Algorithm Selection for Maximum Common Subgraph

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1 Algorithms

Clique encoding [7] $k \downarrow$ [3] McSplit [6]

2 Problem Instances

MCS data is from [1][2].

3 Features

Features are based on the algorithm selection paper for the subgraph isomorphism problem [5]. Simple features:

- number of vertices,
- number of edges,
- density,
- number of loops,
- mean degree,
- maximum degree,
- whether every vertex has the same degree (?),
- whether the graph is connected,
- mean distance between all pairs of vertices,
- maximum distance between all pairs of vertices,
- proportion of vertex pairs that are at least 2, 3 and 4 apart (?).

Features that could be computed if we end up using a presolver:

- uniformity of the distribution of edges,
- how many candidate pairs were removed,
- proportion of candidate pairs removed over all pairs,
- min values removed per variable,
- max values removed per variable,
- CPU time taken to compute all this.

4 Selection Model

We're using LLAMA [4]. Describe k-folding.

References

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