The Pyrenees International Workshop on Statistics, Probability and Operations Research, SPO 2011 Jaca, September 13–16th 2011

A heuristic for identifying unknown agents in a transaction network[†]

David Alcaide[1], **Joaquín Sicilia**[2], **Miguel Ángel González Sierra**[3]

SUMMARY

This paper deals with the problem of identifying unknown subject names in a transaction network. To do it, the only information available is the knowledge of the names of some subjects in the network; and certain records of past observations of transactions between all pairs of subjects. Such records offer us information about the frequency (probability, intensity) of these transactions. The aim is to find the more suitable identification of the unknown subjects, i.e., the identification with maximum frequency (probability, intensity). A heuristic approach is proposed for solving this probabilistic problem and its performance is numerically illustrated.

Keywords: graph theory, probability, heuristic algorithms, assignment problems

AMS Classification: 90B80, 90C10

[1]Department of Statistics, Operations Research and Computer Sciences
University of La Laguna, dalcaide@ull.es

[2]Department of Statistics, Operations Research and Computer Sciences
University of La Laguna, jsicilia@ull.es

[3]Department of Statistics, Operations Research and Computer Sciences
University of La Laguna, magsierr@ull.es

[†]This work is partially supported by the research project MTM2010-18591 from the Spanish Ministry of Science and Innovation.