

The `bxjholiday` package

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Abstract

This package provides a command to convert dates to names of Japanese holidays (*shukujitsu*; 祝日). For internal use, I need to implement a function to judge the day of week (*youbi*; 曜日), so a command converting dates to *youbi* in the same manner is also available as a free gift. The equivalent functions and further (lower-level) APIs are provided for `expl3`.

1 System requirements

As one of the BX series¹ packages, `bxjholiday` supports all `TeX` engines which supported by `expl3` (i. e., the ε -`TeX` extension is required.) Specifically, following `TeX` systems are supported:

- `TeX` format: `LATeX 2ε`.
- `TeX` engine: `pdfTeX`, `XYTeX`, `LuaTeX`,² `pTeX`, and `upTeX`.

2 Loading the package

The package should be loaded in the usual `LATeX 2ε` way. No package option is available.

```
\usepackage{bxjholiday}
```

3 `LATeX 2ε` interfaces

`\jholidayname` ★ `\jholidayname{<year>}{<month>}{<day>}`

This command is expanded to the name of Japanese holiday corresponding to the specified date, if it is a holiday. For a date which is not a holiday, it will be expanded to nothing (an empty token.) See Table 1 for all possible results.

For `<year>`, `<month>`, and `<day>`, you can explicitly write numbers, or use counters, e. g., `\year`, `\month`, and `\day`. To be exact, those could be any *<integer expression>*.

¹BX series is a collection of `LATeX` packages mainly developed by Takayuki YATO (a.k.a. ZR.) “BX” stands for “babel extensions” and packages in this series are normally support various `TeX` engines not only Japanese-specific ones (`pTeX`, `upTeX`, and so on.)

²Note that if you want to print Japanese characters with `TeX` engines which is not specifically designed for Japanese, you need to setup proper fonts and other things.

`\jadayofweek` * `\jadayofweek{<year>}{<month>}{<day>}`

This command converts from a date to the name of week, i.e., one of 月, 火, 水, 木, 金, 土, 日. You can specify the arguments in exactly the same way as `\jaholidayname`.

`\IfJaHolidayTF` * `\IfJaHolidayTF{<year>}{<month>}{<day>}{<true code>}{<false code>}`
`\IfJaHolidayT` * `\IfJaHolidayT{<year>}{<month>}{<day>}{<true code>}`
`\IfJaHolidayF` * `\IfJaHolidayF{<year>}{<month>}{<day>}{<false code>}`

The `\IfJaHoliday(TF)` tests are used to check if a date is a Japanese holiday or not. Note that substitute holidays (振替休日) are also judged as a holiday in this test.

4 expl3 interfaces

All expl3 interfaces provided by `bxjaholiday` belong to the `bxjh` module.

4.1 Functions

`\bxjh_holiday_name:nnn` * `\bxjh_holiday_name:nnn {<year> } {<month> } {<day> }`

This is expl3 version of `\jaholidayname`. It converts dates into Japanese holiday names.

`\bxjh_day_of_week_name:nnn` * `\bxjh_day_of_week_name:nnn {<year> } {<month> } {<day> }`
`\bxjh_day_of_week:nnn` * `\bxjh_day_of_week:nnn {<year> } {<month> } {<day> }`

`\bxjh_day_of_week_name:nnn` is an expl3 version of `\jadayofweek`. It converts a date into day of week in Japanese. To use that information in expl3, e.g., for branching, `\bxjh_day_of_week:nnn` is more suitable. It returns an internal `int` value, so you can compare those results with the constants provided by this package. See Section 4.2.

`\bxjh_if_holiday:nnnTF` * `\bxjh_if_holiday:nnnTF {<year> } {<month> } {<day> } {<true code> } {<false code> }`

This test is expl3 version of `\IfJaHoliday(TF)`.

`\bxjh_apply_prev_day:Nnnn` * `\bxjh_apply_prev_day:Nnnn <function> {<year> } {<month> } {<day> }`
`\bxjh_apply_next_day:Nnnn` * `\bxjh_apply_next_day:Nnnn <function> {<year> } {<month> } {<day> }`

These functions get previous/next day of the specified date, and apply it to the specified `<function>`. The `<function>` must take three arguments in the order. For example,

```
\bxjh_apply_next_day:Nnnn \bxjh_holiday_name:nnn { 2019 } { 12 } { 31 }
```

produces the result of:

```
\bxjh_holiday_name:nnn { 2020 } { 1 } { 1 }
```

4.2 Variables and constants

Names of Japanese holidays All of them are provided as global `t1` variables. See Table 1.

Day of week Internally, `bxjaholiday` uses integers to represent day of week, and corresponding `int` constants are defined. In addition to that, Japanese names of those are also provided as global `t1` variables. See Table 2.

Table 1: Japanese holidays

Holiday	Variable	Name in Japanese
New Year's Day	<code>\g_bxjh_ganjitsu_tl</code>	元日
Coming of Age Day	<code>\g_bxjh_seijin_tl</code>	成人の日
National Foundation Day	<code>\g_bxjh_kenkoku_tl</code>	建国記念の日
The Emperor's Birthday	<code>\g_bxjh_tennou_tl</code>	天皇誕生日
Vernal Equinox Day	<code>\g_bxjh_shunbun_tl</code>	春分の日
Showa Day	<code>\g_bxjh_showa_tl</code>	昭和の日
Greenery Day	<code>\g_bxjh_midori_tl</code>	みどりの日
Constitution Memorial Day	<code>\g_bxjh_kenpou_tl</code>	憲法記念日
National Holiday	<code>\g_bxjh_kokumin_tl</code>	国民の休日
Children's Day	<code>\g_bxjh_kodomo_tl</code>	こどもの日
(substitute holiday)	<code>\g_bxjh_furikae_tl</code>	振替休日
Marine Day	<code>\g_bxjh_umi_tl</code>	海の日
Mountain Day	<code>\g_bxjh_yama_tl</code>	山の日
Autumnal Equinox Day	<code>\g_bxjh_shunbun_tl</code>	春分の日
Respect for the Aged Day	<code>\g_bxjh_keirou_tl</code>	敬老の日
Sports Day	<code>\g_bxjh_sports_tl</code>	スポーツの日
Health and Sports Day	<code>\g_bxjh_taiiku_tl</code>	体育の日
Culture Day	<code>\g_bxjh_bunka_tl</code>	文化の日
Labor Thanksgiving Day	<code>\g_bxjh_kinrou_tl</code>	勤労感謝の日
National Mourning of Showa	<code>\g_bxjh_showa_taisou_tl</code>	昭和天皇の大喪の礼
National Wedding of Akihito	<code>\g_bxjh_akihiro_kekkon_tl</code>	皇太子明仁親王の結婚の儀
National Wedding of Naruhito	<code>\g_bxjh_naruhito_kekkon_tl</code>	皇太子徳仁親王の結婚の儀
Core Enthronement Ceremony	<code>\g_bxjh_sokuirei_tl</code>	即位礼正殿の儀
Coronation Day	<code>\g_bxjh_sokui_tl</code>	即位の日

Table 2: Day of week

Day of week	Constant (int)	Variable (tl)
Monday	<code>\c_bxjh_monday_int</code> 0	<code>\g_bxjh_getsu_tl</code> 月
Tuesday	<code>\c_bxjh_tuesday_int</code> 1	<code>\g_bxjh_ka_tl</code> 火
Wednesday	<code>\c_bxjh_wednesday_int</code> 2	<code>\g_bxjh_sui_tl</code> 水
Thursday	<code>\c_bxjh_thursday_int</code> 3	<code>\g_bxjh_moku_tl</code> 木
Friday	<code>\c_bxjh_friday_int</code> 4	<code>\g_bxjh_kin_tl</code> 金
Saturday	<code>\c_bxjh_saturday_int</code> 5	<code>\g_bxjh_do_tl</code> 土
Sunday	<code>\c_bxjh_sunday_int</code> 6	<code>\g_bxjh_nichi_tl</code> 日