dDAGinduce

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dDAGinduce   *Function to generate a subgraph of a direct acyclic graph (DAG) induced by given vertices*

Description

dDAGinduce is supposed to produce a subgraph induced by given vertices, given a direct acyclic graph (DAG; an ontology). The input is a graph of "igraph" or "graphNET" object, a list of the vertices of the graph, and the mode defining the paths to the root of DAG. The resultant subgraph inherits the class from the input one. The induced subgraph contains exactly the vertices of interest and their defined paths to the root of DAG.

Usage

```
dDAGinduce(g, nodes_query, path.mode = c("all_paths", "shortest_paths",
"all_shortest_paths"))
```

Arguments

g   an object of class "igraph" or "graphNEL"

nodes_query   the vertices for which the calculation is performed

path.mode   the mode of paths induced by nodes in query. It can be "all_paths" for all possible paths to the root, "shortest_paths" for only one path to the root (for each node in query), "all_shortest_paths" for all shortest paths to the root (i.e. for each node, find all shortest paths with the equal lengths)

Value

- subg: an induced subgraph, an object of class "igraph" or "graphNEL"

Note

For the mode "shortest_paths", the induced subgraph is the most concise, and thus informative for visualisation when there are many nodes in query, while the mode "all_paths" results in the complete subgraph.

See Also

[dDAGroot](#)

Examples

```
# 1) load HPPA as igraph object
ig.HPPA <-dRDataLoader(RData='ig.HPPA')
g <- ig.HPPA

# 2) randomly select vertices as the query nodes
# the query nodes can be igraph vertex sequences
nodes_query <- sample(V(g),5)
# more commonly, the query nodes can be term id
nodes_query <- sample(V(g),5)$name

# 3) obtain the induced subgraph
# 3a) based on all possible paths (i.e. the complete subgraph induced)
subg <- dDAGinduce(g, nodes_query, path.mode="all_paths")
# 3b) based on shortest paths (i.e. the most concise subgraph induced)
subg <- dDAGinduce(g, nodes_query, path.mode="shortest_paths")
```