

Project report # 3

By:-

Sushant Arora

Sharique Syed Ali

This week we read the manuals to know more about jspin and Promela, as Promela is the input to jspin so it is mandatory to have knowledge about it. Though jspin has option to open files that are stored in it but they are again in promela with .pml extension.

Promela consists of:

Variables declaration with types

Channel declarations

Type declarations

Process declarations

Where a process is defined by proctype definition and it has name of the process, declaration of local variables, formal parameters etc, and they can execute concurrently with other processes or communicate with other processes.

A process can be constructed by adding "active" word with proctype declaration.

All variables are declared with type of the variable followed by its name. Some variables used in Promela are bit, bool, short, int, byte etc. Variables can be local or global that can be assigned value by assignment, argument passing, message passing. Also there can be arrays and records in Promela where arrays start with a name and range and records are declared by typedef and recordname.

Statements in spin are separated by semi-colons

Eg

If statement

if

::

::

fi;

do statement is used when we want some selection to be executed repeatedly and to come out of it we use break statement.

do

::

::

od;

Timeout statement becomes executable when no other statement is executable in any other state. If two statements of two different processes can be executed independent of each other then order of execution is arbitrary. This is known as interleaving.

Some syntax used in Promela are:

1) NAME

–
a predefined, global, write-only, integer variable that is used to store values.

SYNTAX

–

2) NAME

_pid - a predefined, local, read-only variable of type pid that stores the instantiation number of the executing process.

SYNTAX

_pid

3) NAME

active - prefix for proctype declarations to instantiate an initial set of processes.

SYNTAX

active proctype [name](#)([[decl_lst](#)]) { [sequence](#) }

4) NAME

arrays –it is used to declare 1 dimension array of variables.

SYNTAX

Num[18]

5) NAME

assert – it is used to check whether property expressed by expr is valid within state . If it evaluates to 0 then this shows an error.

SYNTAX

assert([expr](#))

6) NAME

condition statement – used to introduce conditions in Promela

Eg a==T, a< b.

References

- 1) <http://spinroot.com/spin/Man/promela.html>
- 2) A tutorial on Spin by Meenakshi. B., Honeywell technology solutions Lab, Bangalore.