l3erw-numbrdcs*

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Abstract

LaTeX3 package to make numbered control sequences from other control sequences or inline.

1 Usage

1.1 Front end

`\newnumbrdcs`
`\newnumbrdcs*`

`\newnumbrdcs{`⟨*list of cs or code*⟩`}`

Creates numbered control sequences. The starred version does not reset. See Listing 2

`\numbrdcs`

`\numbrdcs{`⟨*int*⟩`}{`⟨*arg*⟩`}`

Evaluates control sequence numbered ⟨*int*⟩ with argument ⟨*arg*⟩. See Listing 2

Listing 1 Initialization

```
\NewDocumentCommand{\myfoo}{m}{f(#1)}
\NewDocumentCommand{\mybar}{m}{g(#1)}
\NewDocumentCommand{\mybaz}{m}{h(#1)}
```

Listing 2

```
\newnumbrdcs{{\myfoo}{g[#1]}{\mybaz}}
\numbrdcs{1}{X}                          f(X)
\numbrdcs{2}{X}                          g[X]
\numbrdcs{3}{X}                          h(X)
\newnumbrdcs*{{\myfoo}{g[#1]}{\mybaz}}
\numbrdcs{4}{X}                          f(X)
\numbrdcs{5}{X}                          g[X]
\numbrdcs{6}{X}                          h(X)
```

*This file describes version v0.1, last revised 2018/05/20.

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1.2 Backend

`\erw_numbrd_cs_reset:` `\erw_numbrd_cs_reset:{}`

See Listing 3

`\erw_numbrd_cs_new:n` `\erw_numbrd_cs_new:n {⟨cs or code⟩}`

Use it as the first arg to `\tl_function_map:Nn`

`\erw_numbrd_cs:nn` `\erw_numbrd_cs:nn {⟨cs or code⟩}`

`\erw_numbrd_cs_names_braced:nnn` `\erw_numbrd_cs_names_braced:nnn{⟨first⟩}{⟨step⟩}{⟨last⟩}`

See Listing 3

Listing 3

```
\ExplSyntaxOn
\exp_last_unbraced:Nx
  \erw_compose_c:nn
  {
    {\erw_numbrd_cs_names
         _braced:nnn{1}{1}{3}}
    {X}
  }
\ExplSyntaxOff
```

h(g[f(X)])

Requires l3erw-compose to be loaded

2 History

The idea to create numbered cs arose while developing l3erw-compose and stumbling upon a problem discussed in [2]

3 Implementation

```
\NeedsTeXFormat{LaTeX2e}
\RequirePackage{expl3}[2018/02/21]
\RequirePackage{xparse}[2018/02/21]
\RequirePackage{l3erw-csutil}[2018/05/20]
\ExplSyntaxOn
\NewDocumentCommand{\newnumbrdcs}{ s m }
{
\IfBooleanTF{#1}
{}
{ \erw_numbrd_cs_reset:{}}
\tl_map_function:nN {#2}\erw_numbrd_cs_new:n
}
\NewDocumentCommand{\numbrdcs}{ m m }
{
\erw_numbrd_cs:nn{#1}{#2}
}
\msg_new:nnn
  {erw_numbrdcs}
  {generic}
  {#1}
\int_new:N \__erw_numbrd_cs_int
\cs_set:Npn \erw_numbrd_cs_name:n #1{__erw_numbrd_cs_\int_to_alph:n{#1}:n}
\cs_set:Npn \erw_numbrd_cs_name_braced:n #1{{\erw_numbrd_cs_name:n{#1}}}
\tl_set:Nn \__erw_numbrd_cs_name_tl {\erw_numbrd_cs_name:n{\__erw_numbrd_cs_int}}
\cs_set:Npn \erw_numbrd_cs:nn #1 #2
{
\erw_apply:cn{__erw_numbrd_cs_\int_to_alph:n{#1}:n}{#2}
}
\cs_new_protected:Npn \erw_numbrd_cs_reset:
{
\int_zero:N \__erw_numbrd_cs_int
\tl_set:Nn \__erw_numbrd_cs_ext_tl{}
}
\cs_new_protected:Npn \erw_numbrd_cs_new:n #1
{
\int_incr:N \__erw_numbrd_cs_int
\erw_cs_set_inline:cn{\__erw_numbrd_cs_name_tl}
{
\token_if_cs:NTF
{#1}
{#1{##1}}
{#1}
}
}
\cs_new:Npn \erw_numbrd_cs_names:nnn #1 #2 #3
{
    \int_step_function:nnnN {#1 }{ #2 }{ #3 } \erw_numbrd_cs_name:n
}
\cs_new:Npn \erw_numbrd_cs_names_braced:nnn #1 #2 #3
{
    \int_step_function:nnnN { #1 }{ #2 }{ #3 } \erw_numbrd_cs_name_braced:n
    % TODO \tl_range_braced:nnn?
```

```
}
\cs_new:Npn \erw_numbrd_cs_names_braced:
{
    \erw_numbrd_cs_names_braced:nnn{1}{1}{\__erw_numbrd_cs_int}
}
\ExplSyntaxOff
```

References

[1] The LaTeX3 Project Team *l3packages* http://mirror.ctan.org/macros/latex/contrib/l3packages/

[2] https://tex.stackexchange.com/questions/431046/calling-expl3s-usec-on-an-expression-expanding-to-a-cs-name-causes-error