NetExt1 Documentation

Release 1

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Contents:

NetExt1 is a package which aims at simplifying the handling of multilayer networks and networks which change over time. The documentation is still quite rudimentary.

In the center are three packages:

- `network_extensions.igraphx` extends the functionality of https://igraph.org/python/.
- `network_extensions.multilayer` handles multilayer networks
- `network_extensions.simulations` provides tools to compare dynamic networks with simulations of networks using Barabasis or Erdos-Renyi networks.

CHAPTER 1

Network network_extensions.igraphx

CHAPTER 2

Network network_extensions.multilayer

CHAPTER 3

Network igraphx_simulations.simulations

igraphx_simulations.simulations.**calculate_diffs**(*simulations, graphproperties, typs=['graphs', 'largest_component']*)

Calculate the difference (difference and quotient of real value and simulations. Returns the means difference over the whole time period. The differences are added to the graph properties :param simulations: Results of simulations :param graphproperties: Values of the year graphs for some properties, differences and quotient will be added here! :param typs: (optional) defaults to "graphs" and "largest component" :param props: (options) props to be calculates defaults to ["no_nodes","no_edges","no_nodes_div_edges"] :return:

igraphx_simulations.simulations.**simulate_largest_components**(*ynw*, *typ=None*, *iterations=10*)

this method takes a year-network and creates - simular graphs with Erdos_Renyi and Barabasi and returns yeargraphs for both cases and the development of some graph properties (no of nodes and no of edges)

CHAPTER 4

Network network_extensions.semantic

CHAPTER 5

Network network_extensions.semantic

CHAPTER 6

Result structure of a simulation

result of `MultiLayer.simulate_ynw()`

TODO

6.1 graphproperties structure:

6.1.1 graphproperties

is dict with two keys x:

“largest_component” and “graph”

6.1.2 graphproperties[x]

is a **Dataframe** with:

years as **index** and type of a graph property as **column**

6.2 simulations.simulate_largest_components result structure

struct with the keys x:

“properties”, “largest_component”, “graphs”

6.2.1 properties

struct with the keys x: “largest_component” and “graphs”

6.2.2 properties[x]

struct with the keys y:

“Erdos_Renyi” and “Barabasi”

6.2.3 properties[x][y]

is a **Dataframe** with:

years as **index** and type of a graph property as **column**

CHAPTER 7

Helpers for plotly

CHAPTER 8

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