The genellipsis package

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Abstract

This package addresses the need to regularly type ellipses. The default configuration produces ellipses such as $1, 2, \ldots, n$, including `\linebreak`s after each comma and is as simple to use as `\lip{1, 2; n}`. An useful feature is that `\lip` takes an optional command to customize each value in the ellipsis.

1 Introduction

Documents about mathematics often make use of set extensions such as $\{1, 2, \ldots, n\}$, or maybe $\{\mathbf{h}(A_1^2), \mathbf{h}(A_2^2), \ldots, \mathbf{h}(A_n^2)\}$. To produce such sets the following commands are typically used:

```
$\{1, 2, \dots, n\}$
```

This formulation suffers from the drawback that it is unbreakable, resulting in frequent Overful `\hbox`es problems. One way to circumvent this is to add `\allowbreak` commands after each comma, which is not really practical.

The `\lip` command is mainly a convenience command that eases typesetting such lists of values separated by some token (a comma by default). As its name suggests, it also comes with higher order separators which are dots by default. More interrestingly, it also allows to apply a macro to each element. Hence the second example given above was produced using:

```
$\{\lip |\mathbf{h}(A_\v^2)| {1, 2; n}$
```

Note that the command makes use of some argument ; and that it is not possible to nest calls to the `\lip` command. A last common use of the `\lip` command is to produce a list of names with a particular style:

```
$\lip |\mystyle{\v}| {List, Of, Names}$
```

2 The \lip command

In its simplest form, \lip takes a list of semicolon-separated lists of comma-separated values. Basically this just means that semicolons are replaced with dots.

`$\lip {1, 2; n}$`	$1, 2, \ldots, n$

`$\lip {a, b; g, h; z}$`	$a, b, \ldots, g, h, \ldots, z$

One may use the \lip command in text mode.

`\lip {A, B, C}`	A,B,C

It is also possible to provide a command that will transform each of the values. The command has to be given just before the values forming the ellipsis, between two vertical bars. This command should use the \v as the value being stylized. Note that \v is an alias for \#\#1, but the latter should not be used as the interface may evolve and not accept this form anymore.

`$\lip \|A_\v \| {1, 2; n}$`	$A_1, A_2, \ldots, A_n$

`$\lip \|X\| {1, 2, 3}$`	X, X, X

3 The options

The following options may be set globally using the \lipsetdefault command, or locally within the \lip command, as shown in the examples.

3.1 allowbreak (= true)

You can disable this feature using \lipsetdefaultallowbreak=false and then use \lip[allowbreak] when you want ellipses to be breakable.

`$\lip [allowbreak=false] \|longlongthing\| {1, 2, 3, 4, 5}$`	$longlongthing, longlongthing, longlongthing, longlongthing$

`$\lip [allowbreak] \|longlongthing\| {1, 2, 3, 4, 5}$`	$longlongthing, longlongthing, longlongthing, longlongthing, longlongthing$

3.2 sep (= ,)

Sets the separator between values.

`$\lip [sep=\cup ] {A, B; K}$`	$A \cup B \cup \ldots \cup K$

3.3 lip (= ...)

Sets the ellipsis command(s).

`$\lip [lip=\cdots ] {a, b; c, d}$`	$a, b, \cdots, c, d$

3.4 startlip and endlip (= false)

Makes the sequence start or/and end with an ellipsis.

`$\lip [startlip] {n, n+1}$`	$\ldots, n, n+1$

`$\lip [endlip] {1, 2}$`	$1, 2, \ldots$

`$\lip [startlip, endlip, lip=\cdots ] {m, m+1; n-1, n, n+1}$`	$\cdots, m, m+1, \cdots, n-1, n, n+1, \cdots$