MWIS PTAS

Polynomial-Time Approximation Schemes for Geometric Intersection Graphs.

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The goal of the maximum weight independent set problem (MWIS) is to compute, for a given set of geometric objects with certain weights, a subset of disjoint (non-overlapping) objects with maximum total weight.

There is a PTAS (polynomial-time algorihtm scheme) for MWIS in disk graphs, provided that a disk representation of the graph is given. The running-time for achieving approximation ratio $1 + \epsilon$ is $n^{O(1/\epsilon^2)}$ for a disk graph with n disks.

Details:

- Executed on : 26/09/2014 05:00.
- Execution time : 0,000079 SECONDS.
- Memory required : 144 BYTES.

Input graph

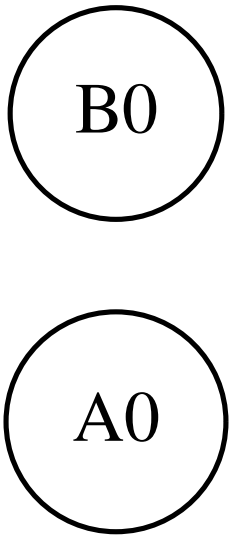

Figure 1: MWIS's input directed graph system.

Contents

Execution

Iteration 0

	1	**2**
1	0	∞
2	∞	0

Table 1: D table at iteration 0.

	1	**2**
1	0	0
2	0	0

Table 2: P table at iteration 0.

Iteration 1

	1	**2**
1	0	∞
2	∞	0

Table 3: D table at iteration 1.

	1	**2**
1	0	0
2	0	0

Table 4: P table at iteration 1.

Iteration 2

	1	**2**
1	0	∞
2	∞	0

Table 5: D table at iteration 2.

	1	**2**
1	0	0
2	0	0

Table 6: P table at iteration 2.

Analisis

Analisis for path: A0 $\longrightarrow$ B0

- Optimal path : $\mathrm{A0}_{\ (1)} \longrightarrow \mathrm{B0}_{\ (2)}$.
- Total jumps : 1.
- Total distance : ∞.

Analisis for path: B0 $\longrightarrow$ A0

- Optimal path : $\mathrm{B0}_{\ (2)} \longrightarrow \mathrm{A0}_{\ (1)}$.
- Total jumps : 1.
- Total distance : ∞.

Digest

- Bumpier path : $\mathrm{A0}_{\ (1)} \longrightarrow \mathrm{B0}_{\ (2)}$ with 1 jumps.
- Longest path : $\mathrm{A0}_{\ (1)} \longrightarrow \mathrm{B0}_{\ (2)}$ with a total distance of $340282346638528859811704183484516925$