PACKAGE DELIMSEASY

COLIN C. GRAHAM

Abstract. Provides commands to give consistent, easy-to-remember, way to edit and control the size and blackness of delimiters: append 1-4 "b"s to command for larger sizes; prepend "B" for boldface; prepend "D" for the LaTeX default. These commands reduce the likelihood of incomplete delimeter pairs and typically use fewer characters than the LaTeX default.

ccgraham@alum.mit.edu

Version 2.0 – 2016 February 1

Contents

1. Installation and the basic delimiters

Put `delimseasy.sty` in a convenient folder and add `\usepackage{delimseasy}` to your preamble. If LaTeX can't find the `sty` file, move it to the folder of your `tex` file or add a `PATH` to the `\usepackage` parameter, so you have (for example) `\usepackage{C:/user/YOU/Documents/WHEREYOUPUTIT/delimseasy}`.

Here are the basic commands:

The command	typesets as	common name
`\prn{\#}`	`(#1)`	round parens
`\sqpr{\#}`	`[#1]`	square braces
`\crl{\#}`	`{#1}`	curly braces
`\ceil{\#}`	`\lceil #1\rceil`	ceiling
`\flr{\#}`	`\lfloor #1\rfloor`	floor
`\ngl{\#}`	`\langle #1\rangle`	langle/rangle
`\abs{\#}`	`\vert #1\vert`	absolute value
`\nrm{\#}`	`\Vert #1\Vert`	norm
`\stgt{\#}`	`< #1>`	lessthan greaterthan

1.1. **Adding "b"s to change the size; "D"s to use LaTeX default.** Add one to four "b"s to the end of a command; each "b" raises size by one step. Example: `\prnb{x^2-1}` gives $\big(x^2-1\big)$.

Save typing by prepending "D" to the start of a command to use the `\left...\right` default sizing provided by LaTeX. Example: `\Dprn{x^2-1}` gives $\big(x^2-1\big)$ while `\Dprn{x-1}` gives $(x-1)$.

1.2. **Adding "L" or "R" for one-sided delimiters.** Prepend upper or lowercase "L" or upper or lowercase "R" to the front of the command (after the backslash) for the single sided (**L**eft or **R**ight). These commands take no parameter. Example: `\Lprnb` gives $\big($.

There are no one-sided versions of the `\D...` commands.

1.3. **Prepending a "B" for boldface.** Prepend a capital "B" to the front of the command for boldface (poor man's bold); if the command is already a left or right, the "B" must preceed the "L" or "R". Needs a parameter if the non-bolded command does. Example: `\Blprnb` gives $\Big($.

This is not available for the `\D...` commands.

1.4. **Ampersands (&) not allowed inside paired delimeters.** Paired delimiters cause an error if the alignment ampersand & is used between them. There may be other formatting characters which break paired delimeters; please let me know if you encounter any.

Workarounds:

(1) Rewrite. If you don't like the looks of

$$\begin{aligned}\int \text{A very very very very long expression } &\le \text{ a shorter one}\\ &\le \text{ another short one}\\ &= \text{the final expression}\end{aligned}$$

perhaps you can break up the computations into smaller pieces so that you end with something like, " putting (3.12)-(3.36) together we see that

$$\int \text{A very very very very long expression } \le \text{the final expression."}$$

(2) Use one-sided versions.

(3) Use `\phantom`. For example,

```
&\int \text{A very very very very long  expression }
     \le \text{ a shorter one}\\
&\phantom{\int \text{A very }}\le\text{the final expression}
```

gives

$$\begin{aligned}\int \text{A very very very very long expression } &\le \text{ a shorter one}\\ &\le \text{the final expression}\end{aligned}$$

2. Examples

(1) Here are two versions of the same displays. The first pair uses `\left` `\right` (implemented through `\Dsqpr` and `\Dabs`); the second `\sqprbbb` and `\absbbb...`. I prefer the second pair for being using less vertical space and being more easily resizable than the first.

$$\left[\sum_n \frac{x_n}{y_n}\right]^{1/2} \quad \left|\int_a^b \left(\frac{x+1}{x^2+5}\right)^p dx\right|^{1/p}$$

$$\Big[\sum_n \frac{x_n}{y_n}\Big]^{1/2} \quad \Big|\int_a^b \Big(\frac{x+1}{x^2+5}\Big)^p dx\Big|^{1/p}$$

(2) Bold vs. default:

$$\Big(\frac{x}{x^2+1}\Big) \quad \big(\frac{x}{x^2+1}\big) \quad \Big\{\frac{x}{x^2+1}\Big\} \quad \big\{\frac{x}{x^2+1}\big\}$$

The `tex` source for this PDF contains more examples, commented out.

3. Further comments

3.1. **An alternate package, *delim*.** The package *delim* by Stefan Majewsky does things this one does and may be preferred by many LaTeX users.

3.2. **Bionomial coefficients and reversed delimiters.** Binomial coefficients often display with overly large parens. Versions under your control are supplied.

At one time one saw open intervals expressed as

$$)a,b(\quad \text{or} \quad]c,d[.$$

This package provides paired delimeters at the 5 sizes, with and without bold face, for those two situations.

The command	typesets as	common name	Sizes/BF version
`\bnom{#1}{#2}`	$\binom{\#1}{\#2}$	binomial coefficient	5/*yes*
`\bnomsq{#1}{#2}`	$\left[\begin{smallmatrix}\#1\\ \#2\end{smallmatrix}\right]$	binomial coefficient	5/*yes*
`\bnomcrl{#1}{#2}`	$\left\{\begin{smallmatrix}\#1\\ \#2\end{smallmatrix}\right\}$	binomial coefficient	5/*yes*
`\bnomngl{#1}{#2}`	$\left\langle\begin{smallmatrix}\#1\\ \#2\end{smallmatrix}\right\rangle$	binomial coefficient	5/*yes*
`\nrp{\#1}`	`)#1(`	reversed parens	5/*yes*
`\rpqs{\#1}`	`]#1[`	reversed square braces	5/*yes*

3.3. **More delimiters, including 2 for Valentine's Day.**

The command	typesets as	common name	Sizes/BF version
`\stgt{\#1}`	`< #1>`	lessthan greaterthan	5/*yes*
`\llgg{\#1}`	≪#1≫	muchless muchmore	5/*yes*
`\valentine{\#1}`	♡♡ ♡#1♡ ♡♡	surrounded by love	1/*no*
`\diamondsgbf{\#1}`	◇◇ ◇#1◇ ◇◇	buried in diamonds	1/*no*

To make your own delimiter pairs, just adapt the models in the `sty` file. Note that the `\B...` versions use `\pmb` (poor man's bold) throughout because `\boldsymbol` does not work for all delimiters, while `\pmb` does. Some "delimiters" may not have `\big`(ger) versions so you will have to improvise, as here for $\ll \cdots \gg$. The larger versions of $\ll \cdots \gg$ do not look great; they merely illustrate what can be naively achieved.

The two Valentine delimiters must be in Math mode. If your beloved's name has spaces, you will need to protect the space(s) by preceding each one with a `\backslash` since Math mode ignores unprotected spaces. The Valentines commands can be nested at least once:

Adjusting the space in the various pairs with \ 's may improve the look.

3.4. **Easy to remember sizers.** `delimseasy` includes versions of LaTeX's built-ins:

New	LaTeX built-in
	`\big`
`\bigb`	`\Big`
`\bigbb`	`\bigg`
`\bigbbb`	`\Bigg`

3.5. **Revision history.** 2016/02/01. Added capital "L" and capital "R" option for single sided. Removed manual's references to "l" and "r" versions though they remain implemented for backward compatibility.

Added "D" versions for those who prefer LaTeX's choice for sizing.

Added new delimiters: $\binom{p+q}{q}$, $\ll\ldots\gg$, $\heartsuit\ldots\heartsuit$ and $\diamondsuit\ldots\diamondsuit$.

Added this subsection and information about the new delimiters.

Many minor stylistic changes to manual.

PO Box 2031, Haines Junction YT Canada Y0B 1L0, ccgraham@alum.mit.edu