

# The **decorule** LaTeX2e package\*

Peter Flynn

Silmaril Consultants  
Textual Therapy Division  
([peter@silmaril.ie](mailto:peter@silmaril.ie))

June 13, 2011

## Summary

This package implements a decorative swelled rule using only a symbol from a font installed with all distributions of T<sub>E</sub>X, so it works independently, without the need to install any additional software or fonts.

This is the packaged version of the macro which was originally published in the ‘Typographers’ Inn’ column in TUGboat (Flynn 2010).

---

\*This document corresponds to decorule v0.22, dated 2011/06/13.

# Contents

<b>1</b>	<b>Swelled rules</b>	<b>3</b>
1.1	Other work . . . . .	3
1.2	This solution . . . . .	3
<b>2</b>	<b>License</b>	<b>4</b>
	<b>References</b>	<b>5</b>
<b>3</b>	<b>Implementation</b>	<b>6</b>
3.1	Preliminary declarations . . . . .	6
3.2	The main macro . . . . .	7

# 1 Swelled rules

Swelled rules were a popular device in 19th century typesetting, and were usually done as special sorts from a typefounder, or in some cases fabricated from combinations of decorative brass rule cut to calculated lengths.

In digital systems, they can be implemented as images or as glyphs in fonts, but are not usually extensible except by distortion. This example is constructed programmatically so that it could be adapted to the width it is required for (that feature is not implemented in this version and is left as an exercise to the user).

## 1.1 Other work

As discussed in the original article (Flynn 2010) there is an `swrule` package by Tobias Dussa (Dussa 2001) which builds a geometric lozenge from very fine lines, and there is a paper by Steve Peter (Peter 2005) which describes a more extensible method using METAPOST for ConT<sub>E</sub>Xt.

## 1.2 This solution

However, it is also possible to produce one using just a character from a font, combined with some looping in a macro with careful positioning and kerning. This example was constructed from the swung dash (`\sim`) character in math mode, rotated and scaled to fit in an ascending and then descending series.

The example is available at <http://latex.silmaril.ie/packages/decorule>, and any suggestions for improving and extending it are welcome. When this packaging is complete, it will be resubmitted to CTAN.



## 2 License

This is free software under the terms of the L<sup>A</sup>T<sub>E</sub>X Project Public License (LPPL).

This software is copyright but you are granted a license which gives you, the ‘user’ of the software, legal permission to copy, distribute, and/or modify the software.

However, if you modify the software and then distribute it (even just locally) you *must* change the name of the software, or use other technical means to avoid confusion.

Details of the license version, date, and maintainer are in the headers of the `.dtx` and `.ins` files in this package.

For full details of the LPPL, please see <http://www.latex-project.org/lppl/>.

## References

- Dussa, T. (2001, Oct). swrule.sty. CTAN: T<sub>E</sub>X Users Group.
- Flynn, P. (2010). Typographers' Inn: Where have all the flowers gone? *TUGboat* 31(1), 21–22.
- Peter, S. (2005). Swelled rules and METAPOST. *TUGboat* 26(3), 193–195.

### 3 Implementation

`\decorule` The package consists of a single main macro `\decorule`, which cycles through sizes of the symbol from minimum to maximum, rotating and scaling according to values preset here; and then from the maximum back down to the minimum.

#### 3.1 Preliminary declarations

`\sym@min` Define a counter and a minimum point size to start and end with. This value is an integer, hence a counter is used.

```
1 \newcounter{sym@min}
2 \setcounter{sym@min}{1}
```

`\sym@max` Do the same for the maximum point size that the rule will get to in the middle.

```
3 \newcounter{sym@max}
4 \setcounter{sym@max}{20}
```

`\sym@step` Set the step size or the increments of the glyph in whole points.

```
5 \newcounter{sym@step}
6 \setcounter{sym@step}{1}
```

`\sym@rotate` Specify the amount in (whole) degrees by which we will need to rotate the symbol to make eah glyph mesh with the previous one.

```
7 \newcounter{sym@rotate}
8 \setcounter{sym@rotate}{45}
```

`\sym@size` Define a counter to hold the current (calculated) size as we loop through the sizes.

```
9 \newcounter{sym@size}
```

`\sym@raise` Define a length to hold the amount calculated at each step to raise/lower each glyph by (because we rotate them as we go).

```
10 \newlength{\sym@raise}
```

`\sym@skip` Define another length to hold the amount calculated to backspace between successive glyphs to make sure they touch.

```
11 \newlength{\sym@skip}
```

`\sym@symbol` Lastly, define the font character to use as the glyph. For the swelled rule we use the swung dash.

```
12 \newcommand{\sym@symbol}{\$ \sim$}
```

## 3.2 The main macro

`\decorule` Now we can define the macro that does the actual work.

```
13 \newcommand{\decorule}{%
```

Start by setting the initial size to the minimum size declared above:

```
14 \setcounter{sym@size}{\c@sym@min}
```

Go through the steps up to, but not including, the maximum size:

```
15 \loop
```

Raise each glyph above the baseline by half the point size that we will use:

```
16 \setlength{\sym@raise}{\c@sym@size pt}%
```

```
17 \divide\sym@raise by2
```

Raise, rotate, and (in this case of `\sim`) reflect the glyph in a `\hbox` of its own point size, using `\hss` to prevent TeX squawking:

```
18 \raisebox{-\sym@raise}{%
```

```
19 \fontsize{\c@sym@size}{0}\selectfont
```

```
20 \rotatebox{\c@sym@rotate}{\reflectbox{\hbox
```

```
21 to\c@sym@size pt{\hss\sym@symbol\hss}}}%
```

Calculate the amount to backspace as  $\frac{2}{3}$  of the current size:

```
22 \setlength{\sym@skip}{\c@sym@size pt}%
```

```
23 \divide\sym@skip by3
```

```
24 \multiply\sym@skip by2
```

```
25 \kern-\sym@skip
```

Increment the counter and repeat:

```
26 \addtocounter{sym@size}{\c@sym@step}%
```

```
27 \ifnum\c@sym@size<\c@sym@max
```

```
28 \repeat
```

Now do the same for the sole occurrence of the maximum size:

```

29 \setlength{\sym@raise}{\c@sym@max pt}%
30 \divide\sym@raise by2
31 \raisebox{-\sym@raise}{%
32   \fontsize{\c@sym@max}{0}\selectfont
33   \rotatebox{\c@sym@rotate}{\reflectbox{\hbox
34     to\c@sym@max pt{\hss\sym@symbol\hss}}}}}%

```

Start back down following the exact same pattern in reverse, using the current size (one step less than the maximum just used). The value has been left undisturbed from the last loop of the outward journey. This time, however, do the kerning *before* the glyph.

```

35 \loop
36   \setlength{\sym@skip}{\c@sym@size pt}%
37   \divide\sym@skip by3
38   \multiply\sym@skip by2
39   \kern-\sym@skip
40   \setlength{\sym@raise}{\c@sym@size pt}%
41   \divide\sym@raise by2
42   \raisebox{-\sym@raise}{%
43     \fontsize{\c@sym@size}{0}\selectfont
44     \rotatebox{\c@sym@rotate}{\reflectbox{\hbox
45       to\c@sym@size pt{\hss\sym@symbol\hss}}}}}%
46   \addtocounter{sym@size}{-\c@sym@step}%
47   \ifnum\c@sym@size>\c@sym@min
48   \repeat

```

Finally, do the minimum size:

```

49 \setlength{\sym@skip}{\c@sym@min pt}%
50 \divide\sym@skip by3
51 \multiply\sym@skip by2
52 \kern-\sym@skip
53 \setlength{\sym@raise}{\c@sym@min pt}%
54 \divide\sym@raise by2
55 \raisebox{-\sym@raise}{%
56   \fontsize{\c@sym@min}{0}\selectfont
57   \rotatebox{\c@sym@rotate}{\reflectbox{\hbox
58     to\c@sym@min pt{\hss\sym@symbol\hss}}}}}%
59 }

```

## Change History

v0.11		tation; 2) Generated .dtx.	1
General: Written for TUG-		\decorule: Rearranged spac-	
boat: Developed by hand.	1	ing to suit the .dtx layout	7
v0.20		v0.22	
General: Updated to package		General: Bugs fixed on first	
format: Wrote .dtx file by		release: 1) Added miss-	
hand. ....	1	ing packages (graphicx and	
v0.21		fix-cm); 2) Removed bo-	
General: Revised for .dtx		gus change record from .sty	
file: 1) Rewrote documen-		file. ....	1

# Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in *roman* refer to the code lines where the entry is used.

<b>A</b>	<b>F</b>	<b>\rotatebox</b> . . . .
<b>\addtocounter</b> 26, 46	<b>\fontsize</b> . . . . .	. . 20, 33, 44, 57
<b>C</b>	. . 19, 32, 43, 56	
<b>\c@sym@max</b> . . . .	<b>M</b>	<b>S</b>
. . 27, 29, 32, 34	<b>\multiply</b> 24, 38, 51	<b>\sim</b> . . . . . 12
<b>\c@sym@min</b> . . 14,		<b>\sym@max</b> . . . . . <u>3</u>
47, 49, 53, 56, 58	<b>N</b>	<b>\sym@min</b> . . . . . <u>1</u>
<b>\c@sym@rotate</b> . .	<b>\newcommand</b> . 12, 13	<b>\sym@raise</b> . . <u>10</u> ,
. . 20, 33, 44, 57	<b>\newcounter</b> . . .	16–18, 29–
<b>\c@sym@size</b> . 16,	. . . 1, 3, 5, 7, 9	31, 40–42, 53–55
19, 21, 22, 27,	<b>\newlength</b> . . 10, 11	<b>\sym@rotate</b> . . . . <u>7</u>
36, 40, 43, 45, 47		<b>\sym@size</b> . . . . . <u>9</u>
<b>\c@sym@step</b> . 26, 46	<b>R</b>	<b>\sym@skip</b> <u>11</u> , 22–
<b>D</b>	<b>\raisebox</b> . . . . .	25, 36–39, 49–52
<b>\decorule</b> . . . 6, <u>13</u>	. . 18, 31, 42, 55	<b>\sym@step</b> . . . . . <u>5</u>
<b>\divide</b> . . 17, 23,	<b>\reflectbox</b> . . .	<b>\sym@symbol</b> . . .
30, 37, 41, 50, 54	. . 20, 33, 44, 57	<u>12</u> , 21, 34, 45, 58