Package ‘cstime’

December 5, 2022

Title  Date and Time Functions for Public Health Purposes

Version  2022.11.22

Description  Provides easy and consistent time conversion for public health purposes. The time con-
version functions provided here are between date, ISO week, ISO yearweek, ISO year, calendar month/year, season, season week.

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BugReports  https://github.com/csids/cstime/issues

Encoding  UTF-8

LazyData  true

LazyDataCompression  xz

RoxygenNote  7.2.1

Depends  R (>= 3.5.0)

Imports  data.table, dplyr, magrittr, purrr, stringr

Suggests  rmarkdown, ggplot2, knitr, testthat (>= 3.0.0), readxl, glue, lubridate

Config/testthat/edition  3

VignetteBuilder  knitr

NeedsCompilation  no

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**dates_by_isoyearweek**  
*Dates of different days within isoyearweeks*

**Description**

Dates of different days within isoyearweeks

**Usage**

```
dates_by_isoyearweek
```
**Format**

- **isoyear** Isoyear.
- **isoyearweek** Isoweek-isoyear.
- **mon** Date of Monday.
- **tue** Date of Tuesday.
- **wed** Date of Wednesday.
- **thu** Date of Thursday.
- **fri** Date of Friday.
- **sat** Date of Saturday.
- **sun** Date of Sunday.
- **weekdays** List of dates from Mon-Fri
- **weekend** List of dates from Sat-Sun
- **days** List of dates from Mon-Sun

**Examples**

```r
# Constructing a vector of dates without removing the Date class
do.call("c", dates_by_isoyearweek[isoyearweek %in% c("2021-01", "2021-02")]$weekdays)
```

---

**Description**

Date -> calmonth (character)

**Usage**

```r
date_to_calmonth_c(x = lubridate::today())
```

**Arguments**

- **x** a Date object or string, in the form of 'yyyy-mm-dd'

**Value**

calmonth ("XX")

**Examples**

```r
date_to_calmonth_c("2021-08-11")
date_to_calmonth_c(lubridate::today())
```
**date_to_calmonth_n**  
*Date -> calmonth (numeric)*

**Description**  
Date -> calmonth (numeric)

**Usage**  
date_to_calmonth_n(x = lubridate::today())

**Arguments**  
x\n a Date object or string, in the form of 'yyyy-mm-dd'

**Value**  
calmonth

**Examples**  
date_to_calmonth_n("2021-08-11")
date_to_calmonth_n(lubridate::today())

---

**date_to_calyearmonth_c**  
*Date -> calyearmonth (character)*

**Description**  
Date -> calyearmonth (character)

**Usage**  
date_to_calyearmonth_c(x = lubridate::today())

**Arguments**  
x\n a Date object or string, in the form of 'yyyy-mm-dd'

**Value**  
calyearmonth ("YYYY-MXX")

**Examples**  
date_to_calyearmonth_c("2021-08-11")
date_to_calyearmonth_c(lubridate::today())
**date_to_calyear_c**

**Description**
Date -> calyear (character)

**Usage**
date_to_calyear_c(x = lubridate::today())

**Arguments**
x a Date object or string, in the form of 'yyyy-mm-dd'

**Value**
ISO year in character

**Examples**
date_to_calyear_c("2021-08-11")
date_to_calyear_c(lubridate::today())

date_to_calyear_n

**Description**
Date -> calyear (numeric)

**Usage**
date_to_calyear_n(x = lubridate::today())

**Arguments**
x a Date object or string, in the form of 'yyyy-mm-dd'

**Value**
ISO year in character

**Examples**
date_to_calyear_n("2021-08-11")
date_to_calyear_n(lubridate::today())
**date_to_isoweek_c**  
ISO week (character) from Date object

**Description**  
ISO week (character) from Date object

**Usage**  
date_to_isoweek_c(x = lubridate::today())

**Arguments**  
x  
a Date object or string, in the form of ’yyyy-mm-dd’

**Value**  
ISO week in character

**Examples**  
date_to_isoweek_c("2021-08-11")  
date_to_isoweek_c(lubridate::today())

**date_to_isoweek_n**  
ISO week (numeric) from Date object

**Description**  
ISO week (numeric) from Date object

**Usage**  
date_to_isoweek_n(x = lubridate::today())

**Arguments**  
x  
a Date object or string, in the form of ’yyyy-mm-dd’

**Value**  
ISO week in numeric

**Examples**  
date_to_isoweek_n("2021-08-11")  
date_to_isoweek_n(lubridate::today())
date_to_isoyearweek_c

ISO year and week (character) from Date object

Description
ISO year and week (character) from Date object

Usage
date_to_isoyearweek_c(x = lubridate::today())

Arguments
x a Date object or string, in the form of 'yyyy-mm-dd'

Value
ISO year and week in character

Examples
date_to_isoyearweek_c("2021-08-11")
date_to_isoyearweek_c(lubridate::today())

date_to_isoyear_c

ISO year (character) from Date object

Description
ISO year (character) from Date object

Usage
date_to_isoyear_c(x = lubridate::today())

Arguments
x a Date object or string, in the form of 'yyyy-mm-dd'

Value
ISO year in character

Examples
date_to_isoyear_c("2021-08-11")
date_to_isoyear_c(lubridate::today())
**date_to_isoyear_n**  
ISO year (numeric) from Date object

Description
ISO year (numeric) from Date object

Usage
```r
date_to_isoyear_n(x = lubridate::today())
```

Arguments
- `x`: a Date object or string, in the form of 'yyyy-mm-dd'

Value
ISO year in numeric

Examples
```r
date_to_isoyear_n("2021-08-11")
date_to_isoyear_n(lubridate::today())
```

**date_to_seasonweek_n**  
Date to season week.

Description
Date to season week.

Usage
```r
date_to_seasonweek_n(x)
```

Arguments
- `x`: date

Value
Season week in numeric

Examples
```r
date_to_seasonweek_n(c("2021-01-01", "2021-12-01"))
```
**date_to_season_c**

Date to season.

**Description**

Date to season.

**Usage**

\[
\text{date_to_season_c}(x)
\]

**Arguments**

\[x\] date

**Value**

Season, e.g. 2020/2021

**Examples**

\[
\text{date_to_season_c}(\text{c}("2021-01-01", "2021-12-01"))
\]

**isoweek_to_seasonweek_n**

ISO week to season week (numeric). Season week 1 is natural week 30.

**Description**

ISO week to season week (numeric). Season week 1 is natural week 30.

**Usage**

\[
\text{isoweek_to_seasonweek_n}(\text{isoweek})
\]

**Arguments**

\[\text{isoweek}\] ISO week in a year (numeric), between 1 and 53. ISO week 53 is season week 23.5

**Value**

Season week in numeric

**Examples**

\[
\text{isoweek_to_seasonweek_n}(31)
\]
isoyearweek_to_isoweek_c

ISO yearweek to week (character)

Description
This function breaks the string connected with ` '-' into year/week

Usage
isoyearweek_to_isoweek_c(yrwk)

Arguments
yrwk Year-week, e.g. "2020-19" for 19th week in 2020

Value
ISO week in character

Examples
isoyearweek_to_isoweek_c('2020-19')

isoyearweek_to_isoweek_n

ISO yearweek to week (numeric)

Description
This function breaks the string connected with ` '-' into year/week

Usage
isoyearweek_to_isoweek_n(yrwk)

Arguments
yrwk Year-week, e.g. "2020-19" for 19th week in 2020

Value
ISO week in numeric

Examples
isoyearweek_to_isoweek_n('2020-19')
**isoyearweek_to_isoyear_c**

ISO yearweek to year (character)

Description
This function breaks the string connected with `-` into year/week

Usage
isoyearweek_to_isoyear_c(yrwk)

Arguments
yrwk Year-week, e.g. "2020-19" for 19th week in 2020

Value
ISO year in character

Examples
isoyearweek_to_isoyear_c('2020-10')

**isoyearweek_to_isoyear_n**

ISO yearweek to year (numeric)

Description
This function breaks the string connected with `-` into year/week

Usage
isoyearweek_to_isoyear_n(yrwk)

Arguments
yrwk Year-week, e.g. "2020-19" for 19th week in 2020

Value
ISO year in numeric

Examples
isoyearweek_to_isoyear_n('2020-10')
isoyearweek_to_last_date

*Last date in ISO yearweek*

**Description**

Returns the Sunday in the isoyearweek

**Usage**

`isoyearweek_to_last_date(x)`

**Arguments**

- `x` ISO yearweek, e.g. "2020-19" for 19th week in 2020

**Value**

Date of Sunday of that isoyearweek

**Examples**

`isoyearweek_to_last_date(c("2019-19", "2020-01"))`

---

isoyearweek_to_seasonweek_n

*ISO yearweek to season week (numeric). Season week 1 is natural week 30.*

**Description**

ISO yearweek to season week (numeric). Season week 1 is natural week 30.

**Usage**

`isoyearweek_to_seasonweek_n(x)`

**Arguments**

- `x` ISO yearweek

**Value**

Season week in numeric

**Examples**

`isoyearweek_to_seasonweek_n(c("2021-01"))`
**isoyearweek_to_season_c**

ISO yearweek to season.

**Description**
ISO yearweek to season.

**Usage**
isoyearweek_to_season_c(x)

**Arguments**

x  
isoyearweek, connected with '-'

**Value**
Season, e.g. 2020/2021

**Examples**
isoyearweek_to_season_c(c("2021-01", "2021-50"))

---

**isoyear_to_last_date**  Last Sunday in ISO year

**Description**
Returns the last Sunday in the isoyear.

**Usage**
isoyear_to_last_date(x)

**Arguments**

x  
ISO year, e.g. 2020

**Value**
Date of the Sunday, for the last week in the isoyear

**Examples**
isoyear_to_last_date(c(2019, 2019, 2020, 2021))
### isoyear_to_last_isoweek_n

_Last ISO week (numeric) in ISO year_

**Description**

Returns the last week in the isoyear

**Usage**

`isoyear_to_last_isoweek_n(x)`

**Arguments**

- `x` : ISO year, e.g. 2020

**Value**

ISO week in numeric

**Examples**

```r
isoyear_to_last_isoweek_n(c(2019, 2019, 2020, 2021))
```

---

### isoyear_to_last_isoyearweek_c

_Last ISO year-week (character) in ISO year_

**Description**

Returns the last isoyearweek in the isoyear

**Usage**

`isoyear_to_last_isoyearweek_c(x)`

**Arguments**

- `x` : ISO year, e.g. 2020

**Value**

ISO year-week in character, of the last ISO year

**Examples**

```r
isoyear_to_last_isoyearweek_c(c(2019, 2019, 2020, 2021))
```
**keep_sundays**

Description

*keep_sundays*

Usage

```r
keep_sundays(dates, format = "Uke isoweek_c-1/isoweek_c", keep_delete = TRUE)
```

Arguments

- **dates**: dates (later)
- **format**: format (later)
- **keep_delete**: keep_delete (later)

Value

Label: delete or not

---

**keep_sundays_and_latest_date**

Description

*keep_sundays_and_latest_date*

Usage

```r
keep_sundays_and_latest_date(
  dates,
  format = "Uke isoweek_c-1/isoweek_c",
  keep_delete = TRUE
)
```

Arguments

- **dates**: dates (later)
- **format**: format (later)
- **keep_delete**: keep_delete (later)

Value

Date with level: delete or not
keep_sundays_and_latest_date_internal

Description

keep_sundays_and_latest_date_internal

Usage

keep_sundays_and_latest_date_internal(
  dates,
  format = "Uke isoweek_c-1/isoweek_c",
  keep_delete = TRUE,
  keep_latest_date = TRUE
)

Arguments

dates dates (later)
format format (later)
keep_delete keep_delet (later)
keep_latest_date keep_latest_date (later)

nor_workdays_by_date

Norwegian workdays and holidays by date

Description

Norwegian workdays and holidays by date

Usage

nor_workdays_by_date

Format

date Date.
day_of_week Integer. 1 = Monday, 7 = Sunday
mon_to_fri Integer. 1 between Monday and Friday, 0 between Saturday and Sunday
sat_to_sun Integer. 1 between Saturday and Sunday, 0 between Monday and Friday
public_holiday Integer. 1 if public holiday (helligdag), 0 if not public holiday
freeday Integer. 1 if public holiday (helligdag) or sat_to_sun==1, 0 otherwise
workday Integer. 1 if freeday==0, 0 if freeday==1
nor_workdays_by_isoyearweek

Description
Norwegian workdays and holidays by isoyearweek

Usage
nor_workdays_by_isoyearweek

Format
- **isoyearweek** YYYY-WW
- **public_holiday** The proportion of the days within the isoyearweek that are public holidays
- **freeday** The proportion of the days within the isoyearweek that are either public holidays or Saturday/Sunday
- **workday** 1 minus freeday

seasonweek_to_isoweek_c

Description
Season week to ISO week (character). Season week 1 is ISO week 30.

Usage
seasonweek_to_isoweek_c(seasonweek)

Arguments
- **seasonweek** Season week in a year (numeric), between 1 and 52

Value
ISO week in character

Examples
seasonweek_to_isoweek_c(31)
seasonweek_to_isoweek_n

Season week to ISO week (numeric). Season week 1 is ISO week 30.

Description
Season week to ISO week (numeric). Season week 1 is ISO week 30.

Usage
seasonweek_to_isoweek_n(seasonweek)

Arguments
seasonweek Season week in a year, between 1 and 52

Value
ISO week in numeric

Examples
seasonweek_to_isoweek_n(31)
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