

Package ‘oaqc’

October 14, 2022

Title Computation of the Orbit-Aware Quad Census

Version 1.0

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.

Depends R (>= 3.4)

Suggests igraph, knitr, rmarkdown

License GPL-3

Encoding UTF-8

LazyData true

NeedsCompilation yes

SystemRequirements C++11

RoxygenNote 6.0.1

VignetteBuilder knitr

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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.

`oaqc`*Orbit-aware Quad Census computation*

Description

Calculates the orbit-aware quad census on an edge and node level, see `vignette('oaqc')`.

Usage

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

Arguments

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

Value

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

Examples

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

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

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