

Package ‘oaqc’

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Title Computation of the Orbit-Aware Quad Census

Version 2.0.0

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Description Implements the efficient algorithm by Ortmann and Brandes (2017) <[doi:10.1007/s41109-017-0027-2](https://doi.org/10.1007/s41109-017-0027-2)> to compute the orbit-aware frequency distribution of induced and non-induced quads, i.e. subgraphs of size four. Given an edge matrix, data frame, or a graph object (e.g., 'igraph'), the orbit-aware counts are computed respective each of the edges and nodes.

URL <https://github.com/schochastics/oaqc>

BugReports <https://github.com/schochastics/oaqc/issues>

Depends R (>= 3.4)

Suggests igraph, knitr, rmarkdown, testthat (>= 3.0.0)

License GPL (>= 3)

Encoding UTF-8

NeedsCompilation yes

RoxygenNote 7.3.2

VignetteBuilder knitr

Config/testthat/edition 3

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Repository CRAN

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annotate_result	<i>Annotates the igraph object with orbit labels.</i>
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Description

Annotates the igraph object with orbit labels.

Usage

```
annotate_result(graph, orbits, non_ind_freq)
```

Arguments

graph	Unmodified input graph.
orbits	List with n_orbits, e_orbits matrices.
non_ind_freq	A flag indicating whether non-induced frequencies have to be written or not.

Value

orbits if the input is not an igraph, the annotated igraph instead.

as.edge_list	<i>Coerce graph input.</i>
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Description

Coerce graph input.

Usage

```
as.edge_list(graph)
```

Arguments

graph	A matrix, data.frame or graph object.
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Value

Edge list matrix.

oabc

*Orbit-aware Quad Census computation***Description**

Implements the efficient algorithm by Ortmann and Brandes (2017) [doi:10.1007/s4110901700272](https://doi.org/10.1007/s4110901700272) to compute the orbit-aware frequency distribution of induced and non-induced quads, i.e. subgraphs of size four. Given an edge matrix, data frame, or a graph object (e.g., 'igraph'), the orbit-aware counts are computed respective each of the edges and nodes.

Usage

```
oabc(graph, non_ind_freq = F, file = "")
```

Arguments

graph	A matrix, data.frame or graph object.
non_ind_freq	A flag indicating whether non-induced frequencies have to be returned or not.
file	Name (and location) of the file to be written.

Value

orbit-aware quad census on a node and edge level. Consult `vignette('oabc')` to see the correspondence between orbit and quad.

Author(s)

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Examples

```
k4 <- data.frame(
  source = c(0, 0, 0, 1, 1, 2),
  target = c(1, 2, 3, 2, 3, 3)
)

k4orbits <- oabc(k4, non_ind_freq = TRUE)
print(k4orbits)
```

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