Decompositions.GraphDecomp.lineGraph

Table of Contents

Returns the adjacency matrix and graph Laplacian of the line-graph of the input hypergraph. Note that the line graph is equivalent to the clique-expansion of the dual hypergraph.

Syntax

```
[adjMat, lapMat] = lineGraph(HG)
```

Input

HG - hypergraph object with incidence matrix property obj.IM

Output

- adjMat - adjacency matrix of the line graph
- lapMat - graph Laplacian matrix of the line graph

Disclaimer

Code

```
function [adjMat,lapMat] = lineGraph(HG)
%LINEGRAPH the line graph is the clique expansion of the dual (and the dual
% is the transpose of the original incidence matrix).
% H = HG.IM;

dG = Decompositions.GraphDecomp.dualGraph(HG);
H = Hypergraph('H', dG); %incidenceMatrix(dG)); % Incidence matrix function
 needs to be changed
[adjMat, lapMat] = Decompositions.GraphDecomp.cliqueGraph(H);
end
```

Published with MATLAB® R2021b