

The arcs2 package

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Abstract

`arcs2` places a shallow circular-looking arc over or under a short piece of text or mathematics. It is an independent original implementation. It is not a derivative of the historical CTAN package `arcs` and does not ship or modify `arcs.sty`. The command names requested for this package are provided so that existing notes that mention `\overarc` and `\underarc` remain easy to follow.

Contents

1	Licence	1
2	Installation	2
3	User commands	2
4	Examples	3
4.1	Default optional argument (two letters)	3
4.2	Optional argument on	3
4.3	Wide variants	3
4.4	Text and math together	3
4.5	Color	3
4.6	Bold	3
5	Notes and limitations	4
6	Version	4

1 Licence

This work is distributed under the L^AT_EX Project Public License, version 1.3c or any later version (LPPL 1.3c+). The latest text of the licence is at <https://www.latex-project.org/lppl.txt>.

The Current Maintainer is John Souther.

2 Installation

Place `arcs2.sty` on the L^AT_EX search path, for example in the same directory as your document, or in `texmf-local/tex/latex/arcs2/` followed by a filename-database refresh (`mktexlsr` or the equivalent in your T_EX distribution).

Then load the package in the preamble:

```
\usepackage{arcs2}
```

No package options are defined. The implementation uses only the L^AT_EX kernel (the `picture` environment and `\qbezier`).

3 User commands

All four commands take the same arguments and may be used in text mode or in math mode. They produce an `\hbox`, so they also work as ordinary atoms in a formula.

<code>\overarc[n]{arg}</code>	arc above <i>arg</i>
<code>\underarc[n]{arg}</code>	arc below <i>arg</i>
<code>\wideoverarc[n]{arg}</code>	same as <code>\overarc</code> , span $1.5\times$
<code>\wideunderarc[n]{arg}</code>	same as <code>\underarc</code> , span $1.5\times$

The optional argument *n* is a positive integer, the intended *number of letters* the arc should cover. If *n* is omitted, the package uses $n = 2$. The span is *n* times the width of the letter `x` in the current font, centred on *arg*. It does *not* scale to the full width of *arg*.

More generally the standard span is

$$\text{span} = \frac{n}{2} \times \text{width}(arg).$$

The wide commands multiply that span by 1.5. The rise of the stroke is about 4pt in every case.

If you need a bolder letter, wrap the argument (or the whole command) in `\textbf` or `\mathbf`. The stroke is drawn slightly thicker when the current text series is bold or when the current math version is bold.

Color comes from the standard `color` package, which `arcs2` loads for you. Wrap the command (or a block) in `\textcolor` or `\color`; both the letters and the stroke follow the current color. You do not need to load `xcolor` yourself, though it is compatible if you already use it.

4 Examples

4.1 Default optional argument (two letters)

Text: $\widehat{AB}$ and $\underline{CD}$.

Math: $\widehat{AB} + \underline{CD} = 0$.

4.2 Optional argument on

Three-letter span: $\widehat{ABC}$ and $\underline{xyz}$.

One-letter span (tighter): $\widehat{A}B$.

Four-letter span (looser): $\widehat{AB}$.

4.3 Wide variants

Standard versus wide, same two-letter default:

$\widehat{AB}$ $\widehat{AB}$
 $\underline{PQ}$ $\underline{PQ}$

And in math: $\widehat{XY} \neq \widehat{XY}$.

Wide with an explicit letter count: $\widehat{ABC}$, $\underline{WXYZ}$.

4.4 Text and math together

In running text an arc may mark a segment such as $\widehat{mn}$ or sit under a gloss ie. The same commands in a display

$$\widehat{AC} \parallel \underline{BD}, \quad \widehat{ABC} \supset \widehat{AB}.$$

4.5 Color

Red letters and a red stroke: $\widehat{ABCD}$ $\widehat{ABCD}$.

Blue under-arc: $\underline{xyz}$.

Math: $\widehat{AB}$.

4.6 Bold

Text bold: $\widehat{AB}$ $\underline{CD}$ $\widehat{EF}$ $\underline{GH}$.

Argument bold only: $\widehat{AB}$.

Math bold letters: $\widehat{AB} + \underline{xy}$.

Bold math version: $\widehat{UV}$ $\underline{WZ}$.

5 Notes and limitations

- The stroke is a quadratic Bézier that peaks 4pt from the chord. It is not a Computer Modern math accent and does not load extra fonts.
- Very long arguments remain one box; pass a larger n if you want a wider bow, or use a wide command.
- Nested use inside another box is supported; page breaks cannot occur inside an arc command.
- This package does not change or require the CTAN package `arcs`. If both are loaded, whichever is loaded last wins for `\overarc` and `\underarc`.

6 Version

1.0.3 (2026-08-24). Color: the package loads `color` so `\textcolor` works, and the stroke follows the current color. 1.0.2 (2026-08-23) was the first public release.