Traveling Salesman Problem in Polynomial Time

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ABSTRACT

We present a polynomial time algorithm for producing the final graph where the minimal Hamiltonian cycle exists. Thus, proving that P = NP.

ALGORITHM

1. Choose maximum edge value;
2. Multiply it by two, giving **S**;
3. Perform in a binary search if there exists a Hamiltonian cycle by known algorithm, increasing or decreasing value of **S**.
4. The complexity is $\mathbf{O(log(S) * N^k)}$: k > 0.

Provided that $\sum_{i=1}^{n} P_A \leq \sum_{i=1}^{n} P_B \Leftrightarrow \max\left(E(P_A)\right) \leq \max\left(E(P_B)\right)$ as observed for example of n * (n - 1) … * 2 * 1.

Sort all edges according to mapping of weight costs to consecutive set 1..m and check against all enumerated cycles to find the final Hamiltonian cycle. Same is true for Steiner Tree problem.

REFERENCES

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