Typesetting 'lettrines' in \LaTeX 2_{ε} documents

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1 Introduction

The file lettrine.dtx¹, 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);
- depth=<integer> sets the number of lines to be reserved under the baseline, this is meant for dropped capital with positive depth, like Q (default=0);
- 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);

 $^{^1\}mathrm{The}$ file described in this section has version number v1.70 and was last revised on 2014/09/16.

- ante=< text> can be used to typeset < text> before the dropped capital (typical use is for French guillemets starting the paragraph).
- 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: \lettrine[lines=4, lraise=0.1, nindent=0em, slope=-.5em]% {V}{oici} un exemple ...

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.

Three dimensions, \LettrineWidth, \LettrineHeight and \LettrineDepth, store the final size of the lettrine.

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},
- \setcounter{DefaultDepth}{0},
- \renewcommand{\DefaultLoversize}{0},
- \renewcommand{\DefaultLraise}{0},
- \renewcommand{\DefaultLhang}{0},
- \LettrineImagefalse,
- \setlength{\DefaultFindent}{Opt},
- \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. 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 A) 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 LATEX's low-level font interface (see LATEX 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 grev.

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{type1ec} 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;

²This package, available on CTAN, was first released on 2002/07/30.

- \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 (starting a new paragraph just before or just after the list works too). Remember that 'quote', 'quotation', 'abstract' environments are implemented as *lists* in LATEX.

2 TeXnical details

This package only runs with LATEX 2_{ε} 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 \newcounter{DefaultDepth}
- $\label{lem:command*{\DefaultOptionsFile}{\relax}} \\$
- 7 \newcommand*{\DefaultLoversize}{0}
- 8 \newcommand*{\DefaultLraise}{0}
- 9 \newcommand*{\DefaultLhang}{0}
- 10 \newdimen\DefaultFindent
- 11 \setlength{\DefaultFindent}{\z0}
- 12 \newdimen\DefaultNindent
- 13 \setlength{\DefaultNindent}{0.5em}
- 14 \newdimen\DefaultSlope
- 15 \setlength{\DefaultSlope}{\z@}
- 16 \newif\ifLettrineImage

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

- 17 \newsavebox{\L@lbox}
- 18 \newsavebox{\L@tbox}
- 19 \newcounter{L@lines}
- $20 \ \texttt{\lowcounter}\{\texttt{L@depth}\}$
- 21 \newdimen\L@Pindent
- $22 \mbox{ }\mbox{\em L@Findent}$
- $23 \newdimen\L@Nindent$
- 24 \newdimen\L@lraise
- 25 \newdimen\L@first
- 26 \newdimen\L@next 27 \newdimen\L@slope
- 28 \newdimen\L@height
- 29 \newcommand*{\L@file}{}
- 30 \newcommand*{\L@hang}{}

```
31 \newcommand*{\L@oversize}{}
32 \newcommand*{\L@raise}{}
33 \newcommand*{\L@ante}{}
34 \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.

35 \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).

```
36 \ensuremath{\mbox{def}\mbox{\mbox{\mbox{$L$ettrine@height}{\%}}}
      \@tempdima=\baselineskip
37
      \setlength{\L@height}{\theL@lines\@tempdima}%
38
39
      \ifnum\theL@lines>1
        \addtolength{\L@height}{-\@tempdima}%
40
41
      \sbox{\L@tbox}{\LettrineTextFont x}%
42
43
      \addtolength{\L@height}{\ht\L@tbox}%
      \addtolength{\L@height}{\L@oversize\L@height}}
45 \newcommand*{\LettrineFontHook}{}
46 \verb|\newcommand*{\LettrineTestString}{ABCDEFGHIJKLMNOQPRSTUVWXYZ}|
47 \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 ≥ 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.

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

```
51 \@tempcntb=\ht\L@tbox
52 \@tempcnta=\L@height
53 \multiply\@tempcnta by 100
54 \divide\@tempcntb by 100
55 \divide\@tempcnta by \@tempcntb
56 \advance\@tempcnta by -9999
```

```
\ifnum\@tempcnta>0
57
       \def\@tempa{1.\the\@tempcnta}%
58
     \else
59
        \def\@tempa{1}%
60
61
     \LettrineFontHook
62
     \fontsize{\@tempa\L@height}{\@tempa\L@height}%
63
     \selectfont
64
65 }
```

66 \newcommand*{\LettrineFontEPS}{%

\Lettrine@height\LettrineFontHook

\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.

```
Set up keyval initializations.

69 \define@key{L}{lines}{\setcounter{L@lines}{#1}}

70 \define@key{L}{depth}{\setcounter{L@depth}{#1}}

71 \define@key{L}{lhang}{\renewcommand*{\L@nang}{#1}}

72 \define@key{L}{loversize}{\renewcommand*{\L@varsize}{#1}}

73 \define@key{L}{lraise}{\renewcommand*{\L@naise}{#1}}

74 \define@key{L}{ante}{\renewcommand*{\L@naise}{#1}}

75 \define@key{L}{findent}{\setlength{\L@nindent}{#1}}

76 \define@key{L}{slope}{\setlength{\L@Nindent}{#1}}

77 \define@key{L}{slope}{\setlength{\L@lope}{#1}}

78 \define@key{L}{image}[true]{\csname L@image#1\endcsname}
```

 \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'.

```
79 \newcommand*{\LettrineOptionsFor}[2]{\@namedef{1@#1-keys}{#2}}
80 \newdimen\LettrineWidth
81 \newdimen\LettrineHeight
82 \newdimen\LettrineDepth

\lettrine \textrine \lettrine.
83 \def\lettrine{\@ifnextchar[\@lettrine{\@lettrine[]}}
84 \def\@lettrine[#1]#2#3{%
```

First reset the parameters to their default values:

85 \setcounter{L@lines}{\theDefaultLines}%

```
86 \setcounter{L@depth}{\theDefaultDepth}%
87 \renewcommand*{\L@hang}{\DefaultLhang}%
88 \renewcommand*{\L@oversize}{\DefaultLoversize}%
89 \renewcommand*{\L@raise}{\DefaultLraise}%
90 \renewcommand*{\L@ante}{}%
91 \setlength{\L@Findent}{\DefaultFindent}%
92 \setlength{\L@Nindent}{\DefaultNindent}%
93 \setlength{\L@lope}{\DefaultSlope}%
94 \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 \l@LOKeys which will expand to the list of options given by \LettrineOptionsFor for the current lettrine (defined by #2)...

```
95 \if\DefaultOptionsFile\relax
96 \else
97 \begingroup
98 \InputIfFileExists{\DefaultOptionsFile}%
99 {}%
100 {\PackageWarning{lettrine.sty}%
101 {File \DefaultOptionsFile\space not found}%
102 }%
```

Gobble the colour commands, just keep the letter argument.

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

104 \let\l@color\@gobbletwo

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

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

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

```
107 \expandafter\ifx\csname 1@#2-keys\endcsname\relax
108 \gdef\l@LOKeys{}%
109 \else
110 \xdef\l@LOKeys{\csname 1@#2-keys\endcsname}%
111 \fi
112 \endgroup
```

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

```
113 \def\KV@prefix{KV@L@}%
114 \let\@tempc\relax
115 \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.

```
116 \sbox{\L@lbox}{\LettrineFont #2}%
117 \setlength{\LettrineWidth}{\wd\L@lbox}%
118 \def\KV@prefix{KV@L@}%
119 \let\@tempc\relax
120 \expandafter\KV@do\l@LOKeys,\relax,
121 \fi
```

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

```
122 \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.

```
123 \iftCoimage
124 \sbox{\L@lbox}{\LettrineFontEPS{#2}}%
125 \else
126 \sbox{\L@lbox}{\LettrineFont #2}%
127 \fi
128 \sbox{\L@tbox}{\LettrineTextFont{#3}}%
```

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 \@tempdima.

```
129
      \@tempdima=\baselineskip
130
      \ifnum\theL@lines=1
        \setlength{\L@first}{\ht\L@lbox}%
131
        \verb|\addtolength{\L@first}_{-\ht\L@tbox}||
132
        \left(L@lraise}{\z@}\%
133
      \else
134
        \setlength{\L@first}{-\theL@lines\@tempdima}%
135
        \addtolength{\L@first}{\@tempdima}%
136
137
        \sbox{\@tempboxa}{\LettrineTextFont x}%
        \verb|\addtolength{\L@first}_{-\ht\@tempboxa}||
138
```

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).

```
139 \setlength{\L@lraise}{-\L@raise\L@first}%
140 \addtolength{\L@first}{\L@lraise}%
141 \addtolength{\L@first}{\ht\L@lbox}%
142 \addtolength{\L@lraise}{-\theL@lines\@tempdima}%
143 \addtolength{\L@lraise}{\@tempdima}%
144 \fi
145 \par
146 \ifdim\L@first>0.2\p@\vskip\L@first\fi
```

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.

```
147 \setlength{\L@Pindent}{\wd\L@lbox}%
148 \addtolength{\L@Pindent}{-\L@hang\wd\L@lbox}%
149 \settowidth{\L@First}{\L@ante}%
150 \addtolength{\L@Pindent}{\L@First}%
151 \addtolength{\L@Pindent}{\L@Findent}%
152 \setlength{\L@first}{\linewidth}%
153 \addtolength{\L@first}{-\L@Pindent}%
```

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

```
154 \addtolength{\L@Nindent}{\L@Pindent}%
155 \setlength{\L@next}{\linewidth}%
156 \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).

```
157 \addtolength{\L@Pindent}{\rightmargin}%
158 \addtolength{\L@Nindent}{\rightmargin}%
159 \setlength{\LettrineWidth}{\wd\L@lbox}%
160 \setlength{\LettrineHeight}{\ht\L@lbox}%
161 \setlength{\LettrineDepth}{\dp\L@lbox}%
```

Now, set up the shape of the new paragraph (designed by \parshape).

```
\addtocounter{L@lines}{1}%
163
     \addtocounter{L@lines}{\the\c@L@depth}%
164
     \def\L@parshape{\c@L@lines \the\L@Pindent \the\L@first}%
     \@tempcnta=\tw@
    \@whilenum \@tempcnta<\c@L@lines\do{%
166
       \edef\L@parshape{\L@parshape \the\L@Nindent \the\L@next}%
167
       \addtolength{\L@Nindent}{\L@slope}%
168
       169
       \advance\@tempcnta\@ne}%
170
     \edef\L@parshape{\L@parshape \rightmargin \the\linewidth}%
171
     \noindent
172
     \parshape=\L@parshape\relax
```

Write the dropped capital into the left margin, and wrap the rest of paragraph around it.

```
174 \smash{\llap{\mbox{\L@nte}\raisebox{\L@lraise}{\usebox{\L@lbox}}%
175 \hskip \the\L@Findent}}%
176 \usebox{\L@tbox}%
177 }
```

This ends the definition of \lettrine.

Load a local config file if present in \LaTeX 's search path.

```
178 \InputIfFileExists{lettrine.cfg}
179 {\typeout{Loading lettrine.cfg}}
180 {\typeout{lettrine.cfg not found, using default values}}
```

3 Fichier de configuration

```
181 %% lettrine.cfg: configuration file for lettrine.sty
182 %%
183 %% If you want to customize lettrine, please *do not* hack into the
184 %% code, copy this file to the directory where lettrine.sty lies
185 %% and customize it as you like.
186 %%
```

```
187\,\mbox{\%}\mbox{\%} Uncomment these lines and change the parameters' values to fit
188 \% your needs (see lettrine.dtx).
189 %%
190 %%\setcounter{DefaultLines}{2}
191 %%
192 %% These are *decimal* numbers:
193 %%\renewcommand{\DefaultLoversize}{0}
194 %%\renewcommand{\DefaultLraise}{0}
195 %%\renewcommand{\DefaultLhang}{0}
196 %%
197 \% These are *lengths* (don't forget the unit):
198 %%\setlength{\DefaultFindent}{0pt}
199 %%\setlength{\DefaultNindent}{0.5em}
200 %%\setlength{\DefaultSlope}{0mm}
201 %%
202 %% This is a *flag* (value=true/false):
203 \%\LettrineImagefalse
204 %%
205\;\text{\%} In case you want to set parameters for some letters
206 \% in file 'optfile.cfl'
207 %%\renewcommand{\DefaultOptionsFile}{optfile.cfl}
```

Change History

lettrine-0.81	\lettrine: \baselineskip may be
\lettrine: \DefaultLoversize	a rubber length, we convert it
added 6	to a dimen 8
lettrine-0.9	\LettrineFont: \baselineskip
General: \LettrineFontEPS added. 6	may be a rubber length, we
\lettrine: Calculations of length	convert it to a dimen 5
\L@first changed. Do not	lettrine-1.3
'vskip' small lengths $(<0.2pt)$,	General: Correct the documenta-
they are just rounding errors 8	tion to mention the cm-super
\LettrineFont: \Lettrine@height	fonts and the typelec package
added 5	by Vladimir Volovich 3
\LettrineFontHook added 5	lettrine-1.4
Size of the dropped capital	\lettrine: \lettrine still didn't
changed when 'lines' value is 1	work properly in quote, quo-
(was \Huge) 5	tation, abstract environments,
lettrine-1.1	pointed out by Matthias C.
\lettrine: Add \rightmargin to	Schmidt. \rightmargin was
\L@Pindent for \Lettrine to	added too early to \L@Nindent,
work properly in quote, quota-	thus making \L@next too short
tion, abstract environments	by \rightmargin 9
but do not change \linewidth	lettrine-1.5
which is set by these environ-	General: \LettrineOptionsFor
ments 9	and \LettrineWidth added 6
lettrine-1.2	\lettrine: Added reading
General: \newlength changed to	of an optional config file
\newdimen, to correct a bug	\DefaultOptionsFile 7
with seminar.cls (pointed out	lettrine-1.6
by Peter Münster) 4	General: Add a flag to switch to im-

ages in eps or pdf format. Sug-	JKLMNOQPRSTUVWXYZ'.
gested by Bill Jetzer 2	In previous versions height com-
Added newif \ifL@image 4	putations were based on letter
Added newif \ifLettrineImage.	'X' which might not exist in
	some (rare) fonts. Pointed out
\lettrine: Add braces around	by Raphaël Pinson 5
#3 to allow commands	lettrine-1.64
taking an argument (such	\lettrine: Remove \$ around
as \MakeLowercase) in	\smash and add \relax. Bug
\LettrineTextFont. Suggested	pointed out by David Monni-
by Philipp Lehman 8	aux. Correction by Enrico Gre-
\LettrineFontEPS: Added	gorio
\LettrineFontHook to	lettrine-1.65
\LettrineFontEPS. This is	\lettrine: Measure and store the
needed for color options 6	lettrine's final dimensions 9
lettrine-1.63	lettrine-1.66
\LettrineFont: Added command	General: New counter to add lines
\LettrineTestString which	for dropped capitals with posi-
defaults to 'ABCDEFGHI-	tive depth, like Q 1