

# The small-world of the efficient solutions network

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## Abstract

The small-world phenomenon popularized by Stanley Milgram in 1967 has inspired an enormous interest in the study of real networks such as cellular, ecological, phone call, citation, power and neural networks, ...The present work is about artificial networks produced by the efficient solutions of a  $\{0,1\}$ -biobjective combinatorial problem. Some topological measures are studied in order to assess the structure of these networks. The role of the supported and non-supported solutions in the entire efficient network is investigated. The present research can be useful for developing more effective search strategies in both exact and approximate resolution methods of  $\{0,1\}$ -multiobjective combinatorial problems.

Key-Words: Networks, topological measures,  $\{0,1\}$ -multiobjective combinatorial problems

## 1 Introduction

The study of characteristics of networks has deserved an enormous interest in past recent years (Albert and Barabási, 2002): the world wide web (WWW), the internet, movie actor collaboration network, science collaboration graph, the web of human sexual contacts, cellular networks,

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