Thesis Title	Verification of Message Exchange in a Model of Office Communication
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ABSTRACT

This research work aimed to study the method for verifying message exchange in a model of office communication. The approach combined two main concepts as clues to improve the verification method, namely protocol analysis proposed by Chang and Chan, and generalized protocol analysis proposed by Cazzola, Galli and Pernici. With the new approach, errors such as receive-unspecified, deadlock, and unused states and transitions can be analyzed effectively.

The model verification consisted of five steps, namely preliminary checks, creating a table of states and transitions, creating a full reachability graph, classifying state types and checking unused states and transitions. The first step captured some errors in the model which can be identified before performing the next steps of verification. Errors such as no existence of a start for each agent were found. The second step constructed a table of states and transitions in order to identify the success or failure of sending and receiving messages in each global reachable state (GRS) -- global states that can be reachable from the initial global state. The third step identified the global states which each GRS can reach. The fourth step used a table of states and transitions with a full reachability graph to classify state types of each GRS. These state types help a user to know the correctness of a model. The fifth step used a table of states and transitions with a finite-state machine of each agent to find states and transitions which have never been used.

In testing for system implementation, some experimental examples were presented to illustrate the use of the model in offices. Results show that the new approach can fulfill the proposed requirements and can effectively be used for modeling communication in offices.