

The **engord** package

Heiko Oberdiek
<oberdiek@uni-freiburg.de>

2006/02/20 v1.2

Abstract

The package generates the suffix of English ordinal numbers. It can be used with plain and L^AT_EX formats.

Contents

1	Usage	1
1.1	Package options	2
1.2	Examples	2
2	Implementation	2
2.1	Reload check and identification	2
2.2	Help commands for plain compatibility	3
2.3	User macros	4
2.4	Suffix generation	5
3	Installation	6
3.1	Some details for the interested	7
4	History	7
	[2000/05/23 v1.0]	7
	[2003/04/28 v1.1]	7
	[2006/02/20 v1.2]	7
5	Index	8

1 Usage

`\engord{<LATEX counter name>}`

It prints the value of the L^AT_EX counter as English ordinal number. It can be used in the same way as `\arabic`, `\roman`, or `\alph`. The command is not available in plain-T_EX.

`\engordnumber{<any TEX number>}`

It prints the number as English ordinal number.

`\engordletters{#1}`

This command formats the English ordinal letters after the number. It defaults to `\textsuperscript`.

`\engorderror{#1}`

It can be redefined, if an other error handling is wanted. The argument is a negative number or zero.

`\engordraisetrue`
`\engordraisefalse`

These commands set the switch `\ifengordraise` that is asked by the default `\engordletters` before raising the ordinal letters.

1.1 Package options

normal: `\engordraisefalse`

raise: `\engordraisetrue`

Default is raise.

1.2 Examples

- `\usepackage[normal]{engord}`
`\engordnumber{1}` → 1st
`\engordnumber{12}` → 12th
`\engordnumber{123}` → 123rd
`\engord{page}` → 1st (if page has the value of one)
`\engordraisetrue`
`\engordnumber{12}` → 12th

- The default output of a counter can be redefined:

```
\newcounter{mycounter}
\renewcommand{\theengcounter}{\engord{mycounter}}
```

- Because the implementation of `\engord` and `\engordnumber` is kept expandable, these commands can be used to make command names with an appropriate definition of `\engordletters`:

```
\renewcommand*{\engordletters}[1]{#1}
\@namedef{My\engordnumber{3}Command}{...}
```

This generates the command name `'\My4rdCommand'`. Since version 1.2 the redefinition can be dropped if the letters are not raised.

- If the letters should not be raised, use `LATEX` package option `normal` or use

```
\engordraisefalse
```

Also `\engordletters` could be redefined for this purpose:

```
\renewcommand*{\engordletters}[1]{#1}
```

2 Implementation

2.1 Reload check and identification

```
1 <*package>
```

Reload check, especially if the package is not used with `LATEX`.

```
2 \begingroup
```

```
3 \expandafter\let\expandafter\x\csname ver@engord.sty\endcsname
```

```
4 \ifcase 0%
```

```

5 \ifx\x\relax % plain
6 \else
7 \ifx\x\empty % LaTeX
8 \else
9 1%
10 \fi
11 \fi
12 \else
13 \expandafter\ifx\csname PackageInfo\endcsname\relax
14 \def\x#1#2{%
15 \immediate\write-1{Package #1 Info: #2.}%
16 }%
17 \else
18 \def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
19 \fi
20 \x{engord}{The package is already loaded}%
21 \endgroup
22 \expandafter\endinput
23 \fi
24 \endgroup

```

Package identification:

```

25 \begingroup
26 \expandafter\ifx\csname ProvidesPackage\endcsname\relax
27 \def\x#1#2#3[#4]{\endgroup
28 \immediate\write-1{Package: #3 #4}%
29 \xdef#1{#4}%
30 }%
31 \else
32 \def\x#1#2[#3]{\endgroup
33 #2[#3]}%
34 \ifx#1\relax
35 \xdef#1{#3}%
36 \fi
37 }%
38 \fi
39 \expandafter\x\csname ver@engord.sty\endcsname
40 \ProvidesPackage{engord}%
41 [2006/02/20 v1.2 Provides the ifpdf switch (H0)]

```

2.2 Help commands for plain compatibility

`\EO@atcode` Save catcode of @.

```

42 \expandafter\chardef\csname EO@atcode\endcsname\catcode'\@
43 \catcode'\@=11 %

```

`\EO@def` Definitions, `\newcommand` does not exist in plain-TeX.

```

44 \begingroup\expandafter\expandafter\expandafter\endgroup
45 \expandafter\ifx\csname newcommand\endcsname\relax
46 \def\EO@def{\def}%
47 \else
48 \def\EO@def#1{%
49 \newcommand*{#1}{}%
50 \def#1%
51 }%
52 \fi

```

`\EO@PackageWarning`

```

53 \begingroup\expandafter\expandafter\expandafter\endgroup
54 \expandafter\ifx\csname PackageWarning\endcsname\relax
55 \def\EO@PackageWarning#1#2{%
56 \immediate\write16{%
57 Package #1 Warning: #2 on input line \the\inputlineno.%

```

```

58     }%
59 }%
60 \else
61   \def\EO@PackageWarning{\PackageWarning}%
62 \fi

```

2.3 User macros

`\ifengordraise` The switch `\ifengordraise`, whether the ordinal letters are raised or not. Default is raised because of compatibility.

```

63 \newif\ifengordraise
64 \engordraisetrue

```

In L^AT_EX this also can be controlled by option `normal` or `raise`.

```

65 \begingroup\expandafter\expandafter\expandafter\endgroup
66 \expandafter\ifx\csname DeclareOption\endcsname\relax
67 \else
68   \DeclareOption{normal}{\engordraisefalse}%
69   \DeclareOption{raise}{\engordraisetrue}%
70   \ProcessOptions*\relax
71 \fi

```

`\engordletters` `\engordletters` is called with one argument, the english ordinal letters, and contains the code to format them. It defaults to `\textsuperscript` depending on `\ifengordraise`.

```

72 \expandafter\ifx\csname engordletters\endcsname\relax
73   \EO@def\engordletters{%
74     \ifengordraise
75       \expandafter\engordtextsuperscript
76     \fi
77   }%
78 \fi

```

`\engordtextsuperscript` For plain- $\text{T}_{\text{E}}\text{X}$ the definition is quite ugly, redefine `\engordtextsuperscript` if you have a better one.

```

79 \expandafter\ifx\csname engordtextsuperscript\endcsname\relax
80   \begingroup\expandafter\expandafter\expandafter\endgroup
81   \expandafter\ifx\csname textsuperscript\endcsname\relax
82     \def\engordtextsuperscript#1{%
83       \relax
84       \ifmmode
85         ^{\rm#1}%
86       \else
87         $\sim{\rm#1}$%
88       \fi
89     }%
90   \else
91     \def\engordtextsuperscript{\textsuperscript}%
92   \fi
93 \fi

```

`\engorderror` `\engorderror` is called, if the number is zero or negative.

```

94 \expandafter\ifx\csname engorderror\endcsname\relax
95   \EO@def\engorderror#1{%
96     #1\engordletters{!ERROR!}%
97     \EO@PackageWarning{engord}{%
98       '#1' is not an ordinal number%
99     }%
100   }%
101 \fi

```

`\engord` `\engord` expects a L^AT_EX counter name as argument and calls `\engordnumber`. It is defined only, if L^AT_EX is used.

```

102 \begingroup\expandafter\expandafter\expandafter\endgroup
103 \expandafter\ifx\csname newcounter\endcsname\relax
104 \else
105   \EO@def\engord#1{%
106     \engordnumber{\value{#1}}%
107   }%
108 \fi

```

`\engordnumber` `\engordnumber` is the user command to print a number as english ordinal number. The argument can be any T_EX number like explicit numbers, register values, ...

In a safe way it converts the T_EX number argument into a form that only consists of decimal digits.

```

109 \EO@def\engordnumber#1{%
110   \expandafter\EO@number\expandafter{\number#1}%
111 }

```

2.4 Suffix generation

`\EO@number` `\EO@number` expects a number with decimal digits as argument and looks at the size of the number and the count of the digits:

```

112 \def\EO@number#1{%
113   \ifnum#1<1 % handle the error case
114     \engorderror{#1}%
115   \else
116     \ifnum#1<21
117       \EO@ord{#1}%
118     \else
119       \ifnum#1<100
120         \EO@twodigits#1%
121       \else
122         \@ReturnAfterFi{%
123           \EO@reverse#1\@nil{}\EO@afterreverse
124         }%
125       \fi
126     \fi
127   \fi
128 }

```

`\@ReturnAfterFi` An internal help macro to prevent a too deep `\if` nesting.

```

129 \long\def\@ReturnAfterFi#1\fi{\fi#1}

```

`\EO@ord` `\EO@ord` prints the number with ord letters.

`#1`: decimal digits, `#1 < 21`

```

130 \def\EO@ord#1{%
131   #1%
132   \expandafter\engordletters
133   \ifcase#1{th}\or
134     {st}\or
135     {nd}\or
136     {rd}\else
137     {th}%
138   \fi
139 }

```

`\EO@twodigits` `\EO@twodigits` expects a number with two digits, `20 < number < 100`

```

140 \def\EO@twodigits#1#2{%
141   #1\EO@ord{#2}%
142 }

```

```

\EO@reverse \EO@reverse reverses the digits of the number.
#1: next digit
#2: rest of the digits
#3: already reversed digits
#4: next command to call with the reversed number as argument
143 \def\EO@reverse#1#2\@nil#3#4{%
144   \ifx\#2\%
145     #4{#1#3}%
146   \else
147     \@ReturnAfterFi{%
148       \EO@reverse#2\@nil{#1#3}{#4}%
149     }%
150   \fi
151 }

\EO@afterreverse \EO@afterreverse calls \EO@reverseback so that \EO@reverseback can inspect
the digits of the number.
152 \def\EO@afterreverse#1{%
153   \EO@reverseback#1\@nil
154 }

\EO@reverseback \EO@reverseback reverses the reversion.
#1: the last digit of the number
#2: the second last digit of the number
#3: first digits of the number in reversed order, it is not empty, because
\EO@reverseback is only called with numbers > 100.
155 \def\EO@reverseback#1#2#3\@nil{%
156   \EO@reverse#3\@nil{}\@firstofone
157   \ifnum#2#1<21
158     \EO@ord{#2#1}%
159   \else
160     #2\EO@ord{#1}%
161   \fi
162 }

Restore catcode of @.
163 \catcode'\@=\EO@atcode
164 \end{package}

```

3 Installation

CTAN. This package is available on CTAN¹:

[CTAN:macros/latex/contrib/oberdiek/engord.dtx](#) The source file.

[CTAN:macros/latex/contrib/oberdiek/engord.pdf](#) Documentation.

Unpacking. The .dtx file is a self-extracting docstrip archive. The files are extracted by running the .dtx through plain-TEX:

```
tex engord.dtx
```

TDS. Now the different files must be moved into the different directories in your installation TDS tree (also known as texmf tree):

```

engord.sty → tex/generic/oberdiek/engord.sty
engord.pdf → doc/latex/oberdiek/engord.pdf
engord.dtx → source/latex/oberdiek/engord.dtx

```

¹[ftp://ftp.ctan.org/tex-archive/](http://ftp.ctan.org/tex-archive/)

If you have a `docstrip.cfg` that configures and enables `docstrip`'s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

Refresh file databases. If your \TeX distribution (`te \TeX` , `mik \TeX` , ...) rely on file databases, you must refresh these. For example, `te \TeX` users run `texhash` or `mktextlsr`.

3.1 Some details for the interested

Attached source. The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is `pdftk`, e.g. unpack the file into the current directory:

```
pdftk engord.pdf unpack_files output .
```

Unpacking with \LaTeX . The `.dtx` chooses its action depending on the format:
plain- \TeX : Run `docstrip` and extract the files.

\LaTeX : Generate the documentation.

If you insist on using \LaTeX for `docstrip` (really, `docstrip` does not need \LaTeX), then inform the autodetect routine about your intension:

```
latex \install=y\input{engord.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

Generating the documentation. You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with `pdf \LaTeX` :

```
pdflatex engord.dtx
makeindex -s gind.ist engord.idx
pdflatex engord.dtx
makeindex -s gind.ist engord.idx
pdflatex engord.dtx
```

4 History

[2000/05/23 v1.0]

- First public release.

[2003/04/28 v1.1]

- Bug fix for 30, 40, 50, ..., 100, 130, ...
- `\ordletters` renamed to documented `\engordletters`.

[2006/02/20 v1.2]

- Support for plain- \TeX .
- Switch `\ifengordraise` added.
- Package options `raise` and `normal` added.
- DTX framework.

5 Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

Symbols		I	
\@	42, 43, 163	\ifcase	4, 133
\@ReturnAfterFi	122, <u>129</u> , 147	\ifengordraise	<u>63</u> , 74
\@firstofone	156	\ifmmode	84
\@nil	123, 143, 148, 153, 155, 156	\ifnum	113, 116, 119, 157
\\	144	\ifx	5, 7, 13, 26, 34, 45, 54, 66, 72, 79, 81, 94, 103, 144
C		N	
\catcode	42, 43, 163	\immediate	15, 28, 56
\chardef	42	\inputlineno	57
\csname	3, 13, 26, 39, 42, 45, 54, 66, 72, 79, 81, 94, 103	P	
D		\newcommand	49
\DeclareOption	68, 69	\newif	63
E		\number	110
\empty	7	R	
\endcsname	3, 13, 26, 39, 42, 45, 54, 66, 72, 79, 81, 94, 103	\rm	85, 87
\endinput	22	T	
\engord	1, <u>102</u>	\textsuperscript	91
\engorderror	2, <u>94</u> , 114	\the	57
\engordletters	1, <u>72</u> , 96, 132	V	
\engordnumber	1, 106, <u>109</u>	\value	106
\engordraisefalse	2, 68	W	
\engordraisetrue	2, 64, 69	\write	15, 28, 56
\engordtextsuperscript	75, <u>79</u>	X	
\EO@afterreverse	123, <u>152</u>	\x	3, 5, 7, 14, 18, 20, 27, 32, 39
\EO@atcode	<u>42</u> , 163		
\EO@def	<u>44</u> , 73, 95, 105, 109		
\EO@number	110, <u>112</u>		
\EO@ord	117, <u>130</u> , 141, 158, 160		
\EO@PackageWarning	53, 97		
\EO@reverse	123, <u>143</u> , 156		
\EO@reverseback	153, <u>155</u>		
\EO@twodigits	120, <u>140</u>		