Top-K Ranking in Temporal Probabilistic Databases

TemProRA [4] is a system that focuses on the analysis of the top-k results of a temporal probabilistic query, i.e. on the \( k \) result tuples with either the lowest or the highest probabilities. It includes the Temporal Probabilistic Lineage Tree (TPLT), the Temporal Probabilistic Bubble Chart (TPBC) and the Temporal Probabilistic Column Chart (TPCC): three tools created for each output tuple to provide the user with the most important information to systematically modify the corresponding time-varying probability.

This project aims at improving the efficiency of these three tools by improving the probability computation process and the identification of the top-k results.

Tasks

1. Study the related work on probability values computation [3], probability bounds computation [2] and top-k ranking [1, 6, 5].
2. Implementation of the probability computation and top-k ranking steps.
3. Incorporate the implemented steps in TempProRA.
4. Experimental evaluation of the approaches adopted and of TemProRA.
6. 25-minute Presentation of the results in a group meeting.
References


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Start date: As soon as possible  
End date: at most 6 months after the starting date