The `datenumber.sty` package v0.03

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Abstract

This package provides commands to convert a date into a number. Turned around a date can be calculated also by a number. Additionally there are commands for incrementing and decrementing a date. Leap years and the Gregorian calendar reform are considered.

Contents

1 Start year

The start of the counting is determined with `\setstartyear{year}` (standard 1800). The first day of the start year gets the number 1. The value of `startyear` must be greater 0. It may not be larger than the year of a date to be calculated. If the difference of date and `startyear` is large, the calculation can last for a long time. The correct setting of the weekdays is guaranteed only if the value of `startyear` is 1800, 1900 or 2000.

2 Counters

There are five counters defined

`datenumber:` number of the day

`dateyear:` year

`datemonth:` month

*The initial date was 2001/08/06 (version 0.02). That version corrects a small error in datenumberfrench.ldf and in datenumberspanish.ldf.

`dateday`: day

`datedayname`: weekday: 1–7 (Monday–Sunday)

3 Macros

3.1 Macros which operate with defined counters

All counters specified above are updated by these macros. `\datedayname` and `\datemonthname` are also updated.

`\setdatenumber{year}{month}{day}`: Sets the counter `datenumber` to a value, which corresponds to the date.

`\setdatebynumber{number}`: Sets the counters `dateyear`, `datemonth`, and `dateday` to values, which corresponds to the number.

`\nextdate`: Sets the counters `dateyear`, `datemonth`, and `dateday` to the next date.

`\prevdate`: Sets the counters `dateyear`, `datemonth`, and `dateday` to the previous date.

`\setdate{year}{month}{day}`: Sets the counters `dateyear`, `datemonth`, and `dateday` to `year`, `month`, and `day`.

`\setdatetoday`: Sets the counters `dateyear`, `datemonth`, and `dateday` to the current date.

`\datemonthname`: typesets the month (see section 3.3).

`\datedayname`: typesets the weekday (see section 3.4).

`\datedate`: typesets the date, corresponding to the counters `dateyear`, `datemonth`, `dateday`.

3.2 Macros which operate with your own counters

Only the counters you specified are updated by these macros. `\datedayname` and `\datemonthname` are not updated.

`\setmydatenumber{numbercount}{year}{month}{day}`: Sets the counter `numbercount` to a value, which corresponds to the date.

`\setmydatebynumber{number}{yearcount}{monthcount}{daycount}`: Sets the counters `yearcount`, `monthcount`, and `daycount` to values, which corresponds to the number.

`\mynextdate{yearcount}{monthcount}{daycount}`: Sets the counters `yearcount`, `monthcount`, and `daycount` to the next date.

`\mynextdate{yearcount}{monthcount}{daycount}`: Sets the counters `yearcount`, `monthcount`, and `daycount` to the previous date.

3.3 Month

The command `\datemonthname` typesets the month. It is updated by macros described in section 3.1. You can do this by your own saying `\setmonthname{number}`.

3.4 Weekday

To typeset the weekday say `\datedayname`. This command is updated by macros described in section 3.1. You can do this by your own saying `\setmonthname{number}` (1 for Monday and 7 for Sunday). You can also write `\setdaynamebynumber{number}`, were `number` is the number of a date. If `startyear` is set to 1800, 1900 or 2000 the calculation of the weekday will work.

4 Language

The language options `english`, `USenglish` (standard), `french`, `spanish`, `german`, and `ngerman` are supported. Say `\dateselectlanguage{language}` to select a language. For other languages: Create a file `datenumbermylanguage.ldf`. Copy the text from `datenumberdummy.ldf`. Replace every "dummy" with "mylanguage" and change the months and weekdays. Say `\usepackage{datenumber}` `\input{datenumbermylanguage.ldf}` in your document.

5 Examples

```
\setdate{2002}{1}{1}%
\thedatenumber
```

Result: 73780

```
\setdatetoday
\addtocounter{datenumber}{10}%
\setdatebynumber{\thedatenumber}%
In 10 days is \datedate
```

Result: In 10 days is February 6, 2022

```
\newcounter{dateone}\newcounter{datetwo}%

\newcommand{\daydifftoday}[3]{%
  \setmydatenumber{dateone}{\the\year}{\the\month}{\the\day}%
  \setmydatenumber{datetwo}{#1}{#2}{#3}%
  \addtocounter{datetwo}{-\thedateone}%
  \thedatetwo
}

There is still \daydifftoday{\the\year}{12}{25} days to Christmas.
```

Result: There is still 332 days to Christmas.

```
\newcommand{\sd}{%
\ifcase\thedatedayname \or
    Mon\or Tue\or Wed\or Thu\or
    Fri\or Sat\or Sun\fi
}%

\newcommand{\pnext}{%
\thedateyear/%
\ifnum\value{datemonth}<10 0\fi
\thedatemonth/%
\ifnum\value{dateday}<10 0\fi
\thedateday%
\nextdate
}

\setdate{2001}{9}{29}%
\[\begin{tabular}{lll}
\sd & \pnext & Abc\\
\sd & \pnext & Def\\
\sd & \pnext & Ghi\\
\sd & \pnext & Jkl\\
\end{tabular}\]
```

Result:

Sat	2001/09/29	Abc
Sun	2001/09/30	Def
Mon	2001/10/01	Ghi
Tue	2001/10/02	Jkl

6 Other

- leap year test

  ```
  The \the\year\ is
  \ifleapyear{\the\year} a \else no \fi leap year.
  ```

  Result: The 2022 is no leap year.

- date test

  ```
  The 29.2.1900 is
  \ifvaliddate{1900}{2}{29} a \else no \fi valid date.
  ```

  Result: The 29.2.1900 is no valid date.[1]

[1] There are programs, which have another opinion about that. Search for "Gregorian calendar" in order to get more information about leap years and October 5, 1582