

## Contents

<b>1</b>	<b>Format specifications</b>	<b>2</b>
<b>2</b>	<b>Formatting various data-types</b>	<b>3</b>
<b>3</b>	<b>Possibilities, and things to do</b>	<b>3</b>
	<b>Index</b>	<b>3</b>

# The `l3str-format` package: formatting strings of characters\*

The L<sup>A</sup>T<sub>E</sub>X3 Project<sup>†</sup>

Released 2014/05/06

## 1 Format specifications

In this module, we introduce the notion of a string  $\langle format \rangle$ . The syntax follows that of Python's `format` built-in function. A  $\langle format specification \rangle$  is a string of the form

$$\langle format specification \rangle = [[\langle fill \rangle]\langle alignment \rangle][\langle sign \rangle][\langle width \rangle][.\langle precision \rangle][\langle style \rangle]$$

where each [...] denotes an independent optional part.

- $\langle fill \rangle$  can be any character: it is assumed to be present whenever the second character of the  $\langle format specification \rangle$  is a valid  $\langle alignment \rangle$  character.
- $\langle alignment \rangle$  can be < (left alignment), > (right alignment), ^ (centering), or = (for numeric types only).
- $\langle sign \rangle$  is allowed for numeric types; it can be + (show a sign for positive and negative numbers), - (only put a sign for negative numbers), or a space (show a space or a -).
- $\langle width \rangle$  is the minimum number of characters of the result: if the result is naturally shorter than this  $\langle width \rangle$ , then it is padded with copies of the character  $\langle fill \rangle$ , with a position depending on the choice of  $\langle alignment \rangle$ . If the result is naturally longer, it is not truncated.
- $\langle precision \rangle$ , whose presence is indicated by a period, can have different meanings depending on the type.
- $\langle style \rangle$  is one character, which controls how the given data should be formatted. The list of allowed  $\langle styles \rangle$  depends on the type.

The choice of  $\langle alignment \rangle$  = is only valid for numeric types: in this case the padding is inserted between the sign and the rest of the number.

---

\*This file describes v4745, last revised 2014/05/06.

<sup>†</sup>E-mail: [latex-team@latex-project.org](mailto:latex-team@latex-project.org)

## 2 Formatting various data-types

<hr/> <code>\tl_format:Nn</code> ★	<code>\tl_format:nn {&lt;token list&gt;} {&lt;format specification&gt;}</code>
<code>\tl_format:(cn nn)</code> ★	Converts the <i>&lt;token list&gt;</i> to a string according to the <i>&lt;format specification&gt;</i> . The <i>&lt;style&gt;</i> , if present, must be <b>s</b> . If <i>&lt;precision&gt;</i> is given, all characters of the string representation of the <i>&lt;token list&gt;</i> beyond the first <i>&lt;precision&gt;</i> characters are discarded.
<hr/> <code>\seq_format:Nn</code> ★	<code>\seq_format:Nn {&lt;sequence&gt;} {&lt;format specification&gt;}</code>
<code>\seq_format:cn</code> ★	Converts each item in the <i>&lt;sequence&gt;</i> to a string according to the <i>&lt;format specification&gt;</i> , and concatenates the results.
<hr/> <code>\int_format:nn</code> ★	<code>\int_format:nn {&lt;intexpr&gt;} {&lt;format specification&gt;}</code>
	Evaluates the <i>&lt;integer expression&gt;</i> and converts the result to a string according to the <i>&lt;format specification&gt;</i> . The <i>&lt;precision&gt;</i> argument is not allowed. The <i>&lt;style&gt;</i> can be <b>b</b> for binary output, <b>d</b> for decimal output (this is the default), <b>o</b> for octal output, <b>X</b> for hexadecimal output (using capital letters).
<hr/> <code>\fp_format:nn</code> ★	<code>\fp_format:nn {&lt;fpexpr&gt;} {&lt;format specification&gt;}</code>
	Evaluates the <i>&lt;floating point expression&gt;</i> and converts the result to a string according to the <i>&lt;format specification&gt;</i> . The <i>&lt;precision&gt;</i> defaults to 6. The <i>&lt;style&gt;</i> can be <ul style="list-style-type: none"> <li>• <b>e</b> for scientific notation, with one digit before and <i>&lt;precision&gt;</i> digits after the decimal separator, and an integer exponent, following <b>e</b>;</li> <li>• <b>f</b> for a fixed point notation, with <i>&lt;precision&gt;</i> digits after the decimal separator and no exponent;</li> <li>• <b>g</b> for a general format, which uses style <b>f</b> for numbers in the range <math>[10^{-4}, 10^{&lt;precision&gt;})</math> and style <b>e</b> otherwise.</li> </ul>

## 3 Possibilities, and things to do

- Provide a token list formatting *<style>* which keeps the last *<precision>* characters rather than the first *<precision>*.

# Index

The italic numbers denote the pages where the corresponding entry is described, numbers underlined point to the definition, all others indicate the places where it is used.

### F

`\fp_format:nn` ..... 3

	I		T
<code>\int_format:nn</code>	.....	<i>3</i>	<code>\tl_format:Nn</code> ..... <i>3</i>
	S		
<code>\seq_format:Nn</code>	.....	<i>3</i>	