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Foundations of Dependable Systems
Department of Informatics
University of Fribourg, Switzerland

Verification of Cyber-physical Systems : Exercise Sheet 3

Deadline : Monday 23th October 2017, 11 :55 pm

Exercise 1

Let q be an atomic proposition for some model and consider the LTL formula $\Diamond\Box q$. Give the corresponding *never claim* that assures satisfiability of the formula in the model.

Exercise 2

Using the automaton construction seen in class, construct the *local* automaton for each of these formulae :

1. $a\mathcal{U}b$.
2. $\Box\Diamond a$.

Exercise 3

Are the following equivalences of LTL valid ? Argue.

1. $\Box p \vee q \longleftrightarrow \Box(p \vee q)$,
2. $\Diamond p \vee \Diamond q \longleftrightarrow \Diamond(p \vee q)$,
3. $\Diamond(p\mathcal{U}q) \longleftrightarrow \Diamond q$.