

The abracas Package

Arbitrary or asymmetric braces

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1 Introduction

The abracas¹ package provides a key-driven interface to supplant new constructions of the traditional `\overbrace` and `\underbrace` pairs.

2 User interface

abracas defines two counterparts to the existing braces:

`\aoverbrace`[*spec*]{*stuff*}

`\aunderbrace`[*spec*]{*stuff*}

These create an overbrace and underbrace where *spec* define a construction pattern based on the elements in Table 1.

The provided interface is based on a ratio-principle, allowing one to put a larger share of “filler” (the horizontal rule) at any location within the brace construction. The traditional `\overbrace` and `\underbrace` pairs have a 1:1 share between the left and right side (either side of the tip/cusp of the brace). Using a 1:2 ratio would place the brace cusp one third (from the left) into the brace. Similarly a 3:2 ratio would place the cusp 40% (or two fifths) from the right edge of the brace.

Other, more complex construction – by means of the optional *spec* argument – can also be made by mixing the elements presented in Table 1.

¹The abracas package: <http://ctan.org/pkg/abracas>

$\langle spec \rangle$ character	Output
l	⏟
L	⏞
r	⏟
R	⏞
U	⏟
D	⏞
0	(single) Empty fill
1,...,9	Copies of regular fill —
@{ $\langle stuff \rangle$ }	Places $\langle stuff \rangle$ into brace
!{ $\langle len \rangle$ }	Regular fill of length $\langle len \rangle$

Table 1: Character specifications $\langle spec \rangle$ used to construct braces.

3 Examples

Some examples of the types of braces that can be constructed using abracas:

```
\newcommand{\foxanddog}{%
  \textrm{The quick brown fox jumped over the lazy dog}}
```

- `\aoverbrace{\foxanddog}` (traditional `\overbrace`):

- `\aunderbrace{\foxanddog}` (traditional `\underbrace`):






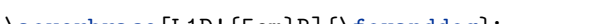
- `\aoverbrace[L3U1R]{\foxanddog}`:

- `\aoverbrace[l1D1r]{\foxanddog}`:

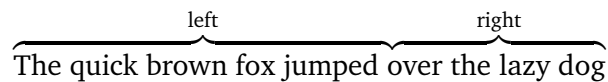
- `\aunderbrace[l2D7r]{\foxanddog}`:

- `\aunderbrace[l1D2U2D1r]{\foxanddog}`:

- `\aoverbrace[L1R]{\foxanddog}`:


- `\aunderbrace[L1U3R]{\foxanddog}`:

- `\aunderbrace[L6R0l3D3r0L6r]{\foxanddog}`:

- `\aoverbrace[L50l010105U50l010105R]{\foxanddog}`:

- `\aunderbrace[l1@{\hspace{5em}}2D2@{\hspace{3em}}1r]{\foxanddog}`:

- `\aunderbrace[l1R@{\color{red!80!white}}L1r]{\foxanddog}`:

- `\aoverbrace[L1D!{5em}R]{\foxanddog}`:


Your next question might be how to add context to the brace cusps. Here's a possible way to insert text at the appropriate ratio, using the above construction techniques:



```
\newcommand{\bracetext}[1]{%
  \makebox[0pt][c]{\scriptsize#1}}%
\[
  \overbrace[L2U2D1U1R]{\foxanddog}~{%
    \bracescript{L2r@{\bracetext{left}}l2D1r@{\bracetext{right}}l1R}%
  }%
\]
```

4 Terms of reference

This package originated from a question on the TeX StackExchange network called [Asymmetric overbrace](#). Some code was taken from the `mathtools`² package.

²The `mathtools` package: <http://ctan.org/pkg/mathtools>