The l3flag package: expandable flags[*]

The LaTeX3 Project[†]

Released 2014/09/15

Flags are the only data-type on which TeX can perform assignments in expansion-only contexts. This module is meant mostly for kernel use: in almost all cases, booleans or integers should be preferred to flags, because they are faster.

A flag can hold any non-negative value, which we call its ⟨*height*⟩. In expansion-only contexts, a flag can only be "raised": this normally increases the ⟨*height*⟩ by 1, but can be configured by defining specific traps. The ⟨*height*⟩ can also be queried expandably. However, decreasing it, or setting it to zero requires non-expandable assignments.

Flag variables are always local. They are referenced by a ⟨*name*⟩ of the form ⟨*package*⟩_⟨*flag name*⟩, for instance, `str_missing`.

1 Setting up flags

\flag_new:n

`\flag_new:n {`⟨*flag name*⟩`}`

Creates a new ⟨*flag*⟩ with a name given by ⟨*flag name*⟩, or raises an error if the name is already taken. The ⟨*flag name*⟩ must consist of character tokens only. The declaration is global, but flags are always local variables. The ⟨*flag*⟩ will initially have zero height.

\flag_clear:n

`\flag_clear:n {`⟨*flag name*⟩`}`

The ⟨*flag*⟩'s height is set to zero. The assignment is local.

\flag_clear_new:n

`\flag_clear_new:n {`⟨*flag name*⟩`}`

Ensures that the ⟨*flag*⟩ exists globally by applying `\flag_new:n` if necessary, then applies `\flag_zero:n`, setting the height to zero locally.

\flag_set_trap:nn

`\flag_set_trap:nn {`⟨*flag name*⟩`} {`⟨*inline function*⟩`}`

Changes the action that is taken when the ⟨*flag*⟩ is raised using `\flag_raise:n`. Instead of the default action which is to increase the ⟨*flag*⟩'s height by 1, the ⟨*inline function*⟩ will be called, receiving the current flag's height as `#1`. The ⟨*inline function*⟩ should expand to nothing; *e.g.*, it could call `\msg_expandable_error:n`. This function is very experimental.

---

[*]This file describes v5423, last revised 2014/09/15.

[†]E-mail: latex-team@latex-project.org

2   Expandable flag commands

`\flag_if_exist_p:n` ⋆
`\flag_if_exist:nTF` ⋆

`\flag_if_exist:n {⟨flag name⟩}`

This function returns `true` if the ⟨*flag name*⟩ references a flag that has been defined previously, and `false` otherwise.

`\flag_if_raised_p:n` ⋆
`\flag_if_raised:nTF` ⋆

`\flag_if_raised:n {⟨flag name⟩}`

This function returns `true` if the ⟨*flag*⟩ has non-zero height, and `false` if the ⟨*flag*⟩ has zero height.

`\flag_height:n` ⋆

`\flag_height:n {⟨flag name⟩}`

Expands to the height of the ⟨*flag*⟩ as an integer denotation.

`\flag_raise:n` ⋆

`\flag_raise:n {⟨flag name⟩}`

The ⟨*flag*⟩'s trap is performed, taking the current height as its argument. The default behaviour is to increase the ⟨*flag*⟩'s height by 1 locally. This function is expandable, as long as the trap is expandable (the default trap is expandable, despite being an assignment).

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.