### Typesetting 'lettrines' in $\LaTeX 2_{\varepsilon}$ documents

Daniel FLIPO daniel.flipo@free.fr

### 1 Introduction

The file lettrine.dtx<sup>1</sup>, provides a command \lettrine which requires two mandatory arguments, and an optional one.

Adding \usepackage{lettrine} in the preamble of a document defines the command \lettrine, the simplest use of which is \lettrine{<\letter>}{<\text>}. It produces a dropped capital <\letter> (2 lines high), followed by <\text> typeset in small caps, and the rest of the paragraph is wrapped around the dropped capital.

Various parameters are provided to control the size and layout of the dropped capital and match the requirements described in the books

- "Lexique des règles typographiques en usage à l'Imprimerie nationale" troisième édition (1994), ISBN-2-11-081075-0,
- "Mise en page et impression" Yves Perrousseaux, ISBN-2-911220-01-3.

The parameters can be set using David Carlisle's keyval.sty syntax:

- lines=<integer> sets how many lines the dropped capital will occupy (default=2);
- lhang=<decimal> (0 ≤ lhang ≤ 1) sets how much of the dropped capital's width should hang into the margin (default=0);
- loversize=<decimal> (-1 < loversize  $\le$  1) enlarges the dropped capital's height: with loversize=0.1 its height is enlarged by 10% so that it raises above the top paragraph's line (default=0);
- lraise=< decimal> does not affect the dropped capital's height, but moves it up (if positive), down (if negative); useful with capitals like J or Q which have a positive depth, (default=0);
- findent=<dimen> (positive or negative) controls the horizontal gap between the dropped capital and the indented block of text (default=0pt);
- nindent=<dimen> shifts all indented lines, starting from the second one, horizontally by <dimen> (this shift is relative to the first line, default=0.5em);
- slope=<dimen> can be used with dropped capitals like A or V to add <dimen> (positive or negative) to the indentation of each line starting from the third one (no effect if lines=2, default=0pt);
- ante=< text> can be used to typeset < text> before the dropped capital (typical use is for French guillemets starting the paragraph).

 $<sup>^1\</sup>mathrm{The}$  file described in this section has version number v1.64 and was last revised on 2013/03/14.

• image=<true> (new to version 1.6) will force \lettrine to replace the letter normally used as dropped capital by an image in eps format (latex) or in pdf, jpg, etc. format (pdflatex); this needs the graphicx package to be loaded in the preamble of course. \lettrine[image=true]{A}{n exemple} or just \lettrine[image]{A}{n exemple} will load A.eps or A.pdf instead of letter A. This was suggested by Bill Jetzer. Redefining \LettrineFont as \LettrineFontEPS still works for compatibility but is deprecated.

Example:  $\left[\frac{1}{\sqrt{v}}\right]$  in exemple ... slope=-.5em]%

Coloured lettrines are possible in conjonction with package color, examples: \lettrine{\textcolor{red}{A}}{n} example or \lettrine{\textcolor[gray]{0.5}{A}}{nother} one see package color for the syntax of colour commands. Another possibility to colour lettrines globally is described below, see \LettrineFontHook.

Once lettrine.sty will be installed (run latex on lettrine.ins to extract it), compile and print demo.tex to see the possible usage of these parameters.

The default settings can be customized either in a config file lettrine.cfg (for a global usage), or on a per document basis, in the preamble of each document. The following list shows the syntax to set them and their default values:

- \setcounter{DefaultLines}{2},
- \renewcommand{\DefaultLoversize}{0},
- \renewcommand{\DefaultLraise}{0},
- \renewcommand{\DefaultLhang}{0},
- \LettrineImagefalse,
- \setlength{\DefaultFindent}{0pt},
- \setlength{\DefaultNindent}{0.5em},
- \setlength{\DefaultSlope}{Opt}.

Instead of giving optional parameters to the \lettrine command, it is possible, from version 1.5, to set them on a per character basis in a second config file (suggested by Pascal Kockaert): \renewcommand{\DefaultOptionsFile}{filename} in the preamble (or anywhere in the document) will force each call to \lettrine to read the file filename. See examples of such config files in the subdirectory contrib.

The dimensional parameters findent, nindent and slope, can be set in *filename* relative to \LettrineWidth if needed. \LettrineWidth should be used *only* in the config file *filename*, its value is non-null only if *filename* is read! The settings read from this file will be overridden by the optional arguments eventually given to \lettrine.

\LettrineTextFont sets the font used for the second argument of \lettrine, its default definition is \newcommand{\LettrineTextFont}{\scshape} (second argument in small caps, this can be changed using \renewcommand).

\LettrineFont sets the font used for the dropped capital, usually the current font in a (large) size, computed automatically from the number of lines it will fill: the font size is computed so that, a standard dropped capital (say X, not À) when sitting on its baseline, gets its top aligned with the top of the following text (provided loversize = 0 and lines  $\geq$  2). When lines = 1, size is computed as if lines was 2.

A hook \LettrineFontHook is provided to change the font used for the dropped capital, syntax follows IATEX's low-level font interface (see IATEX Companion, p.187-192), the \selectfont command is issued by \LettrineFont:

\renewcommand{\LettrineFontHook}{\fontfamily{ppl}\fontseries{bx}}% \fontshape{sl}},

selects Palatino bold expanded slanted for the dropped capital.

\LettrineFontHook can also be used to change the colour of all lettrines in a (part of) document: \renewcommand{\LettrineFontHook}{\color[gray]{0.5}} will colour the lettrines following this command in grey.

Important notice: the sizing works fine with fully scalable fonts (like the standard PostScript fonts), but might not work well with CM/EC fonts which have two limitations: only a limited number of sizes is available by default (precise adjustments are impossible), and the largest size (25pt or 35pt) is often too small. The CM fonts are now available in PostScript type1 format for free (courtesy of BlueSky/Y&Y), to make them fully scalable, it is mandatory to add \usepackage{type1cm} in the preamble of your document. The EC fonts are also available in type1 format for free (thanks to Vladimir Volovich, they are called cm-super), and adding \usepackage{type1cc} in the preamble will make them fully scalable too. So, if you want lettrine.sty to work properly with CM or EC fonts, you will need PostScript versions of these fonts and one of the packages type1cm.sty or type1ec.sty.

The LM fonts are a good replacement for both CM and EC fonts they are fully scalable, so you should use them instead of CM or EC fonts. \usepackage{lmodern} is the command to switch them on (add \usepackage[T1]{fontenc} when composing in one of the western languages other than English in order to get proper hyphenation).

You can also consider using one of the standard PostScript fonts (Palatino, Times, Utopia...), or any OpenType font, they are fully scalable too!

#### Known problems:

- nothing is done to prevent page-breaking in a paragraph starting with a dropped capital; when it happens to hang into the footer, page-breaking has to be done manually;
- \lettrine works within 'quote' 'quotation', 'abstract' environments but does not work within 'center' environments (except with option [lines=1]);
- \lettrine does not work within lists;
- if a *list* has to be included in a paragraph starting with a 'lettrine', it is necessary to add the command **\parshape=0** just after the end of the list

<sup>&</sup>lt;sup>2</sup>This package, available on CTAN, was first released on 2002/07/30.

(starting a new paragraph just before or just after the list works too). Remember that 'quote', 'quotation', 'abstract' environments are implemented as *lists* in LAT<sub>F</sub>X.

## 2 TEXnical details

This package only runs with LATEX  $2_{\mathcal{E}}$  and requires keyval.sty

- 1 \NeedsTeXFormat{LaTeX2e}[1999/12/01]
- 2 \RequirePackage{keyval}

Default initializations: define the necessary counters, lengths, and commands to hold the default settings and set these default settings. They can be overwritten in file lettrine.cfg.

```
3 \newcounter{DefaultLines}
4 \setcounter{DefaultLines}{2}
5 \newcommand*{\DefaultDefionsFile}{\relax}
6 \newcommand*{\DefaultLoversize}{0}
7 \newcommand*{\DefaultLraise}{0}
8 \newcommand*{\DefaultLhang}{0}
9 \newdimen\DefaultFindent
10 \setlength{\DefaultFindent}{\z0}
11 \newdimen\DefaultNindent
12 \setlength{\DefaultNindent}{0.5em}
13 \newdimen\DefaultSlope
14 \setlength{\DefaultSlope}{\z0}
15 \newif\ifLettrineImage
```

Then let's define the necessary internal counters, lengths, and commands.

```
16 \newsavebox{\L@lbox}
17 \newsavebox{\L@tbox}
18 \newcounter{L@lines}
19 \newdimen\L@Pindent
20 \newdimen\L@Findent
21 \newdimen\L@Nindent
22 \newdimen\L@lraise
23 \newdimen\L@first
24 \newdimen\L@next
25 \newdimen\L@slope
26 \newdimen\L@height
27 \newcommand*{\L@file}{}
28 \newcommand*{\L@hang}{}
29 \newcommand*{\L@oversize}{}
30 \newcommand*{\L@raise}{}
31 \newcommand*{\L@ante}{}
32 \newif\ifL@image
```

Provide commands for the fonts used to typeset the two mandatory arguments of *\lettrine*.

\LettrineTextFont In French, small caps usually follow the dropped capital.

33 \newcommand\*{\LettrineTextFont}{\scshape}

\LettrineFontHook \LettrineFont The default size for the dropped capital is computed so that the top of it is exactly aligned with the top of the following text; an extra height (positive or negative) may be added with Defaultloversize or an optional argument loversize=. If lines=1, the default size for the dropped capital is computed as if lines=2. \Lettrine@height computes the wished height for the dropped capital and stores it into \L@height. As \baselineskip might be a rubber length, we convert it into a 'dimen' using \@tempdima. \LettrineFontHook enables to select another font for the dropped capital. Its default definition is empty (the current text font is used).

```
34 \def\Lettrine@height{%
     \@tempdima=\baselineskip
     \setlength{\L@height}{\theL@lines\@tempdima}%
37
     \ifnum\theL@lines>1
38
        \addtolength{\L@height}{-\@tempdima}%
39
     \fi
40
     \sbox{\L@tbox}{\LettrineTextFont x}%
     \add to length {\L@height} {\ht\L@tbox} \%
41
     \addtolength{\L@height}{\L@oversize\L@height}}
42
43 \newcommand*{\LettrineFontHook}{}
44 \newcommand*{\LettrineTestString}{ABCDEFGHIJKLMNOQPRSTUVWXYZ}
45 \newcommand*{\LettrineFont}{%
     \Lettrine@height
```

**\L@height** now holds the exact height required for the dropped capital, setting **\fontsize** to that height would not give the expected result (capital too small), some computing has to be done: we measure the maximal capitals' height and compute a scaling factor (always  $\geq 1$ ). All capitals are expected to have the same height, in case this assumption would be wrong for some special font, **\LettrineTestString** can be customised to any non empty subset of capitals.

```
47 \sbox{\L@tbox}{\LettrineFontHook\fontsize{\L@height}%\ 48 \selectfont \LettrineTestString}%
```

Arithmetic calculations convert the dimensions into integers (in sp) and compute a (4 decimal accurate) scaling factor.

```
\@tempcntb=\ht\L@tbox
49
     \@tempcnta=\L@height
50
     \multiply\@tempcnta by 100
51
     \divide\@tempcntb by 100
52
     \divide\@tempcnta by \@tempcntb
53
     \advance\@tempcnta by -9999
     \ifnum\@tempcnta>0
55
       \def\@tempa{1.\the\@tempcnta}%
56
57
     \else
       \def\@tempa{1}\%
58
     \fi
59
     \LettrineFontHook
60
     \fontsize{\@tempa\L@height}{\@tempa\L@height}%
61
62
     \selectfont
```

\LettrineFontEPS

The following definition is for use with dropped capitals defined as images: EPS, PDF, JPG, PNG files (see examples in demo.tex). Its use requires the graphicx package to be loaded in the preamble with \usepackage{graphicx}. The required size is computed just as in the standard case, \includegraphics prints the EPS file at this size.

```
64 \newcommand*{\LettrineFontEPS}{%
```

- 65 \Lettrine@height\LettrineFontHook
- 66 \includegraphics[height=\L@height]}

Set up keyval initializations.

#### \LettrineOptionsFor

This command is to be used in an optional config file (the name of which is found in \DefaultOptionsFile) to set the values of parameters on a per character basis, for instance:

\LettrineOptionsFor{A}{slope=0.6em, findent=-1em, nindent=0.6em} creates an internal command (\loa-keys in this example), which expands to the options given as second argument of \LettrineOptionsFor for letter 'A'.

```
76 \newcommand*{\LettrineOptionsFor}[2]{\@namedef{1@#1-keys}{#2}}
77 \newdimen\LettrineWidth
```

\lettrine Now let's define \lettrine.

```
78 \def\lettrine{\@ifnextchar[\@lettrine{\@lettrine[]}} 79 \def\@lettrine[#1]#2#3{%
```

First reset the parameters to their default values:

```
80 \setcounter{L@lines}{\theDefaultLines}%
81 \renewcommand*{\L@hang}{\DefaultLhang}%
82 \renewcommand*{\L@oversize}{\DefaultLoversize}%
```

83 \renewcommand\*{\L@raise}{\DefaultLraise}%

84 \renewcommand\*{\L@ante}{}%

85 \setlength{\L@Findent}{\DefaultFindent}%

87 \setlength{\L@slope}{\DefaultSlope}%

88 \ifLettrineImage\L@imagetrue\else\L@imagefalse\fi

then try to read an optional file (its name is given by **\DefaultOptionsFile**), do this inside a group, and define a global command **\locupleticlosepsilon** which will expand to

the list of options given by  $\Delta = 0$  for the current lettrine (defined by #2)...

```
89 \if\DefaultOptionsFile\relax
90 \else
91 \begingroup
92 \InputIfFileExists{\DefaultOptionsFile}%
93 {}%
94 {\PackageWarning{lettrine.sty}%
95 {File \DefaultOptionsFile\space not found}%
96 }%
```

Gobble the colour commands, just keep the letter argument.

```
97 \def\color##1##{\l@color{##1}}%

98 \let\l@color\@gobbletwo

99 \def\textcolor##1##{\l@textcolor{##1}}%

100 \def\l@textcolor##1##2##3{##3}%
```

Save the list of options relevant to the letter in #2 in \locale\text{lQLOKeys} (list is empty eventually).

```
101 \expandafter\ifx\csname l@#2-keys\endcsname\relax
102 \gdef\l@LOKeys{}%
103 \else
104 \xdef\l@LOKeys{\csname l@#2-keys\endcsname}%
105 \fi
106 \endgroup
```

Now apply these options (the following code executes \setkeys{L}{\lQLOKeys}} where \lQLOKeys is expanded, see keyval.sty).

```
107 \def\KV@prefix{KV@L@}%
108 \let\@tempc\relax
109 \expandafter\KV@do\l@LOKeys,\relax,
```

As some parameters' values findent, nindent and slope —which do not influence the lettrine size— may be given relative to \LettrineWidth, this has to be done again after measuring the lettrine for \LettrineWidth to be set properly.

```
110 \sbox{\L@lbox}{\LettrineFont #2}%
111 \settowidth{\LettrineWidth}{\usebox{\L@lbox}}%
112 \def\KV@prefix{KV@L@}%
113 \let\@tempc\relax
114 \expandafter\KV@do\l@LOKeys,\relax,
115 \fi
```

Finally read the optional argument: the keyval package will set the parameters mentioned calling \define@key (see above).

```
116 \setkeys{L}{#1}%
```

Save the two mandatory arguments of \lettrine into two boxes, this will help measuring their sizes. Depending on the boolean image, \LettrineFont or \LettrineFontEPS is used.

```
117 \ifL@image
118 \sbox{\L@lbox}{\LettrineFontEPS{#2}}%
```

```
\else
119
        \sbox{\L@lbox}{\LettrineFont #2}%
120
121
     \sbox{\L@tbox}{\LettrineTextFont{#3}}%
```

122

Start a new paragraph, skipping the necessary amount of space if the dropped capital sticks out the top of paragraph. We use \L@first to compute the amount of space to be skipped. Again, as \baselineskip might be a rubber length, we convert it into a 'dimen' using \Otempdima.

```
123
      \@tempdima=\baselineskip
124
      \ifnum\theL@lines=1
        \setlength{\L@first}{\ht\L@lbox}%
125
        \verb|\addtolength{\L@first}_{-\ht\L@tbox}||
126
        \setlength{\L@lraise}{\z@}%
127
128
        \setlength{\L@first}{-\theL@lines\@tempdima}%
129
        \addtolength{\L@first}{\@tempdima}%
130
        \sbox{\@tempboxa}{\LettrineTextFont x}%
131
        \addtolength{\L@first}{-\ht\@tempboxa}%
132
```

Now, \L@first holds (the opposite of) the raw height of a standard dropped capital (like 'X'), excluding the effect of \L@oversize. This is the basis for \L@raise (and \L@oversize, see \LettrineFont).

```
\setlength{\L@lraise}{-\L@raise\L@first}%
133
        \addtolength{\L@first}{\L@lraise}%
134
135
        \verb|\addtolength{\L@first}{\ht\L@lbox}||
         \addtolength{\L@lraise}{-\theL@lines\@tempdima}%
136
137
         \addtolength{\L@lraise}{\@tempdima}%
      \fi
138
139
      \par
      \ifdim\L@first>0.2\p@\vskip\L@first\fi
140
```

Again, we (mis) use the length \L@first to compute the width of the text eventually coming before the dropped capital. It is reset later on to hold the first line's length.

```
\setlength{\L@Pindent}{\wd\L@lbox}%
141
     \addtolength{\L@Pindent}{-\L@hang\wd\L@lbox}%
142
     \settowidth{\L@first}{\L@ante}%
143
     \addtolength{\L@Pindent}{\L@first}%
144
     \addtolength{\L@Pindent}{\L@Findent}%
145
     \setlength{\L@first}{\linewidth}%
146
     \addtolength{\L@first}{-\L@Pindent}%
```

Now let's compute \L@Nindent and \L@next for the next lines.

```
\addtolength{\L@Nindent}{\L@Pindent}%
148
     \setlength{\L@next}{\linewidth}%
149
     \addtolength{\L@next}{-\L@Nindent}%
```

This is for quotation, quote, abstract... environments: \linewidth is set by these environments, all we have to do is to shift our text left by \rightmargin (amount of space locally added to \leftmargin in these environments).

```
\addtolength{\L@Pindent}{\rightmargin}%
                \addtolength{\L@Nindent}{\rightmargin}%
152
  Now, set up the shape of the new paragraph (designed by \parshape).
                \addtocounter{L@lines}{1}%
154
                \def\L@parshape{\c@L@lines \the\L@Pindent \the\L@first}%
155
                \@tempcnta=\tw@
                \@whilenum \@tempcnta<\c@L@lines\do{%
156
                         \label{logarshape logarshape the L@Nindent \\ the L@next} % $$ $$ \operatorname{Logarshape \ \ logarshape \ \ \ } $$
157
                         \addtolength{\L@Nindent}{\L@slope}%
158
                         \verb|\addtolength{\L@next}_{-\L@slope}|| %
159
                         \advance\@tempcnta\@ne}%
160
161
                \edef\L@parshape \rightmargin \the\linewidth}%
162
                \noindent
                \parshape=\L@parshape\relax
  Write the dropped capital into the left margin, and wrap the rest of paragraph
  around it.
                \label{lap{\mbox{\L@ante}\raisebox{\L@lraise}{\usebox{\L@lbox}}} % $$ \column{\mbox{\L@lbox}} % $$ \column{\mbox{\L@lbox}} % $$ \column{\mbox{\L@lbox}} % $$ \column{\mbox{\mbox}} % $$ \column{\mbox{\mbox}} % $$ \column{\mbox}} % $$ \colum
164
                                         \hskip \the\L@Findent}}%
165
                \usebox{\L@tbox}}
166
  This ends the definition of \lettrine.
  Load a local config file if present in LATEX's search path.
167 \InputIfFileExists{lettrine.cfg}
                   {\typeout{Loading lettrine.cfg}}
169
                   {\typeout{lettrine.cfg not found, using default values}}
```

### 3 Fichier de configuration

```
170 %% lettrine.cfg: configuration file for lettrine.sty
171 %%
172 %% If you want to customize lettrine, please *do not* hack into the
173 %% code, copy this file to the directory where lettrine.sty lies
174 %% and customize it as you like.
175 %%
176 \% Uncomment these lines and change the parameters' values to fit
177 %% your needs (see lettrine.dtx).
178 %%
179 %%\setcounter{DefaultLines}{2}
180 %%
181 %% These are *decimal* numbers:
182 %%\renewcommand{\DefaultLoversize}{0}
183 %%\renewcommand{\DefaultLraise}{0}
184 %%\renewcommand{\DefaultLhang}{0}
185 %%
186 %% These are *lengths* (don't forget the unit):
187 %%\setlength{\DefaultFindent}{Opt}
188 %%\setlength{\DefaultNindent}{0.5em}
189 %%\setlength{\DefaultSlope}{0mm}
191 %% This is a *flag* (value=true/false):
```

```
192 %%\LettrineImagefalse
193 %%
194 %% In case you want to set parameters for some letters
195 %% in file 'optfile.cfl'
196 %%\renewcommand{\DefaultOptionsFile}{optfile.cfl}
```

# Change History

lettrine-0.81	Schmidt. \rightmargin was
\lettrine: \DefaultLoversize	added too early to \L@Nindent,
added 6	thus making \L@next too short
lettrine-0.9	by \rightmargin 8
General: \LettrineFontEPS added. 6	lettrine-1.5
\lettrine: Calculations of length	General: \LettrineOptionsFor
\L@first changed. Do not	and \LettrineWidth added 6
'vskip' small lengths $(<0.2pt)$ ,	\lettrine: Added reading
they are just rounding errors 8	of an optional config file
\LettrineFont: \Lettrine@height	\DefaultOptionsFile 6
added 5	lettrine-1.6
\LettrineFontHook added 5	General: Add a flag to switch to im-
Size of the dropped capital	ages in eps or pdf format. Sug-
changed when 'lines' value is 1	gested by Bill Jetzer 1
(was \Huge) 5	Added newif \ifL@image 4
lettrine-1.1	Added newif \ifLettrineImage.
\lettrine: Add \rightmargin to	4
\L@Pindent for \Lettrine to	\lettrine: Add braces around
work properly in quote, quota-	#3 to allow commands
tion, abstract environments	,, -
but do not change \linewidth	taking an argument (such as \MakeLowercase) in
which is set by these environ-	,
ments 8	\LettrineTextFont. Suggest- ed by Philipp Lehman 8
lettrine-1.2	\LettrineFontEPS: Added
General: \newlength changed to	\LettrineFontHook to
\newdimen, to correct a bug	\LettrineFontEPS. This is
with seminar.cls (pointed out	needed for color options 6
by Peter Münster) 4	lettrine-1.63
\lettrine: \baselineskip may be	
a rubber length, we convert it	\LettrineFont: Added command \LettrineTestString which
to a dimen 8	
\LettrineFont: \baselineskip	defaults to 'ABCDEFGHI- JKLMNOQPRSTUVWXYZ'.
may be a rubber length, we	In previous versions height com-
convert it to a dimen 5	putations were based on letter
lettrine-1.3	'X' which might not exist in
General: Correct the documenta-	some (rare) fonts. Pointed out
tion to mention the cm-super	by Raphaël Pinson 5
fonts and the typelec package	lettrine-1.64
by Vladimir Volovich 3	
lettrine-1.4	\lettrine: Remove \$ around
\lettrine: \lettrine still didn't	\smash and add \relax. Bug pointed out by David Monni-
work properly in quote, quo-	
tation, abstract environments,	aux. Correction by Enrico Gre-
pointed out by Matthias C.	gorio 9