University of Victoria | Graduate Studies

Notice of the Final Oral Examination
for the Degree of Master of Science

of

WANDA B. K. BOYER

BSc (University of Victoria, 2012)

"A Decision and Minimization Procedure for Modal Logic"

Department of Computer Science

Monday, July 18, 2016
1:00 P.M.
Engineering and Computer Science Building
Room 467

Supervisory Committee:
Dr. Bruce Kapron, Department of Computer Science, University of Victoria (Co-Supervisor)
Dr. Audre Yap, Department of Philosophy, University of Victoria (Co-Supervisor)

External Examiner:
Dr. David Mitchell, Department of Computer Science, Simon Fraser University

Chair of Oral Examination:
Dr. Patrick T. Gregory, Department of Biology, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies

Abstract

This thesis describes decision and minimization procedures for modal logic. The decision procedure answers the question of whether there exists a satisfying pointed model for a formula which obeys user-specified first-order conditions on the underlying frame. Then the minimization procedure produces a minimal model with respect to the number of worlds that satisfies the desired formula while obeying the requisite conditions on the underlying frame. A proof of correctness for the minimization procedure is supplied, as well as a description of an implementation built upon the Enfragmo model expansion solver.