

# Program Monitoring

## Lecture 6 : Temporal Logic

Wednesday May 20, 2009

This lecture introduces temporal logic and how it is supported by the JavaMOP system. Linear Temporal logic (LTL) has long been regarded as an important kind of specification language for specification and verification of computer systems, especially (but not limited to) concurrent systems. Temporal logic is for example often used when stating properties to be verified by model checkers. Here models denote infinite traces. We shall see how temporal logic, past time as well as future time, can be used for monitoring finite traces corresponding to program executions. The temporal logic interface is similar to finite state machine and regular expression interfaces. Note that there is a Past Time LTL: PTLTL, and a Future Time LTL: FTLTL.

### Reading

This week we will read the paper:

*Efficient Monitoring of Safety Properties,*  
Klaus Havelund and Grigore Rosu.

This paper describes an algorithm for monitoring past time temporal logic, very similar to the Past Time Linear Temporal Logic (PTLTL) implemented in JavaMOP. The website also contains another optional-reading paper on future time temporal logic.

### Assignments

None.