

Visual Logic Modeling Environment for Network Problems

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Modeling requires specialized skills - knowledge of both the problem domain and a model solver - and also very intensive labor. One of the answers to these difficulties is a whole new generation of modeling tools. This paper presents a modeling environment called vLM. The visual logic modeling (vLM) environment is a logic - based integrated modeling system for MS/OR problems that can be represented by graphical models: graph search problems, PERT/CPM, decision tree, and network models. vLM allows users to graphically construct models, supports qualitative queries about models and problem domains, and provides efficient model solvers. Visual construction and display of models enable easy understanding and manipulation of the models. Using logic models, translated from graphical models, vLM supports inferencing on the qualitative aspects of a problem. That is, it supports reasoning about features that cannot (easily) be modeled numerically. For efficient solution of models, vLM provides interfaces to external solvers or embedded solvers which utilize efficient MS/OR algorithms. vLM is a part of our efforts to suggest a new modeling paradigm integrating computer graphics, artificial intelligence (AI), and MS/OR for model management.