trisbm

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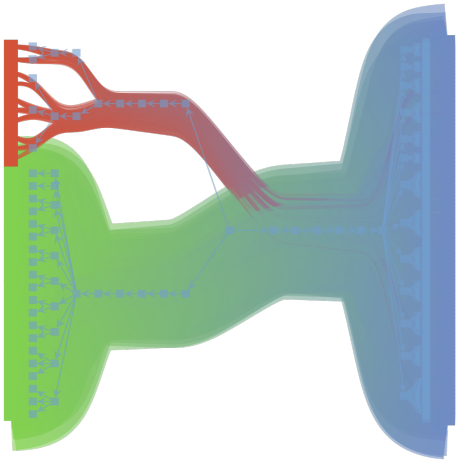
This module inherits from sbmtm and extends network based topic models with **multiple layers** of information.



CHAPTER

ONE

TRISBM MODULE

install: *conda install nsbm -c conda-forge*

1.1 triSBM

triSBM

class trisbm.trisbm.**trisbm**

Class to run trisbm

_get_shape()

Returns
list of tuples (number of documents, number of words, (number of keywords,...))

clusters(*l=0*, *n=10*)

Get n 'most common' documents from each document cluster. most common refers to largest contribution in group membership vector. For the non-overlapping case, each document belongs to one and only one group with prob 1.

clusters_query(*doc_index*, *l=0*)

Get all documents in the same group as the query-document. Note: Works only for non-overlapping model. For overlapping case, we need something else.

draw(**args*, ***kwargs*) → None

Draw the network

Parameters

- ***args** – positional arguments to pass to self.state.draw
- ****kwargs** – keyword argument to pass to self.state.draw

dump_model(*filename='trisbm.pkl'*)

Dump model using pickle

To restore the model:

import cloudpickle as pickle file=open("trisbm.pkl" ,"rb") model = pickle.load(file)

file.close()

fit(*n_init=5*, *verbose=True*, *deg_corr=True*, *overlap=False*, *parallel=True*, *B_min=3*, *B_max=None*, **args*, ***kwargs*) → None

Fit using minimize_nested_blockmodel_dl

Parameters

- **n_init** – number of initialisation. The best will be kept
- **verbose** – Print output
- **deg_corr** – use deg corrected model
- **overlap** – use overlapping model
- **parallel** – perform parallel moves
- ***args** – positional arguments to pass to gt.minimize_nested_blockmodel_dl
- ****kwargs** – keywords arguments to pass to gt.minimize_nested_blockmodel_dl

fit_overlap(*n_init=1*, *hierarchical=True*, *B_min=20*, *B_max=160*, *parallel=True*, *verbose=True*)

Fit the sbm to the word-document network. - hierarchical, bool (default: True). Hierarchical SBM or Flat SBM. Flat SBM not implemented yet. - Bmin, int (default:20): pass an option to the graph-tool inference specifying the minimum number of blocks.

get_D()

return number of doc-nodes == number of documents

get_N()

return number of edges == tokens

get_V()

return number of word-nodes == types

get_groups(*l=0*)

return groups

Parameters
l – hierarchy level

get_mdl()

Get minimum description length

Proxy to self.state.entropy()

group_membership(*l=0*)

Return the group-membership vectors for

- document-nodes, p_td_d, array with shape Bd x D
- word-nodes, p_tw_w, array with shape Bw x V

It gives the probability of a nodes belonging to one of the groups.

group_to_group_mixture(*l=0*, *norm=True*)

load_graph(*filename='graph.xml.gz'*) → None

Load a presaved graph

Parameters
filename – graph to load

load_model(*filename='topsbm.pkl'*)

make_graph(*df: DataFrame*, *get_kind*) → None

Create a graph from a pandas DataFrame

Parameters

- **df** – DataFrame with words on index and texts on columns. Actually this is a BoW.
- **get_kind** – function that returns 1 or 2 given an element of df.index. [1 for words 2 for keywords]

make_graph_from_BoW_df(*df*, *counts=True*, *n_min=None*)

Load a graph from a Bag of Words DataFrame

:param : :type : type df: DataFrame should be a DataFrame with where df.index is a list of words and df.columns a list of documents :param optional arguments: :param - counts: :type - counts: save edge-multiplicity as counts (default: True) :param - n_min: :type - n_min: filter all word-nodes with less than n_min counts (default None) :param int: :type int: filter all word-nodes with less than n_min counts (default None)

make_graph_multiple_df(*df: DataFrame*, *df_keyword_list: list*) → None

Create a graph from two dataframes one with words, others with keywords or other layers of information

Parameters

- **df** – DataFrame with words on index and texts on columns
- **df_keyword_list** – list of DataFrames with keywords on index and texts on columns

metadata(*l=0*, *n=10*, *kind=2*)

get the n most common keywords for each keyword-group in level l.

Returns
tuples (keyword,P(kw|tk))

metadatumdist(*doc_index*, *l=0*, *kind=2*)

multiflip_mcmc_sweep(*n_steps=1000*, *beta=inf*, *niter=10*, *verbose=True*)

Fit the sbm to the word-document network. Use multtiplip_mcmc_sweep - n_steps, int (default:1): number of steps.

plot(*filename=None*, *nedges=1000*)

Plot the graph and group structure. optional: - filename, str; where to save the plot. if None, will not be saved - nedges, int; subsample to plot (faster, less memory)

plot_topic_dist(*l*)

print_summary(*tofile=True*)

Print hierarchy summary

print_topics(*l=0*, *format='csv'*, *path_save=''*)

Print topics, topic-distributions, and document clusters for a given level in the hierarchy.

Parameters

- **l** – level to store
- **format** – csv (default) or html
- **path_save** – path/to/store/file

save_data()

save_graph(*filename='graph.xml.gz'*) → None

Save the graph

Parameters

filename – name of the graph stored

search_consensus(*force_niter=100000*, *niter=100*)

topicdist(*doc_index*, *l=0*)

topics(*l=0*, *n=10*)

get the n most common words for each word-group in level l. return tuples (word,P(w|tw))

CHAPTER

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LICENCE

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