

# Package ‘hwig’

April 16, 2020

**Title** Half-Weight Index Gregariousness

**Version** 0.0.1

**Description** The half-weight index gregariousness (HWIG) is an association index used in social network analyses. It extends the half-weight association index (HWI), correcting for level of gregariousness in individuals. It is calculated using group by individual data according to methods described in Godde et al. (2013) <doi:10.1016/j.anbehav.2012.12.010>.

**License** GPL-3

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 7.0.2

**Depends** R (>= 2.10)

**Imports** asnipe, spatsock, data.table

**Suggests** testthat

**BugReports** <https://github.com/robitallec/hwig/issues>

**URL** <https://gitlab.com/robit.a/hwig>, <https://github.com/robitallec/hwig>

**NeedsCompilation** no

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`calc_hwi`*Calculate HWI*

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**Description**

Calculates the Half-Weight Association Index

**Usage**

```
calc_hwi(DT, id, group, by = NULL)
```

**Arguments**

<code>DT</code>	input group membership data, in individual/group format
<code>id</code>	column indicating id in DT
<code>group</code>	column indicating group in DT
<code>by</code>	column(s) to split calculation by. e.g.: year

**Details**

Expects an input 'DT' with id and group column, e.g. as returned by [group\\_pts](#).

**Value**

HWI data.table or list of data.tables.

**See Also**

[calc\\_hwig](#)

**Examples**

```
# Load data.table
library(data.table)

# Load example data
DT <- fread(system.file("extdata", "DT.csv", package = "hwi"))

# Calculate HWI
hwi <- calc_hwi(DT, 'id', 'group', 'yr')
```

---

`calc_hwig`*Calculate HWIG*

---

**Description**

Calculates the Half-Weight Association Index according to the method described in Godde et al. (2013).

**Usage**

```
calc_hwig(hwi)
```

**Arguments**

`hwi` output of `calc_hwi`. Either a `data.table` or a list of `data.tables`. See Details.

**Details**

It is expected that the input `'hwi'` is the output from `'calc_hwi'`. If `'by'` was provided in that function, `'hwi'` will be a list of `data.tables`. Alternatively if `'by'` wasn't provided, `'hwi'` will be a single `data.table`.

**Value**

HWIG `data.table` or list of `data.tables`.

**References**

Sophie Godde, Lionel Humbert, Steeve D. Côté, Denis Réale, Hal Whitehead. Correcting for the impact of gregariousness in social network analyses. *Animal Behaviour*. Volume 85, Issue 3. 2013.

**See Also**

[calc\\_hwi get\\_names](#)

**Examples**

```
# Load data.table
library(data.table)

# Load example data
DT <- fread(system.file("extdata", "DT.csv", package = "hwig"))

# Calculate HWI
hwi <- calc_hwi(DT, 'id', 'group', 'yr')

# Calculate HWIG
hwig <- calc_hwig(hwi)
```

---

DT *Example data for input to 'hwig'*

---

### Description

Example data for input to 'hwig'

### Format

A data.table with 14297 rows and 3 variables:

**ID** individual identifier

**year** integer representing the year

### Source

```
# Load packages library(spatSOC) library(data.table)
# Read example data DT <- fread(system.file("extdata", "DT.csv", package = "spatsoc"))
# Cast the character column to POSIXct DT[, datetime := as.POSIXct(datetime, tz = 'UTC')]
# Temporal grouping group_times(DT, datetime = 'datetime', threshold = '20 minutes')
# Spatial grouping with timegroup group_pts( DT, threshold = 5, id = 'ID', coords = c('X', 'Y'),
timegroup = 'timegroup' )
fwrite(DT[, .(id = ID, group, yr = year(datetime))], 'inst/extdata/DT.csv')
```

### Examples

```
# Load data.table
library(data.table)

# Read example data
DT <- fread(system.file("extdata", "DT.csv", package = "hwig"))
```

---

get\_names *Get HWI/HWIG names*

---

### Description

Helper function, to return names of each matrix

### Usage

```
get_names(DT, by)
```

**Arguments**

DT                   input group membership data, in individual/group format  
by                   column(s) to split calculation by. e.g.: year

**Value**

names corresponding to values of by for each of the returned list of matrices in [calc\\_hwi](#) and [calc\\_hwig](#).

**See Also**

[calc\\_hwi](#) [calc\\_hwig](#)

**Examples**

```
# Load data.table
library(data.table)

# Load example data
DT <- fread(system.file("extdata", "DT.csv", package = "hwig"))

# Calculate HWI
hwi <- calc_hwi(DT, 'id', 'group', 'yr')

# Calculate HWIG
hwig <- calc_hwig(hwi)

# Set names
nms <- get_names(DT, 'yr')
names(hwig) <- nms
```

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