

Package: cstime (via r-universe)

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Title Date and Time Functions for Public Health Purposes

Version 2026.8.22

Description Provides easy and consistent time conversion for public health purposes. The time conversion 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/niphr/cstime/issues>

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Contents

date_to_calmonth_c	3
date_to_calmonth_n	4
date_to_calyear_c	5
date_to_calyear_n	6
date_to_calyearmonth_c	7
date_to_isoquarter_c	8
date_to_isoquarter_n	9
date_to_isoweek_c	10
date_to_isoweek_n	11
date_to_isoyear_c	12
date_to_isoyear_n	13
date_to_isoyearquarter_c	14
date_to_isoyearweek_c	15
date_to_season_c	16
date_to_seasonweek_n	16
dates_by_isoyearweek	17
isoweek_to_seasonweek_n	18
isoyear_to_last_date	19
isoyear_to_last_isoweek_n	20
isoyear_to_last_isoyearweek_c	21
isoyearweek_to_isoquarter_c	22
isoyearweek_to_isoquarter_n	23
isoyearweek_to_isoweek_c	24
isoyearweek_to_isoweek_n	25
isoyearweek_to_isoyear_c	26
isoyearweek_to_isoyear_n	27
isoyearweek_to_isoyearquarter_c	28
isoyearweek_to_last_date	29
isoyearweek_to_season_c	30
isoyearweek_to_seasonweek_n	31
keep_sundays	32
keep_sundays_and_latest_date	32
keep_sundays_and_latest_date_internal	33
nor_workdays_by_date	33
nor_workdays_by_isoyearweek	34
now_c	35
season_to_last_date	36
seasonweek_to_isoweek_c	37
seasonweek_to_isoweek_n	38

Index

39

date_to_calmonth_c	<i>Date to calendar month (character)</i>
--------------------	---

Description

Converts a date to its calendar month number, returned as a zero-padded character string.

Usage

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

## Default S3 method:
date_to_calmonth_c(x)

## S3 method for class 'character'
date_to_calmonth_c(x = lubridate::today())

## S3 method for class 'Date'
date_to_calmonth_c(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

The month is returned as two digits, "01" for January through "12" for December.

Value

Calendar month as a character vector ("01" to "12").

See Also

`vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other date-to-character converters: [date_to_calyear_c\(\)](#), [date_to_calyearmonth_c\(\)](#), [date_to_isoquarter_c\(\)](#), [date_to_isoweek_c\(\)](#), [date_to_isoyear_c\(\)](#), [date_to_isoyearquarter_c\(\)](#), [date_to_isoyearweek_c\(\)](#)

Examples

```
date_to_calmonth_c(as.Date("2021-08-11"))
date_to_calmonth_c("2021-01-01")
```

date_to_calmonth_n	<i>Date to calendar month (numeric)</i>
--------------------	---

Description

Converts a date to its calendar month number, returned as a number.

Usage

```
date_to_calmonth_n(x = lubridate::today())

## Default S3 method:
date_to_calmonth_n(x)

## S3 method for class 'character'
date_to_calmonth_n(x = lubridate::today())

## S3 method for class 'Date'
date_to_calmonth_n(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Value

Calendar month as an integer vector (1 for January to 12 for December).

See Also

`vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other date-to-number converters: [date_to_calyear_n\(\)](#), [date_to_isoquarter_n\(\)](#), [date_to_isoweek_n\(\)](#), [date_to_isoyear_n\(\)](#)

Examples

```
date_to_calmonth_n(as.Date("2021-08-11"))
date_to_calmonth_n("2021-01-01")
```

date_to_calyear_c	<i>Date to calendar year (character)</i>
-------------------	--

Description

Converts a date to its calendar (Gregorian) year, returned as a character string.

Usage

```
date_to_calyear_c(x = lubridate::today())

## Default S3 method:
date_to_calyear_c(x)

## S3 method for class 'character'
date_to_calyear_c(x = lubridate::today())

## S3 method for class 'Date'
date_to_calyear_c(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

Unlike the ISO year (see [date_to_isoyear_c\(\)](#)), the calendar year is taken directly from the date, so 2021-01-01 is calendar year "2021".

Value

Calendar year as a character vector (e.g. "2021").

See Also

`vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other date-to-character converters: [date_to_calmonth_c\(\)](#), [date_to_calyearmonth_c\(\)](#), [date_to_isoquarter_c\(\)](#), [date_to_isoweek_c\(\)](#), [date_to_isoyear_c\(\)](#), [date_to_isoyearquarter_c\(\)](#), [date_to_isoyearweek_c\(\)](#)

Examples

```
date_to_calyear_c(as.Date("2021-08-11"))
date_to_calyear_c("2021-01-01")
```

date_to_calyear_n	<i>Date to calendar year (numeric)</i>
-------------------	--

Description

Converts a date to its calendar (Gregorian) year, returned as a number.

Usage

```
date_to_calyear_n(x = lubridate::today())

## Default S3 method:
date_to_calyear_n(x)

## S3 method for class 'character'
date_to_calyear_n(x = lubridate::today())

## S3 method for class 'Date'
date_to_calyear_n(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

Unlike the ISO year (see [date_to_isoyear_n\(\)](#)), the calendar year is taken directly from the date, so 2021-01-01 is calendar year 2021.

Value

Calendar year as an integer vector (e.g. 2021).

See Also

`vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other date-to-number converters: [date_to_calmonth_n\(\)](#), [date_to_isoquarter_n\(\)](#), [date_to_isoweek_n\(\)](#), [date_to_isoyear_n\(\)](#)

Examples

```
date_to_calyear_n(as.Date("2021-08-11"))
date_to_calyear_n("2021-01-01")
```

date_to_calyearmonth_c*Date to calendar yearmonth (character)*

Description

Converts a date to a combined calendar year and month string of the form "yyyy-Mmm".

Usage

```
date_to_calyearmonth_c(x = lubridate::today())

## Default S3 method:
date_to_calyearmonth_c(x)

## S3 method for class 'character'
date_to_calyearmonth_c(x = lubridate::today())

## S3 method for class 'Date'
date_to_calyearmonth_c(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

The output combines the calendar year and the zero-padded calendar month, separated by "-M", for example "2021-M08".

Value

Calendar yearmonth as a character vector (e.g. "2021-M08").

See Also

`vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other date-to-character converters: [date_to_calmonth_c\(\)](#), [date_to_calyear_c\(\)](#), [date_to_isoquarter_c\(\)](#), [date_to_isoweek_c\(\)](#), [date_to_isoyear_c\(\)](#), [date_to_isoyearquarter_c\(\)](#), [date_to_isoyearweek_c\(\)](#)

Examples

```
date_to_calyearmonth_c(as.Date("2021-08-11"))
date_to_calyearmonth_c("2021-01-01")
```

date_to_isoquarter_c *Date to ISO quarter (character)*

Description

Converts a date to an ISO-week-based quarter (1 to 4), returned as a character string.

Usage

```
date_to_isoquarter_c(x = lubridate::today())

## Default S3 method:
date_to_isoquarter_c(x)

## S3 method for class 'character'
date_to_isoquarter_c(x = lubridate::today())

## S3 method for class 'Date'
date_to_isoquarter_c(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

The quarter is derived from the ISO week. See [date_to_isoquarter_n\(\)](#) for the week-to-quarter boundaries.

Value

ISO quarter as a character vector (e.g. "3").

See Also

`vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other date-to-character converters: [date_to_calmonth_c\(\)](#), [date_to_calyear_c\(\)](#), [date_to_calyearmonth_c\(\)](#), [date_to_isoweek_c\(\)](#), [date_to_isoyear_c\(\)](#), [date_to_isoyearquarter_c\(\)](#), [date_to_isoyearweek_c\(\)](#)

Examples

```
date_to_isoquarter_c(as.Date("2021-08-11"))
date_to_isoquarter_c("2021-01-01")
```

date_to_isoquarter_n *Date to ISO quarter (numeric)*

Description

Converts a date to an ISO-week-based quarter (1 to 4), returned as a number.

Usage

```
date_to_isoquarter_n(x = lubridate::today())

## Default S3 method:
date_to_isoquarter_n(x)

## S3 method for class 'character'
date_to_isoquarter_n(x = lubridate::today())

## S3 method for class 'Date'
date_to_isoquarter_n(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

The quarter comes from the ISO week, not from the calendar month:

- Weeks 1 to 13 are quarter 1.
- Weeks 14 to 26 are quarter 2.
- Weeks 27 to 39 are quarter 3.
- Weeks 40 and later are quarter 4. This includes week 53 in a long ISO year.

Value

ISO quarter as a numeric vector (1 to 4).

See Also

`vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other date-to-number converters: [date_to_calmonth_n\(\)](#), [date_to_calyear_n\(\)](#), [date_to_isoweek_n\(\)](#), [date_to_isoyear_n\(\)](#)

Examples

```
date_to_isoquarter_n(as.Date("2021-08-11"))
date_to_isoquarter_n("2021-01-01")
```

date_to_isoweek_c	<i>Date to ISO week (character)</i>
-------------------	-------------------------------------

Description

Converts a date to its ISO 8601 week number, returned as a zero-padded character string.

Usage

```
date_to_isoweek_c(x = lubridate::today())

## Default S3 method:
date_to_isoweek_c(x)

## S3 method for class 'character'
date_to_isoweek_c(x = lubridate::today())

## S3 method for class 'Date'
date_to_isoweek_c(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

ISO weeks run Monday to Sunday and are numbered 01 to 52 or 53. Week 01 is the week containing the first Thursday of the ISO year. The week is returned as two digits, e.g. "01" or "53".

Value

ISO week as a character vector (e.g. "32").

See Also

`vignette("date_conversion", package = "cstime")`, which runs this function.

Other date-to-character converters: [date_to_calmonth_c\(\)](#), [date_to_calyear_c\(\)](#), [date_to_calyearmonth_c\(\)](#), [date_to_isoquarter_c\(\)](#), [date_to_isoyear_c\(\)](#), [date_to_isoyearquarter_c\(\)](#), [date_to_isoyearweek_c\(\)](#)

Examples

```
date_to_isoweek_c(as.Date("2021-08-11"))
date_to_isoweek_c("2021-01-01")
```

date_to_isoweek_n	<i>Date to ISO week (numeric)</i>
-------------------	-----------------------------------

Description

Converts a date to its ISO 8601 week number, returned as a number.

Usage

```
date_to_isoweek_n(x = lubridate::today())

## Default S3 method:
date_to_isoweek_n(x)

## S3 method for class 'character'
date_to_isoweek_n(x = lubridate::today())

## S3 method for class 'Date'
date_to_isoweek_n(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

ISO weeks run Monday to Sunday and are numbered 1 to 52 or 53. Week 1 is the week containing the first Thursday of the ISO year.

Value

ISO week as an integer vector (1 to 53).

See Also

`vignette("date_conversion", package = "cstime")`, which runs this function.

Other date-to-number converters: [date_to_calmonth_n\(\)](#), [date_to_calyear_n\(\)](#), [date_to_isoquarter_n\(\)](#), [date_to_isoyear_n\(\)](#)

Examples

```
date_to_isoweek_n(as.Date("2021-08-11"))
date_to_isoweek_n("2021-01-01")
```

date_to_isoyear_c	<i>Date to ISO year (character)</i>
-------------------	-------------------------------------

Description

Converts a date to its ISO 8601 week-based year, returned as a character string.

Usage

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

## Default S3 method:
date_to_isoyear_c(x)

## S3 method for class 'character'
date_to_isoyear_c(x = lubridate::today())

## S3 method for class 'Date'
date_to_isoyear_c(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

The ISO 8601 week-based year is not always the same as the calendar year. ISO weeks run Monday to Sunday. Week 1 is the week that contains the first Thursday of the year. As a result, the first days of January can belong to the last ISO week of the previous year. The last days of December can belong to ISO week 1 of the following year. For example, 2021-01-01 is a Friday that falls in ISO week 53 of ISO year 2020.

Value

ISO year as a character vector (e.g. "2021").

See Also

`vignette("cstime", package = "cstime")` and `vignette("date_conversion", package = "cstime")`, which both run this function.

Other date-to-character converters: [date_to_calmonth_c\(\)](#), [date_to_calyear_c\(\)](#), [date_to_calyearmonth_c\(\)](#), [date_to_isoquarter_c\(\)](#), [date_to_isoweek_c\(\)](#), [date_to_isoyearquarter_c\(\)](#), [date_to_isoyearweek_c\(\)](#)

Examples

```
date_to_isoyear_c(as.Date("2021-08-11"))
date_to_isoyear_c("2021-01-01")
```

date_to_isoyear_n	<i>Date to ISO year (numeric)</i>
-------------------	-----------------------------------

Description

Converts a date to its ISO 8601 week-based year, returned as a number.

Usage

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

## Default S3 method:
date_to_isoyear_n(x)

## S3 method for class 'character'
date_to_isoyear_n(x = lubridate::today())

## S3 method for class 'Date'
date_to_isoyear_n(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

The ISO 8601 week-based year can differ from the calendar year near the start and end of January and December. See [date_to_isoyear_c\(\)](#) for the rules used to assign weeks and years.

Value

ISO year as an integer vector (e.g. 2021).

See Also

[vignette\("date_conversion", package = "cstime"\)](#), which runs this function.

Other date-to-number converters: [date_to_calmonth_n\(\)](#), [date_to_calyear_n\(\)](#), [date_to_isoquarter_n\(\)](#), [date_to_isoweek_n\(\)](#)

Examples

```
date_to_isoyear_n(as.Date("2021-08-11"))
date_to_isoyear_n("2021-01-01")
```

date_to_isoyearquarter_c
Date to ISO yearquarter (character)

Description

Converts a date to a combined ISO year and quarter string of the form "yyyy-Qn".

Usage

```
date_to_isoyearquarter_c(x = lubridate::today())

## Default S3 method:
date_to_isoyearquarter_c(x)

## S3 method for class 'character'
date_to_isoyearquarter_c(x = lubridate::today())

## S3 method for class 'Date'
date_to_isoyearquarter_c(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

The output combines the ISO year (see [date_to_isoyear_c\(\)](#)) and the ISO-week-based quarter (see [date_to_isoquarter_c\(\)](#)), for example "2021-Q3".

Value

ISO yearquarter as a character vector (e.g. "2021-Q3").

See Also

[vignette\("date_conversion", package = "cstime"\)](#) for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other date-to-character converters: [date_to_calmonth_c\(\)](#), [date_to_calyear_c\(\)](#), [date_to_calyearmonth_c\(\)](#), [date_to_isoquarter_c\(\)](#), [date_to_isoweek_c\(\)](#), [date_to_isoyear_c\(\)](#), [date_to_isoyearweek_c\(\)](#)

Examples

```
date_to_isoyearquarter_c(as.Date("2021-08-11"))
date_to_isoyearquarter_c("2021-01-01")
```

date_to_isoyearweek_c *Date to ISO yearweek (character)*

Description

Converts a date to a combined ISO 8601 year and week string of the form "yyyy-ww".

Usage

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

## Default S3 method:
date_to_isoyearweek_c(x)

## S3 method for class 'character'
date_to_isoyearweek_c(x = lubridate::today())

## S3 method for class 'Date'
date_to_isoyearweek_c(x = lubridate::today())
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

The output combines the ISO year (see [date_to_isoyear_c\(\)](#)) and the zero-padded ISO week (see [date_to_isoweek_c\(\)](#)), separated by a hyphen, for example "2021-32". Because the ISO year can differ from the calendar year, 2021-01-01 maps to "2020-53".

Value

ISO yearweek as a character vector (e.g. "2021-32").

See Also

[vignette\("date_conversion", package = "cstime"\)](#), which runs this function.

Other date-to-character converters: [date_to_calmonth_c\(\)](#), [date_to_calyear_c\(\)](#), [date_to_calyearmonth_c\(\)](#), [date_to_isoquarter_c\(\)](#), [date_to_isoweek_c\(\)](#), [date_to_isoyear_c\(\)](#), [date_to_isoyearquarter_c\(\)](#)

Examples

```
date_to_isoyearweek_c(as.Date("2021-08-11"))
date_to_isoyearweek_c("2021-01-01")
```

date_to_season_c	<i>Date to season (character)</i>
------------------	-----------------------------------

Description

Maps a date to the surveillance season it belongs to, written as "yyyy/yyyy".

Usage

```
date_to_season_c(x)
```

Arguments

x A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

The date is first converted to an ISO yearweek with [date_to_isoyearweek_c\(\)](#) and then to a season with [isoyearweek_to_season_c\(\)](#). Seasons start at ISO week 35, so dates in early January belong to the season that began the previous calendar year.

Value

Season as a character vector (e.g. "2020/2021").

See Also

[date_to_seasonweek_n\(\)](#) for the week within that season, and [isoyearweek_to_season_c\(\)](#) to start from an ISO yearweek instead. `vignette("season", package = "cstime")` for worked season week conversions. No vignette runs this function.

Examples

```
date_to_season_c(c("2021-01-01", "2021-12-01"))
date_to_season_c(as.Date("2021-09-01"))
```

date_to_seasonweek_n	<i>Date to season week (numeric)</i>
----------------------	--------------------------------------

Description

Maps a date to its position within the surveillance season, where season week 1 corresponds to ISO week 35.

Usage

```
date_to_seasonweek_n(x)
```

Arguments

`x` A Date object, or a character string in the format 'yyyy-mm-dd'.

Details

The date is first converted to an ISO yearweek with `date_to_isoyearweek_c()` and then to a season week with `isoyearweek_to_seasonweek_n()`. As with `isoweek_to_seasonweek_n()`, ISO week 53 maps to the half-step season week 18.5.

Value

Season week as a numeric vector.

See Also

`date_to_season_c()` for the season itself, and `isoyearweek_to_seasonweek_n()` to start from an ISO yearweek instead. `vignette("season", package = "cstime")` for worked season week conversions. No vignette runs this function.

Examples

```
date_to_seasonweek_n(c("2021-01-01", "2021-12-01"))
date_to_seasonweek_n(as.Date("2021-09-01"))
```

dates_by_isoyearweek *Dates of each weekday within ISO yearweeks*

Description

A lookup table with one row per ISO yearweek, for ISO years 1900 to 2099. Each row holds the date of every day of that week, Monday to Sunday, plus list-columns that group those dates. The 10436 rows run from "1900-01" to "2099-53", so the dates covered are 1900-01-01 to 2100-01-03.

Usage

```
dates_by_isoyearweek
```

Format

A `data.table::data.table` with one row per ISO yearweek and the following columns:

isoyear Integer. ISO year.

isoyearweek Character. ISO yearweek, "yyyy-ww".

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 column. The dates Monday to Friday.
weekend List column. The dates Saturday and Sunday.
days List column. The dates Monday to Sunday.

Source

Generated from a daily date sequence using ISO 8601 week rules. See `data-raw/1_gen-data.R` in the package source.

Examples

```
library(data.table)
# Look up the Monday and Sunday of two ISO yearweeks
dates_by_isoyearweek[isoyearweek %in% c("2021-01", "2021-02"), .(isoyearweek, mon, sun)]

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

```
isoweek_to_seasonweek_n
```

ISO week to season week (numeric)

Description

Maps an ISO week number to its position within the surveillance season, where season week 1 corresponds to ISO week 35.

Usage

```
isoweek_to_seasonweek_n(x)

## Default S3 method:
isoweek_to_seasonweek_n(x)

## S3 method for class 'character'
isoweek_to_seasonweek_n(x)

## S3 method for class 'numeric'
isoweek_to_seasonweek_n(x)
```

Arguments

x ISO week as a number between 1 and 53.

Details

Surveillance seasons start at ISO week 35, so ISO week 35 is season week 1. ISO week 36 is season week 2, and the numbering continues across the new year. ISO week 53 occurs only in long ISO years. It maps to the half-step season week 18.5, so that the surrounding weeks keep consistent numbering.

Value

Season week as a numeric vector (ISO week 53 returns 18.5).

See Also

[seasonweek_to_isoweek_n\(\)](#) and [seasonweek_to_isoweek_c\(\)](#) convert back. They return different classes from each other, so they are not a family. [vignette\("cstime", package = "cstime"\)](#) and [vignette\("season", package = "cstime"\)](#), which both run this function.

Examples

```
isoweek_to_seasonweek_n(35)
isoweek_to_seasonweek_n(c(31, 53))
```

isoyear_to_last_date	<i>ISO year to last date (Sunday)</i>
----------------------	---------------------------------------

Description

Returns the date of the Sunday that ends the last ISO week of a given ISO year.

Usage

```
isoyear_to_last_date(x)

## Default S3 method:
isoyear_to_last_date(x)

## S3 method for class 'character'
isoyear_to_last_date(x)

## S3 method for class 'numeric'
isoyear_to_last_date(x)
```

Arguments

x ISO year as a number or character string, e.g. 2020 or "2020".

Details

ISO weeks end on Sunday, so the returned date is the Sunday of the final ISO week. ISO years and calendar years are not aligned. The returned date can therefore fall in early January of the following calendar year. For example, the last date of ISO year 2020 is 2021-01-03. The function accepts the year as either a number or a character string.

Value

A `base::Date` vector giving the last Sunday of each ISO year.

See Also

`isoyear_to_last_isoweek_n()` and `isoyear_to_last_isoyearweek_c()` answer the same question as a week number and as a yearweek string. `isoyearweek_to_last_date()` and `season_to_last_date()` do the same for an ISO yearweek and for a season. `vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Examples

```
isoyear_to_last_date(c(2019, 2020, 2021))
isoyear_to_last_date("2020")
```

```
isoyear_to_last_isoweek_n
      ISO year to last ISO week (numeric)
```

Description

Returns the number of the last ISO week in a given ISO year, that is, the count of ISO weeks in that year.

Usage

```
isoyear_to_last_isoweek_n(x)

## Default S3 method:
isoyear_to_last_isoweek_n(x)

## S3 method for class 'character'
isoyear_to_last_isoweek_n(x)

## S3 method for class 'numeric'
isoyear_to_last_isoweek_n(x)
```

Arguments

`x` ISO year as a number or character string, e.g. 2020 or "2020".

Details

This is 52 for most years and 53 for long ISO years such as 2020. The year is accepted as either a number or a character string.

Value

Last ISO week of the year as an integer vector (52 or 53).

See Also

`isoyear_to_last_isoyearweek_c()` and `isoyear_to_last_date()` answer the same question as a yearweek string and as a date. `vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Examples

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

```
isoyear_to_last_isoyearweek_c
      ISO year to last ISO yearweek (character)
```

Description

Returns the last ISO yearweek of a given ISO year as a "yyyy-ww" string.

Usage

```
isoyear_to_last_isoyearweek_c(x)

## Default S3 method:
isoyear_to_last_isoyearweek_c(x)

## S3 method for class 'character'
isoyear_to_last_isoyearweek_c(x)

## S3 method for class 'numeric'
isoyear_to_last_isoyearweek_c(x)
```

Arguments

x ISO year as a number or character string, e.g. 2020 or "2020".

Details

Most ISO years have 52 weeks, so the result is usually "yyyy-52". ISO years that contain 53 weeks (such as 2020) instead return "yyyy-53". The year is accepted as either a number or a character string.

Value

Last ISO yearweek of the year as a character vector (e.g. "2020-53").

See Also

[isoyear_to_last_isoweek_n\(\)](#) and [isoyear_to_last_date\(\)](#) answer the same question as a week number and as a date. `vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Examples

```
isoyear_to_last_isoyearweek_c(c(2019, 2020, 2021))
isoyear_to_last_isoyearweek_c("2020")
```

```
isoyearweek_to_isoquarter_c
```

ISO yearweek to ISO quarter (character)

Description

Maps an ISO yearweek to its ISO-week-based quarter (1 to 4), returned as a character string.

Usage

```
isoyearweek_to_isoquarter_c(x)

## Default S3 method:
isoyearweek_to_isoquarter_c(x)

## S3 method for class 'character'
isoyearweek_to_isoquarter_c(x)
```

Arguments

x ISO yearweek as a character string of the form "yyyy-ww", e.g. "2020-19" for the 19th ISO week of 2020.

Details

The quarter is derived from the ISO week part of the input. See [isoyearweek_to_isoquarter_n\(\)](#) for the week-to-quarter boundaries.

Value

ISO quarter as a character vector (e.g. "2").

See Also

`vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other ISO yearweek-to-character converters: [isoyearweek_to_isoweek_c\(\)](#), [isoyearweek_to_isoyear_c\(\)](#), [isoyearweek_to_isoyearquarter_c\(\)](#)

Examples

```
isoyearweek_to_isoquarter_c("2020-19")
```

```
isoyearweek_to_isoquarter_n
      ISO yearweek to ISO quarter (numeric)
```

Description

Maps an ISO yearweek to its ISO-week-based quarter (1 to 4), returned as a number.

Usage

```
isoyearweek_to_isoquarter_n(x)

## Default S3 method:
isoyearweek_to_isoquarter_n(x)

## S3 method for class 'character'
isoyearweek_to_isoquarter_n(x)
```

Arguments

`x` ISO yearweek as a character string of the form "yyyy-ww", e.g. "2020-19" for the 19th ISO week of 2020.

Details

The quarter comes from the ISO week part of the input:

- Weeks 1 to 13 are quarter 1.
- Weeks 14 to 26 are quarter 2.
- Weeks 27 to 39 are quarter 3.
- Weeks 40 and later are quarter 4. This includes week 53.

Value

ISO quarter as a numeric vector (1 to 4).

See Also

`vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other ISO yearweek-to-number converters: [isoyearweek_to_isoweek_n\(\)](#), [isoyearweek_to_isoyear_n\(\)](#), [isoyearweek_to_seasonweek_n\(\)](#)

Examples

```
isoyearweek_to_isoquarter_n("2020-19")
```

```
isoyearweek_to_isoweek_c
```

ISO yearweek to ISO week (character)

Description

Extracts the ISO week from an ISO yearweek string and returns it as a character string.

Usage

```
isoyearweek_to_isoweek_c(x)
```

```
## Default S3 method:
```

```
isoyearweek_to_isoweek_c(x)
```

```
## S3 method for class 'character'
```

```
isoyearweek_to_isoweek_c(x)
```

Arguments

`x` ISO yearweek as a character string of the form "yyyy-ww", e.g. "2020-19" for the 19th ISO week of 2020.

Details

The input is split on the hyphen into year and week, and the week part is returned. The year part is ignored.

Value

ISO week as a character vector (e.g. "19").

See Also

`vignette("cstime", package = "cstime")` and `vignette("date_conversion", package = "cstime")`, which both run this function.

Other ISO yearweek-to-character converters: [isoyearweek_to_isoquarter_c\(\)](#), [isoyearweek_to_isoyear_c\(\)](#), [isoyearweek_to_isoyearquarter_c\(\)](#)

Examples

```
isoyearweek_to_isoweek_c("2020-19")
```

```
isoyearweek_to_isoweek_n
```

ISO yearweek to ISO week (numeric)

Description

Extracts the ISO week from an ISO yearweek string and returns it as a number.

Usage

```
isoyearweek_to_isoweek_n(x)
```

```
## Default S3 method:
```

```
isoyearweek_to_isoweek_n(x)
```

```
## S3 method for class 'character'
```

```
isoyearweek_to_isoweek_n(x)
```

Arguments

x ISO yearweek as a character string of the form "yyyy-ww", e.g. "2020-19" for the 19th ISO week of 2020.

Details

The input is split on the hyphen into year and week, and the week part is returned. The year part is ignored.

Value

ISO week as an integer vector (1 to 53).

See Also

`vignette("date_conversion", package = "cstime")`, which runs this function.

Other ISO yearweek-to-number converters: [isoyearweek_to_isoquarter_n\(\)](#), [isoyearweek_to_isoyear_n\(\)](#), [isoyearweek_to_seasonweek_n\(\)](#)

Examples

```
isoyearweek_to_isoweek_n("2020-19")
```

`isoyearweek_to_isoyear_c`*ISO yearweek to ISO year (character)*

Description

Extracts the ISO year from an ISO yearweek string and returns it as a character string.

Usage

```
isoyearweek_to_isoyear_c(x)
```

```
## Default S3 method:
```

```
isoyearweek_to_isoyear_c(x)
```

```
## S3 method for class 'character'
```

```
isoyearweek_to_isoyear_c(x)
```

Arguments

<code>x</code>	ISO yearweek as a character string of the form "yyyy-ww", e.g. "2020-19" for the 19th ISO week of 2020.
----------------	---

Details

The input is split on the hyphen into year and week, and the year part is returned. The week part is ignored.

Value

ISO year as a character vector (e.g. "2020").

See Also

`vignette("cstime", package = "cstime")` and `vignette("date_conversion", package = "cstime")`, which both run this function.

Other ISO yearweek-to-character converters: [isoyearweek_to_isoquarter_c\(\)](#), [isoyearweek_to_isoweek_c\(\)](#), [isoyearweek_to_isoyearquarter_c\(\)](#)

Examples

```
isoyearweek_to_isoyear_c("2020-10")
```

isoyearweek_to_isoyear_n
ISO yearweek to ISO year (numeric)

Description

Extracts the ISO year from an ISO yearweek string and returns it as a number.

Usage

```
isoyearweek_to_isoyear_n(x)

## Default S3 method:
isoyearweek_to_isoyear_n(x)

## S3 method for class 'character'
isoyearweek_to_isoyear_n(x)
```

Arguments

x ISO yearweek as a character string of the form "yyyy-ww", e.g. "2020-19" for the 19th ISO week of 2020.

Details

The input is split on the hyphen into year and week, and the year part is returned. The week part is ignored.

Value

ISO year as an integer vector (e.g. 2020).

See Also

`vignette("date_conversion", package = "cstime")`, which runs this function.

Other ISO yearweek-to-number converters: [isoyearweek_to_isoquarter_n\(\)](#), [isoyearweek_to_isoweek_n\(\)](#), [isoyearweek_to_seasonweek_n\(\)](#)

Examples

```
isoyearweek_to_isoyear_n("2020-10")
```

`isoyearweek_to_isoyearquarter_c`*ISO yearweek to ISO yearquarter (character)*

Description

Maps an ISO yearweek to a combined ISO year and quarter string of the form "yyyy-Qn".

Usage

```
isoyearweek_to_isoyearquarter_c(x)
```

```
## Default S3 method:
```

```
isoyearweek_to_isoyearquarter_c(x)
```

```
## S3 method for class 'character'
```

```
isoyearweek_to_isoyearquarter_c(x)
```

Arguments

`x` ISO yearweek as a character string of the form "yyyy-ww", e.g. "2020-19" for the 19th ISO week of 2020.

Details

The output keeps the year part of the input and appends the ISO-week-based quarter (see [isoyearweek_to_isoquarter_c\(\)](#)) for example "2020-Q2".

Value

ISO yearquarter as a character vector (e.g. "2020-Q2").

See Also

`vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Other ISO yearweek-to-character converters: [isoyearweek_to_isoquarter_c\(\)](#), [isoyearweek_to_isoweek_c\(\)](#), [isoyearweek_to_isoyear_c\(\)](#)

Examples

```
isoyearweek_to_isoyearquarter_c("2020-19")
```

`isoyearweek_to_last_date`*ISO yearweek to last date (Sunday)*

Description

Returns the date of the Sunday that ends a given ISO yearweek.

Usage

```
isoyearweek_to_last_date(x)
```

```
## Default S3 method:
```

```
isoyearweek_to_last_date(x)
```

```
## S3 method for class 'character'
```

```
isoyearweek_to_last_date(x)
```

Arguments

<code>x</code>	ISO yearweek as a character string of the form "yyyy-ww", e.g. "2020-19" for the 19th ISO week of 2020.
----------------	---

Details

ISO weeks run Monday to Sunday, so the returned date is the Sunday of the supplied yearweek.

Value

A `base::Date` vector giving the Sunday of each ISO yearweek.

See Also

`isoyear_to_last_date()` and `season_to_last_date()` do the same for an ISO year and for a season. Each takes a different input grammar, so they are not interchangeable. `vignette("date_conversion", package = "cstime")` for worked date, ISO year and ISO week conversions. No vignette runs this function.

Examples

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

`isoyearweek_to_season_c`*ISO yearweek to season (character)*

Description

Maps an ISO yearweek to the surveillance season it belongs to, written as "yyyy/yyyy".

Usage

```
isoyearweek_to_season_c(x)
```

```
## Default S3 method:
```

```
isoyearweek_to_season_c(x)
```

```
## S3 method for class 'character'
```

```
isoyearweek_to_season_c(x)
```

Arguments

`x` ISO yearweek as a character string of the form "yyyy-ww", e.g. "2021-01".

Details

Seasons start at ISO week 35 (season week 1). ISO weeks 35 and later belong to the season that starts in that calendar year. Earlier weeks belong to the season that started in the previous calendar year. For example, "2021-01" falls in season "2020/2021" and "2021-50" falls in season "2021/2022".

Value

Season as a character vector (e.g. "2020/2021").

See Also

[isoyearweek_to_seasonweek_n\(\)](#) for the week within that season, and [season_to_last_date\(\)](#) for the date the season ends. `vignette("season", package = "cstime")` for worked season week conversions. No vignette runs this function.

Examples

```
isoyearweek_to_season_c(c("2021-01", "2021-50"))
```

isoyearweek_to_seasonweek_n
<i>ISO yearweek to season week (numeric)</i>

Description

Maps an ISO yearweek to its position within the surveillance season, where season week 1 corresponds to ISO week 35.

Usage

```
isoyearweek_to_seasonweek_n(x)
```

Arguments

x	ISO yearweek as a character string of the form "yyyy-ww", e.g. "2021-01".
---	---

Details

This function takes the ISO week from the yearweek string and converts it with [isoweek_to_seasonweek_n\(\)](#). The same season-week numbering applies, including the 18.5 half-step for ISO week 53.

Value

Season week as a numeric vector.

See Also

[vignette\("season", package = "cstime"\)](#) for worked season week conversions. No vignette runs this function.

Other ISO yearweek-to-number converters: [isoyearweek_to_isoquarter_n\(\)](#), [isoyearweek_to_isoweek_n\(\)](#), [isoyearweek_to_isoyear_n\(\)](#)

Examples

```
isoyearweek_to_seasonweek_n(c("2021-01", "2021-35"))
```

keep_sundays	<i>keep_sundays</i>
--------------	---------------------

Description

keep_sundays

Usage

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	<i>keep_sundays_and_latest_date</i>
------------------------------	-------------------------------------

Description

keep_sundays_and_latest_date

Usage

```
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
      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

A daily calendar flagging Norwegian public holidays, weekends and workdays for each date in the covered range.

Usage

```
nor_workdays_by_date
```

Format

A `data.table::data.table` with one row per date and the following columns:

date Date.

day_of_week Integer. 1 = Monday, 7 = Sunday.

mon_to_fri Integer. 1 if Monday to Friday, 0 if Saturday or Sunday.

sat_to_sun Integer. 1 if Saturday or Sunday, 0 if Monday to Friday.

public_holiday Integer. 1 if a public holiday (helligdag), 0 otherwise.

freeday Integer. 1 if a public holiday or Saturday/Sunday, 0 otherwise.

workday Integer. 1 if freeday is 0, 0 if freeday is 1.

Source

Derived from the Norwegian public-holiday list in `inst/rawdata/norway_holidays.xlsx`. See `data-row/1_gen-data.R` in the package source.

Examples

```
head(nor_workdays_by_date)

# Count the workdays in the dataset
sum(nor_workdays_by_date$workday)
```

```
nor_workdays_by_isoyearweek
```

Norwegian workdays and holidays by ISO yearweek

Description

For each complete (7-day) ISO yearweek, the proportion of days that are public holidays, free days and workdays in Norway. The proportions are stored rounded to two decimal places, so 5 workdays in 7 is 0.71 rather than 5/7.

Usage

```
nor_workdays_by_isoyearweek
```

Format

A `data.table::data.table` with one row per ISO yearweek and the following columns:

isoyearweek Character. ISO yearweek, "yyyy-ww".

public_holiday The proportion of days in the ISO yearweek that are public holidays, rounded to two decimal places.

freeday The proportion of days in the ISO yearweek that are public holidays or Saturday/Sunday, rounded to two decimal places.

workday 1 minus freeday.

Source

Aggregated from `nor_workdays_by_date`. See `data-row/1_gen-data.R` in the package source.

Examples

```
head(nor_workdays_by_isoyearweek)

# ISO yearweeks that contain at least one public holiday
head(nor_workdays_by_isoyearweek[nor_workdays_by_isoyearweek$public_holiday > 0, ])
```

now_c	<i>Current time as character</i>
-------	----------------------------------

Description

Returns the current system time formatted as a character string.

Usage

```
now_c(format = "%Y-%m-%d %H:%M:%S")
```

Arguments

format A format string passed to `base::format()`. Defaults to "%Y-%m-%d %H:%M:%S".

Details

The current time is taken from `base::Sys.time()` and formatted with the supplied format string, which uses the conversion codes documented in `base::strptime()`.

The result depends on the time zone of the session. At one instant, a session in Pacific/Auckland and a session in America/Los_Angeles can report different calendar dates, not only different clock times.

Value

The current time as a single character string.

See Also

`date_to_isoyearweek_c()` to convert a date rather than to read the clock. No vignette runs this function.

Examples

```
now_c()
now_c(format = "%Y-%m-%d")
```

season_to_last_date	<i>Season to last date (Sunday)</i>
---------------------	-------------------------------------

Description

Returns the date of the Sunday that ends a given season.

Usage

```
season_to_last_date(x)

## Default S3 method:
season_to_last_date(x)

## S3 method for class 'character'
season_to_last_date(x)
```

Arguments

x Season as a character string of the form "yyyy/yyyy", e.g. "2019/2020".

Details

A season is written "yyyy/yyyy" where the two years are consecutive, for example "2019/2020". Seasons are aligned to ISO weeks, and season week 1 starts at ISO week 35. The season therefore ends in late summer of the second year. The returned date is the Sunday of the final week of the season.

Value

A `base::Date` vector giving the last Sunday of each season.

See Also

[isoyearweek_to_season_c\(\)](#) finds the season an ISO yearweek belongs to. [isoyear_to_last_date\(\)](#) and [isoyearweek_to_last_date\(\)](#) do the same for an ISO year and for an ISO yearweek. `vignette("season", package = "cstime")` for worked season week conversions. No vignette runs this function.

Examples

```
season_to_last_date(c("2019/2020", "2020/2021"))
```

`seasonweek_to_isoweek_c`*Season week to ISO week (character)*

Description

Maps a season week number back to its ISO week, returned as a zero-padded character string. This is the inverse of [isoweek_to_seasonweek_n\(\)](#).

Usage

```
seasonweek_to_isoweek_c(x)

## Default S3 method:
seasonweek_to_isoweek_c(x)

## S3 method for class 'numeric'
seasonweek_to_isoweek_c(x)
```

Arguments

`x` Season week as a number between 1 and 52.

Details

Season week 1 corresponds to ISO week 35, season week 2 to ISO week 36, and so on, wrapping around the new year. The ISO week is returned as two digits, e.g. "35" or "01".

Value

ISO week as a character vector (e.g. "35").

See Also

[seasonweek_to_isoweek_n\(\)](#) returns the same week as a number, and [isoweek_to_seasonweek_n\(\)](#) converts back. `vignette("season", package = "cstime")`, which runs this function.

Examples

```
seasonweek_to_isoweek_c(1)
seasonweek_to_isoweek_c(c(31, 52))
```

`seasonweek_to_isoweek_n`*Season week to ISO week (numeric)*

Description

Maps a season week number back to its ISO week, returned as a number. This is the inverse of [isoweek_to_seasonweek_n\(\)](#).

Usage

```
seasonweek_to_isoweek_n(x)
```

```
## Default S3 method:
```

```
seasonweek_to_isoweek_n(x)
```

```
## S3 method for class 'numeric'
```

```
seasonweek_to_isoweek_n(x)
```

Arguments

`x` Season week as a number between 1 and 52.

Details

Season week 1 corresponds to ISO week 35, season week 2 to ISO week 36, and so on, wrapping around the new year.

Value

ISO week as an integer vector (1 to 53).

See Also

[seasonweek_to_isoweek_c\(\)](#) returns the same week as a zero-padded string, and [isoweek_to_seasonweek_n\(\)](#) converts back. `vignette("cstime", package = "cstime")` and `vignette("season", package = "cstime")`, which both run this function.

Examples

```
seasonweek_to_isoweek_n(1)
seasonweek_to_isoweek_n(c(31, 52))
```

Index

- * **ISO yearweek-to-character converters**
 - isoyearweek_to_isoquarter_c, [22](#)
 - isoyearweek_to_isoweek_c, [24](#)
 - isoyearweek_to_isoyear_c, [26](#)
 - isoyearweek_to_isoyearquarter_c, [28](#)

- * **ISO yearweek-to-number converters**
 - isoyearweek_to_isoquarter_n, [23](#)
 - isoyearweek_to_isoweek_n, [25](#)
 - isoyearweek_to_isoyear_n, [27](#)
 - isoyearweek_to_seasonweek_n, [31](#)

- * **datasets**
 - dates_by_isoyearweek, [17](#)
 - nor_workdays_by_date, [33](#)
 - nor_workdays_by_isoyearweek, [34](#)

- * **date-to-character converters**
 - date_to_calmonth_c, [3](#)
 - date_to_calyear_c, [5](#)
 - date_to_calyearmonth_c, [7](#)
 - date_to_isoquarter_c, [8](#)
 - date_to_isoweek_c, [10](#)
 - date_to_isoyear_c, [12](#)
 - date_to_isoyearquarter_c, [14](#)
 - date_to_isoyearweek_c, [15](#)

- * **date-to-number converters**
 - date_to_calmonth_n, [4](#)
 - date_to_calyear_n, [6](#)
 - date_to_isoquarter_n, [9](#)
 - date_to_isoweek_n, [11](#)
 - date_to_isoyear_n, [13](#)

base::Date, [20](#), [29](#), [36](#)

base::format(), [35](#)

base::strptime(), [35](#)

base::Sys.time(), [35](#)

data.table::data.table, [17](#), [33](#), [34](#)

date_to_calmonth_c, [3](#)

date_to_calmonth_c(), [5](#), [7](#), [8](#), [10](#), [12](#), [14](#), [15](#)

date_to_calmonth_n, [4](#)

date_to_calmonth_n(), [6](#), [9](#), [11](#), [13](#)

date_to_calyear_c, [5](#)

date_to_calyear_c(), [3](#), [7](#), [8](#), [10](#), [12](#), [14](#), [15](#)

date_to_calyear_n, [6](#)

date_to_calyear_n(), [4](#), [9](#), [11](#), [13](#)

date_to_calyearmonth_c, [7](#)

date_to_calyearmonth_c(), [3](#), [5](#), [8](#), [10](#), [12](#), [14](#), [15](#)

date_to_isoquarter_c, [8](#)

date_to_isoquarter_c(), [3](#), [5](#), [7](#), [10](#), [12](#), [14](#), [15](#)

date_to_isoquarter_n, [9](#)

date_to_isoquarter_n(), [4](#), [6](#), [8](#), [11](#), [13](#)

date_to_isoweek_c, [10](#)

date_to_isoweek_c(), [3](#), [5](#), [7](#), [8](#), [12](#), [14](#), [15](#)

date_to_isoweek_n, [11](#)

date_to_isoweek_n(), [4](#), [6](#), [9](#), [13](#)

date_to_isoyear_c, [12](#)

date_to_isoyear_c(), [3](#), [5](#), [7](#), [8](#), [10](#), [13–15](#)

date_to_isoyear_n, [13](#)

date_to_isoyear_n(), [4](#), [6](#), [9](#), [11](#)

date_to_isoyearquarter_c, [14](#)

date_to_isoyearquarter_c(), [3](#), [5](#), [7](#), [8](#), [10](#), [12](#), [15](#)

date_to_isoyearweek_c, [15](#)

date_to_isoyearweek_c(), [3](#), [5](#), [7](#), [8](#), [10](#), [12](#), [14](#), [16](#), [17](#), [35](#)

date_to_season_c, [16](#)

date_to_season_c(), [17](#)

date_to_seasonweek_n, [16](#)

date_to_seasonweek_n(), [16](#)

dates_by_isoyearweek, [17](#)

isoweek_to_seasonweek_n, [18](#)

isoweek_to_seasonweek_n(), [17](#), [31](#), [37](#), [38](#)

isoyear_to_last_date, [19](#)

isoyear_to_last_date(), [21](#), [22](#), [29](#), [36](#)

isoyear_to_last_isoweek_n, [20](#)

isoyear_to_last_isoweek_n(), [20](#), [22](#)

isoyear_to_last_isoyearweek_c, [21](#)

isoyear_to_last_isoyearweek_c(), [20](#), [21](#)
isoyearweek_to_isoquarter_c, [22](#)
isoyearweek_to_isoquarter_c(), [24](#), [26](#),
[28](#)
isoyearweek_to_isoquarter_n, [23](#)
isoyearweek_to_isoquarter_n(), [22](#), [25](#),
[27](#), [31](#)
isoyearweek_to_isoweeek_c, [24](#)
isoyearweek_to_isoweeek_c(), [23](#), [26](#), [28](#)
isoyearweek_to_isoweeek_n, [25](#)
isoyearweek_to_isoweeek_n(), [24](#), [27](#), [31](#)
isoyearweek_to_isoyear_c, [26](#)
isoyearweek_to_isoyear_c(), [23](#), [24](#), [28](#)
isoyearweek_to_isoyear_n, [27](#)
isoyearweek_to_isoyear_n(), [24](#), [25](#), [31](#)
isoyearweek_to_isoyearquarter_c, [28](#)
isoyearweek_to_isoyearquarter_c(), [23](#),
[24](#), [26](#)
isoyearweek_to_last_date, [29](#)
isoyearweek_to_last_date(), [20](#), [36](#)
isoyearweek_to_season_c, [30](#)
isoyearweek_to_season_c(), [16](#), [36](#)
isoyearweek_to_seasonweek_n, [31](#)
isoyearweek_to_seasonweek_n(), [17](#), [24](#),
[25](#), [27](#), [30](#)

keep_sundays, [32](#)
keep_sundays_and_latest_date, [32](#)
keep_sundays_and_latest_date_internal,
[33](#)

nor_workdays_by_date, [33](#), [34](#)
nor_workdays_by_isoyearweek, [34](#)
now_c, [35](#)

season_to_last_date, [36](#)
season_to_last_date(), [20](#), [29](#), [30](#)
seasonweek_to_isoweeek_c, [37](#)
seasonweek_to_isoweeek_c(), [19](#), [38](#)
seasonweek_to_isoweeek_n, [38](#)
seasonweek_to_isoweeek_n(), [19](#), [37](#)