

**COMPLEXITY STATISTICAL ESTIMATES
OF STRAIGHTFORWARD AND GREEDY ALGORITHMS
FOR ALGEBRAIC BAESIAN NETWORKS SYNTESIS**

Zotov Mikhail Anatolyevich

Student of the 4th year, Computer Science department,
Mathematics and Mechanics Department, St. Petersburg State University.
Russia, 199034, St. Petersburg, 7-9 Universitetskaya nab., SPbU.
E-mail: zotov1994@mail.ru.

Tulupyev Alexander Lvovich

Head of Theoretical and Interdisciplinary Computer Science Laboratory,
St. Petersburg Institute for Informatics and Automation, Russian Academy
of Sciences; Professor of Computer Science Department,
St. Petersburg State University
Russia, 199178, St. Petersburg, 14-th line V.O., 39, SPIIRAS.
E-mail: ALT@ias.spb.su

Sirotkin Alexander Vladimirovich

Senior Researcher of Theoretical and Interdisciplinary Computer Science Laboratory,
St. Petersburg Institute for Informatics and Automation, Russian Academy
of Sciences; Senior Researcher of International Laboratory for Applied Network
Research, the Higher School of Economics (Research University).
Russia, 199178, St. Petersburg, 14-th line V.O., 39, SPIIRAS.
E-mail: ALT@ias.spb.su

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The paper considers straightforward and greedy minimal joint graph synthesis algorithms. Comparative statistical analysis of runtime was done based on experiments run on specially generated datasets. A new algorithm for generating the loads with certain characteristics was developed. Statistical analysis pointed out three subintervals of joint graph vertex set cardinality (number of elements): that of 5–35 where the greedy algorithm had sufficiently higher speed than the straightforward algorithm did, that of 60–105 the straightforward algorithm had sufficiently higher speed than the greedy algorithm did, and that of 35–60 where the algorithms advantage in their speed depended on each specific initial dataset. According to rank statistics, there may be detected a few outbursts in the subinterval of 5–60.

Keywords: uncertainty representation, algebraic Bayesian networks, probabilistic graphical models, knowledge pattern, knowledge with uncertainty, probabilistic-logic inference, statistical indicators for algorithm's complexity.

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