrow}}}
\newcommand{\limW}[1]
 {\underset{#1\to+\infty}{\overset{\text{weak}}{\longrightarrow}}}
\newcommand{\limP}[1]
 {\underset{#1\to+\infty}{\overset{\dP}{\longrightarrow}}}
\newcommand{\limL}[1]
 {\underset{#1\to+\infty}{\overset{\cL}{\longrightarrow}}}
\newcommand{\limn}[1]
```

```
 {\underset{#1\to+\infty}{\longrightarrow}}
\newcommand{\mylim}[2]
 {\underset{#1\to#2}{\longrightarrow}}
\newcommand{\limPS}[1]
 {\underset{#1\to+\infty}{\overset{\text{p.s.}}{\longrightarrow}}}
\newcommand{\limAS}[1]
 {\underset{#1\to+\infty}{\overset{\text{a.s.}}{\longrightarrow}}}
%% Time
\makeatletter
\providecommand{\timenow}{\@tempcnta\time%
\@tempcntb\@tempcnta%
\divide\@tempcntb60%
\ifnum10>\@tempcntb0\fi\number\@tempcntb%
\multiply\@tempcntb60%
\advance\@tempcnta-\@tempcntb%
:\ifnum10>\@tempcnta0\fi\number\@tempcnta}
\makeatother
%% Mathmode double capital letters.
\newcommand{\dA}{\EM{\mathbb{A}}}
\newcommand{\dB}{\EM{\mathbb{B}}}
\newcommand{\dC}{\EM{\mathbb{C}}}
\newcommand{\dD}{\EM{\mathbb{D}}}
\newcommand{\dE}{\EM{\mathbb{E}}}
\newcommand{\dF}{\EM{\mathbb{F}}}
\newcommand{\dG}{\EM{\mathbb{G}}}
\newcommand{\dH}{\EM{\mathbb{H}}}
\newcommand{\dI}{\EM{\mathbb{I}}}
\newcommand{\dJ}{\EM{\mathbb{J}}}
\newcommand{\dK}{\EM{\mathbb{K}}}
\newcommand{\dL}{\EM{\mathbb{L}}}
\newcommand{\dM}{\EM{\mathbb{M}}}
\newcommand{\dN}{\EM{\mathbb{N}}}
\newcommand{\dO}{\EM{\mathbb{O}}}
\newcommand{\dP}{\EM{\mathbb{P}}}
\newcommand{\dQ}{\EM{\mathbb{Q}}}
\newcommand{\dR}{\EM{\mathbb{R}}}
\newcommand{\dS}{\EM{\mathbb{S}}}
\newcommand{\dT}{\EM{\mathbb{T}}}
\newcommand{\dU}{\EM{\mathbb{U}}}
\newcommand{\dV}{\EM{\mathbb{V}}}
\newcommand{\dW}{\EM{\mathbb{W}}}
\newcommand{\dX}{\EM{\mathbb{X}}}
\newcommand{\dY}{\EM{\mathbb{Y}}}
\newcommand{\dZ}{\EM{\mathbb{Z}}}
%% Mathmode Roman capital letters.
\newcommand{\rA}{\EM{\mathrm{A}}}
\newcommand{\rB}{\EM{\mathrm{B}}}
\newcommand{\rC}{\EM{\mathrm{C}}}
\newcommand{\rD}{\EM{\mathrm{D}}}
\newcommand{\rE}{\EM{\mathrm{E}}}
\newcommand{\rF}{\EM{\mathrm{F}}}
\newcommand{\rG}{\EM{\mathrm{G}}}
\newcommand{\rH}{\EM{\mathrm{H}}}
\newcommand{\rI}{\EM{\mathrm{I}}}
```

```
\newcommand{\rJ}{\EM{\mathrm{J}}}
\newcommand{\rK}{\EM{\mathrm{K}}}
\newcommand{\rL}{\EM{\mathrm{L}}}
\newcommand{\rM}{\EM{\mathrm{M}}}
\newcommand{\rN}{\EM{\mathrm{N}}}
\newcommand{\rO}{\EM{\mathrm{O}}}
\newcommand{\rP}{\EM{\mathrm{P}}}
\newcommand{\rQ}{\EM{\mathrm{Q}}}
\newcommand{\rR}{\EM{\mathrm{R}}}
\newcommand{\rS}{\EM{\mathrm{S}}}
\newcommand{\rT}{\EM{\mathrm{T}}}
\newcommand{\rU}{\EM{\mathrm{U}}}
\newcommand{\rV}{\EM{\mathrm{V}}}
\newcommand{\rW}{\EM{\mathrm{W}}}
\newcommand{\rX}{\EM{\mathrm{X}}}
\newcommand{\rY}{\EM{\mathrm{Y}}}
\newcommand{\rZ}{\EM{\mathrm{Z}}}
%% Mathmode calligraphic capital letters.
\newcommand{\cA}{\EM{\mathcal{A}}}
\newcommand{\cB}{\EM{\mathcal{B}}}
\newcommand{\cC}{\EM{\mathcal{C}}}
\newcommand{\cD}{\EM{\mathcal{D}}}
\newcommand{\cE}{\EM{\mathcal{E}}}
\newcommand{\cF}{\EM{\mathcal{F}}}
\newcommand{\cG}{\EM{\mathcal{G}}}
\newcommand{\cH}{\EM{\mathcal{H}}}
\newcommand{\cI}{\EM{\mathcal{I}}}
\newcommand{\cJ}{\EM{\mathcal{J}}}
\newcommand{\cK}{\EM{\mathcal{K}}}
\newcommand{\cL}{\EM{\mathcal{L}}}
\newcommand{\cM}{\EM{\mathcal{M}}}
\newcommand{\cN}{\EM{\mathcal{N}}}
\newcommand{\cO}{\EM{\mathcal{O}}}
\newcommand{\cP}{\EM{\mathcal{P}}}
\newcommand{\cQ}{\EM{\mathcal{Q}}}
\newcommand{\cR}{\EM{\mathcal{R}}}
\newcommand{\cS}{\EM{\mathcal{S}}}
\newcommand{\cT}{\EM{\mathcal{T}}}
\newcommand{\cU}{\EM{\mathcal{U}}}
\newcommand{\cV}{\EM{\mathcal{V}}}
\newcommand{\cW}{\EM{\mathcal{W}}}
\newcommand{\cX}{\EM{\mathcal{X}}}
\newcommand{\cY}{\EM{\mathcal{Y}}}
\newcommand{\cZ}{\EM{\mathcal{Z}}}
%% Mathmode bold capital letters.
\newcommand{\bA}{\EM{\mathbf{A}}}
\newcommand{\bB}{\EM{\mathbf{B}}}
\newcommand{\bC}{\EM{\mathbf{C}}}
\newcommand{\bD}{\EM{\mathbf{D}}}
\newcommand{\bE}{\EM{\mathbf{E}}}
\newcommand{\bF}{\EM{\mathbf{F}}}
\newcommand{\bG}{\EM{\mathbf{G}}}
\newcommand{\bH}{\EM{\mathbf{H}}}
\newcommand{\bI}{\EM{\mathbf{I}}}
```

```
\newcommand{\bJ}{\EM{\mathbf{J}}}
\newcommand{\bK}{\EM{\mathbf{K}}}
\newcommand{\bL}{\EM{\mathbf{L}}}
\newcommand{\bM}{\EM{\mathbf{M}}}
\newcommand{\bN}{\EM{\mathbf{N}}}
\newcommand{\bO}{\EM{\mathbf{O}}}
\newcommand{\bP}{\EM{\mathbf{P}}}
\newcommand{\bQ}{\EM{\mathbf{Q}}}
\newcommand{\bR}{\EM{\mathbf{R}}}
\newcommand{\bS}{\EM{\mathbf{S}}}
\newcommand{\bT}{\EM{\mathbf{T}}}
\newcommand{\bU}{\EM{\mathbf{U}}}
\newcommand{\bV}{\EM{\mathbf{V}}}
\newcommand{\bW}{\EM{\mathbf{W}}}
\newcommand{\bX}{\EM{\mathbf{X}}}
\newcommand{\bY}{\EM{\mathbf{Y}}}
\newcommand{\bZ}{\EM{\mathbf{Z}}}
%% Useful shortcuts to some Greek letters and symbols.
\newcommand{\al}{\alpha}
\newcommand{\be}{\beta}
\newcommand{\De}{\Delta}
\newcommand{\de}{\delta}
\newcommand{\ga}{\gamma}
\newcommand{\Ga}{\Gamma}
\newcommand{\g}{\gamma}
\newcommand{\gn}{\g_n}
\newcommand{\gt}[1]{\g^{\otimes #1}}
\newcommand{\la}{\lambda}
\newcommand{\La}{\Lambda}
\newcommand{\lan}{\la_n}
\newcommand{\na}{\nabla}
\newcommand{\Om}{\Omega}
\newcommand{\om}{\omega}
\newcommand{\ph}{\Phi}
\newcommand{\Si}{\Sigma}
\newcommand{\si}{\sigma}
\newcommand{\Te}{\Theta}
\newcommand{\te}{\theta}
\newcommand{\ta}{\tau}
\newcommand{\Ups}{\Upsilon}
\newcommand{\veps}{\varepsilon}
\newcommand{\vphi}{\varphi}
\newcommand{\bul}{\EM{\bullet}}
%% Functional prototype with dimensioning.
\newcommand{\p}[4]{{#3}\!\left#1{#4}\right#2}
%% Norms and related.
\newcommand{\ABS}[1]{\EM{{\left| #1 \right|}}} % |1|
\newcommand{\BRA}[1]{\EM{{\left\{#1\right\}}}} % {1}
\newcommand{\DP}[1]{\EM{{\left<#1\right>}}} % <1>
\newcommand{\NRM}[1]{\EM{{\left\| #1\right\|}}} % ||1||
\newcommand{\NI}[1]{\EM{{\left\| #1\right\|}_\infty}} % infinite norm.
\newcommand{\OSC}[1]{\EM{{\p(){\mathrm{osc}}{#1}}}} % oscillation.
\newcommand{\PAR}[1]{\EM{{\left(#1\right)}}} % (1)
\newcommand{\BPAR}[1]{\EM{{\biggl(#1\biggr)}}} % (1)
```

```
\newcommand{\BABS}[1]{\EM{{\biggl|#1\biggr|}}} % (1)
\newcommand{\pd}{\EM{\partial}} % derivee partielle
\newcommand{\PD}[2]{\EM{{\frac{\partial #1}{\partial #2}}}}%part. deriv.
\newcommand{\SBRA}[1]{\EM{{\left[#1\right]}}} % [1]
\newcommand{\VT}[1]{\EM{{\|#1\|}_{\text{\scriptsize VT}}}} % tot. var.
\newcommand{\LIP}[1]{\EM{\|#1\|_{\mathrm{Lip}}}} % Lipschitz norm.
\newcommand{\WH}[1]{\widehat{#1}}
%% Fonctionals and functions.
\newcommand{\sentf}{\bH}
\newcommand{\sent}[1]{\p(){\sentf}{#1}}
\newcommand{\bentf}[1]{\bH_{#1}}
\newcommand{\bent}[2]{\p(){\bentf{#1}}{#2}}
\newcommand{\eentf}{\bN}
\newcommand{\eent}[1]{\p(){\eentf}{#1}}
\newcommand{\entf}[1]{\mathbf{Ent}_{#1}}
\newcommand{\ent}[2]{\p(){\entf{#1}}{#2}}
\newcommand{\ientf}[1]{\bH^{#1}}
\newcommand{\ient}[2]{\p(){\ientf{#1}}{#2}}
\newcommand{\rentf}{\mathbf{Ent}}
\newcommand{\rent}[2]{\p(){\rentf}{#1\,\vert\,#2}}
\newcommand{\entr}{\mathbf{Ent}_r}
\newcommand{\enef}[1]{\boldsymbol{\mathcal{E}}_{#1}}
\newcommand{\ene}[2]{\p(){\enef{#1}}{#2}}
\newcommand{\imutf}{\bI}
\newcommand{\imut}[1]{\p(){\imutf}{#1}}
\newcommand{\fcrf}{\dI}
\newcommand{\fcr}[1]{\p(){\fcrf}{#1}}
\newcommand{\fishf}{\bJ}
\newcommand{\fish}[1]{\p(){\fishf}{#1}}
\newcommand{\fishmf}{\dJ}
\newcommand{\fishm}[1]{\p(){\fishmf}{#1}}
\newcommand{\moyf}[1]{\bE_{#1}}
\newcommand{\moy}[2]{\p(){\moyf{#1}}{#2}}
\newcommand{\econd}[2]{\p(){\moyf{}}{#1\,\vert\,#2}}
\newcommand{\bmoy}[2]{\moyf{#1}\!\biggl(#2\biggr)}
\newcommand{\corrf}[1]{\mathbf{Cor}_{#1}}
\newcommand{\corr}[3]{\p(){\corrf{#1}}{#2,#3}}
\newcommand{\covf}[1]{\mathbf{Cov}_{#1}}
\newcommand{\cov}[3]{\p(){\covf{#1}}{#2,#3}}
\newcommand{\bcov}[3]{\covf{#1}\!\biggl(#2,#3\biggr)}
\newcommand{\suppf}{\mathrm{supp}}
\newcommand{\supp}[1]{\suppf\PAR{#1}}
\newcommand{\DIMF}{\mathrm{dim}}
\newcommand{\DIM}[1]{\DIMF\PAR{#1}}
\newcommand{\RANGEF}{\mathrm{range}}
\newcommand{\RANGE}[1]{\RANGEF\PAR{#1}}
\newcommand{\varf}[1]{\mathbf{Var}_{#1}}
\newcommand{\var}[2]{\p(){\varf{#1}}{#2}}
\newcommand{\bvar}[2]{\varf{#1}\!\biggl(#2\biggr)}
\newcommand{\Kf}{\bK}
\newcommand{\K}[1]{\p(){\Kf}{#1}}
\newcommand{\vrs}[1]{\mathbf{L}_{#1}}
\newcommand{\lik}[1]{\vrs{#1}}
%% Sets, spaces, and functional spaces.
```

```
\newcommand{\C}[1]{\p(){\cC}{#1}}
\newcommand{\Cb}[1]{\p(){\cC_b}{#1}}
\newcommand{\Cc}[1]{\p(){\cC_c}{#1}}
\newcommand{\Cn}[2]{\p(){\cC^{#1}}{#2}}
\newcommand{\Ci}[1]{\Cn{\infty}{#1}}
\newcommand{\Cic}[1]{\p(){\cC_c^\infty}{#1}}
\newcommand{\Cnc}[2]{\p(){\cC_c^{#1}}{#2}}
\newcommand{\Cnb}[2]{\p(){\cC_b^{#1}}{#2}}
\newcommand{\Cib}[1]{\p(){\cC_b^\infty}{#1}}
\newcommand{\leb}[2]{\p(){\bL^{#1}}{#2}}
\newcommand{\lebb}[1]{\bL^{#1}}
%% Determinant, trace, ...
\newcommand{\Tr}{\mathrm{Tr\,}}
\newcommand{\Det}[1]{\mathrm{Det}\,}
\newcommand{\TR}[1]{\p(){\mathrm{Tr}}{#1}}
\newcommand{\DIAG}[1]{\p(){\mathrm{Diag}}{#1}}
\newcommand{\DET}[1]{\p(){\mathrm{Det}}{#1}}
\newcommand{\SIG}[1]{\p(){\mathrm{Sign}}{#1}}
\newcommand{\KER}[1]{\p(){\mathrm{Ker}}{#1}}
\newcommand{\RG}[1]{\p(){\mathrm{Range}}{#1}}
\newcommand{\DIAM}[1]{\p(){\mathrm{Diam}}{#1}}
\newcommand{\ID}{\mathbf{Id}}
\newcommand{\Id}{\mathrm{Id}}
\newcommand{\Mo}{\mathbf{1}}
\newcommand{\Vo}{\mathrm{1}}
%%% Semi-groups, generators, carre-du-champ, ...
\newcommand{\CD}{CD(\rho ,\infty)}
\newcommand{\GA}{\boldsymbol{\Gamma}}
\newcommand{\GD}{\GA_{\!\!{\mathbf 2}}}
\newcommand{\GI}{\bL}
\newcommand{\GR}{\nabla}
\newcommand{\GIV}{\EM{\overrightarrow{\GI}}}
\newcommand{\GIB}{\EM{\overline{\GI}}}
\newcommand{\LA}{\boldsymbol{\Delta}}
\newcommand{\ROT}{\mathbf{rot}\,}
\newcommand{\DIV}{\mathbf{div}\,}
\newcommand{\PT}[1][t]{\mathbf{P}_{\!#1}}
\newcommand{\SGf}[1]{{\mathbf P}_{#1}}
\newcommand{\SG}[2]{\p(){\SGf{\!#1}}{#2}}
\newcommand{\SGQf}[1]{{\mathbf Q}_{#1}}
\newcommand{\SGQ}[2]{\p(){\SGQf{#1}}{#2}}
\newcommand{\isopf}{\mathbf{I}}
\newcommand{\isop}[1]{\p(){\isopf}{#1}}
\newcommand{\disop}[1]{\p(){\isopf'}{#1}}
\newcommand{\ddisop}[1]{\p(){\isopf''}{#1}}
\newcommand{\HESS}[1]{\GR^2\!{#1}}
\newcommand{\Hess}[1]{{\p(){\mathrm{Hess}}{#1}}}
\newcommand{\HAM}{\bH}
\newcommand{\POT}{\bV}
\newcommand{\PF}{\bZ}
\newcommand{\DOM}{\EM{\cD_2(\GI)}}
\newcommand{\laV}{\EM{\overrightarrow{\la}}}
\newcommand{\DOML}{\EM{\cD_2\PAR{\GI}}}
\newcommand{\DOMB}{\EM{\cD_2(\GIB)}}
```

```
\newcommand{\DOMV}{\EM{\cD_2(\GIV)}}
\newcommand{\GAV}{\EM{\overrightarrow{\GA}}}
\newcommand{\D}{\mathbf{D}}
%% Topology.
\newcommand{\inter}[1]{{\overset{\circ}{#1}}} % interior
\newcommand{\adher}[1]{{\overline{#1}}} % adherence
\newcommand{\ADH}[1]{\mathbf{adh}(#1)}
\newcommand{\INT}[1]{\mathbf{int}(#1)}
%% Miscellany.
\newcommand{\DOTIMES}{\otimes\cdots\otimes}
\newcommand{\DOPLUS}{\oplus\cdots\oplus}
\newcommand{\CARD}{\mathrm{card}}
\newcommand{\SSK}[1]{\substack{#1}}
\renewcommand{\leq}{\leqslant}
\renewcommand{\geq}{\geqslant}
\newcommand{\bs}{\EM{\backslash}}
\newcommand{\Inf}{\boldsymbol{\inf}}
\newcommand{\Sup}{\boldsymbol{\sup}}
\newcommand{\ds}[1]{\EM{\displaystyle{#1}}}
\newcommand{\eg}{\overset{\Delta}{=}}
\newcommand{\fdefeq}{\overset{\text{df.}}{=}}
\newcommand{\edefeq}{\overset{\text{def.}}{=}}
\newcommand{\defeq}{:=}
\newcommand{\equ}{\; \Leftrightarrow \;}
\newcommand{\ex}{\exists \,}
\newcommand{\imp}{\Rightarrow  \;}
\newcommand{\ssi}{{\it ssi}}
\newcommand{\tout}{\forall \,}
\newcommand{\tq}{\,|\,}
\newcommand{\st}{\,|\,}
%\newcommand{\1}{\hbox{1}\!\!\hbox{I}} %Bugs with xy package...
\newcommand{\DSFRAC}[2]{\EM{\frac{\ds{#1}}{\ds{#2}}}}
\newcommand{\SR}[2]{\EM{\strackrel{#1}{#2}}}
%Some Babel extension.
\def\Ieme{\up{\lowercase{ime}}\xspace}
%% Vectors and matrices.
\newcommand{\VECTOR}[1]{\PAR{\begin{array}{c} #1 \end{array}}}
\newcommand{\BIMATRIX}[1]{\PAR{\begin{array}{cc} #1 \end{array}}}
\newcommand{\Vector}[2]{\PAR{\begin{array}{#1} #2 \end{array}}}
\newcommand{\Bimatrix}[2]{\PAR{\begin{array}{#1} #2 \end{array}}}
%%%%
%%%% Commands to be executed just after \begin{document}
%%%%
\AtBeginDocument{%
 \selectlanguage{francais}%
 \graphicspath{{images/}{img/}{Images}{Img}{ps}{eps}{PS}{EPS}%
  {postscript}{postscripts}{pdf}{PDF}}%
 \PREMIEREPAGE%
}
%%%%
%%%% Commands to be executed just before \end{document}
%%%%
\AtEndDocument{\vfill}
%
```