Software Tools for

19 Tara

macOS High Sierra
Versión 10.13.6

19 Tara

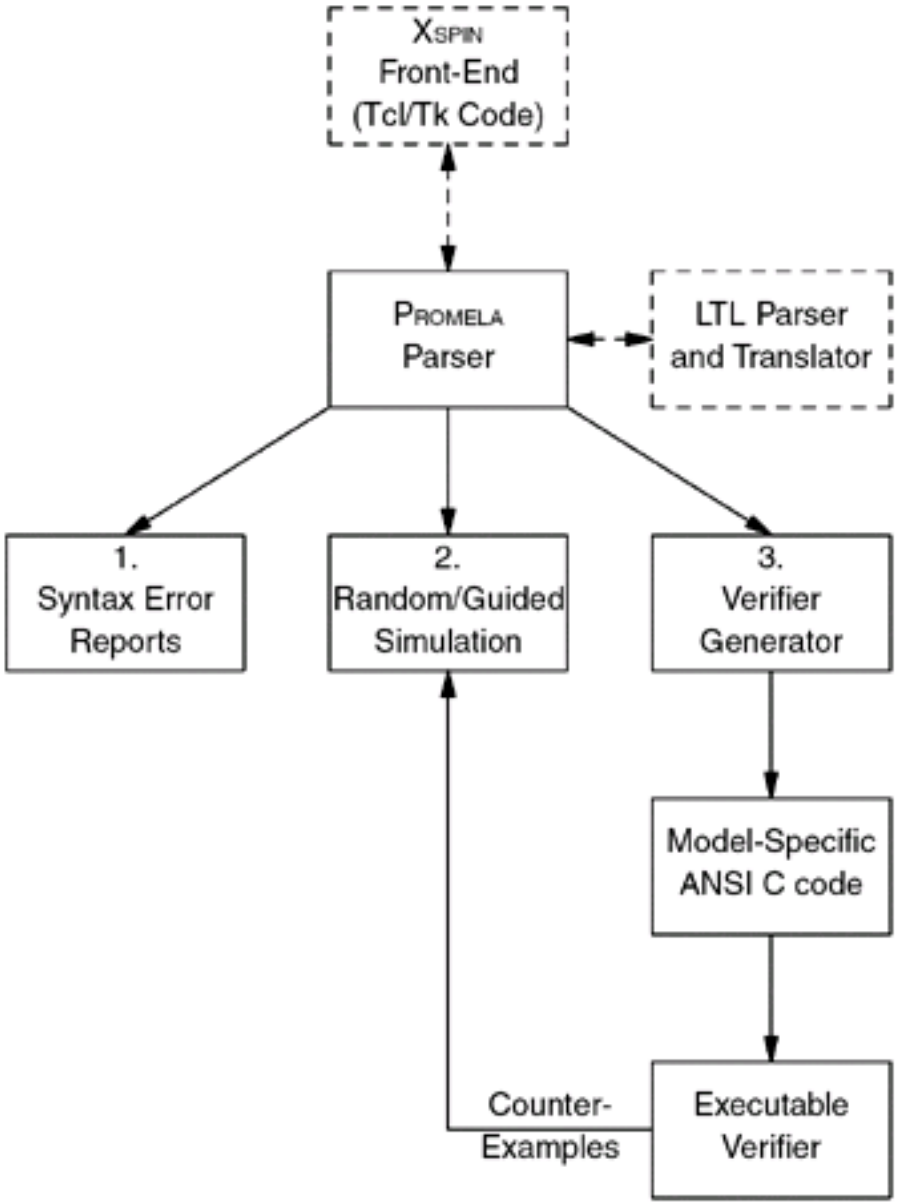
```
$ uname -a
Linux kaperna 4.15.0-30-generic #32-Ubuntu SMP Thu Jul 26 17:42:43 UTC
2018 x86_64 x86_64 x86_64 GNU/Linux

$ cat /etc/lsb-release
DISTRIB_ID=LinuxMint
DISTRIB_RELEASE=19
DISTRIB_CODENAME=tara
DISTRIB_DESCRIPTION="Linux Mint 19 Tara"

$ gcc --version
gcc (Ubuntu 7.3.0-16ubuntu3) 7.3.0
Copyright (C) 2017 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

Spin (only to update)

http://spinroot.com
http://spinroot.com/spin/Man/README.html
http://spinroot.com/spin/Bin/index.html

Linux executable 64-bit version: spin648_linux64.gz
Linux executable 32-bit version: spin648_linux32.gz

- Download spin648_linuxYY
- Rename to spin
- Place in **/usr/local/bin**



TSMC, Figure 11.1 The Structure of Spin

Spin (the first time installation)

http://spinroot.com
http://spinroot.com/spin/Man/README.html
http://spinroot.com/spin/Src/index.html

Download full distribution, with sources: spin648.tar.gz
(to the directory Descargas, for example)

```
$ pwd
/home/vk
$ mkdir spin-install; cd spin-install

$ cp ~/Descargas/spin648.tar.gz .

$ ls -l
total 532
-rw-rw-r-- 1 vk vk 544579 may 29 23:38 spin648.tar.gz
```

El punto (dot) indica el directorio actual como el directorio destino

Spin (untar)

```
$ gunzip spin648.tar.gz

$ ls -l
total 532
-rw-r--r-- 1 vk vk 544622 may 29 23:38 spin648.tar

$ tar -xf spin648.tar

$ ls -l
total 536
drwxr-xr-x 7 vk vk   4096 may 29 23:39 Spin
-rw-r--r-- 1 vk vk 544622 may 29 23:38 spin648.tar

$ ls -l Spin/
total 20
drwxr-xr-x 2 vk vk 4096 mar  2 13:59 Doc
drwxr-xr-x 5 vk vk 4096 mar  2 13:57 Examples
drwxr-xr-x 2 vk vk 4096 may  3  2014 iSpin
drwxr-xr-x 2 vk vk 4096 may 29 23:39 Man
drwxr-xr-x 2 vk vk 4096 mar  2 13:52 Src6.4.8
```

Spin (make)

```
$ cd Spin/Src6.4.8/

$ ls -l makefile
-rw-r--r-- 1 vk vk 1857 nov 29  2017 makefile

$ less makefile
# SPIN - Verification Software - Version 6.4 - December 2017
...
CC?=gcc
...
YACC?=yacc                  # on Solaris: /usr/ccs/bin/yacc
...
```

La tecla **q** (de quit) permite salir del programa **less**

Spin (make)

```
$ which gcc
/usr/bin/gcc

$ which yacc
/usr/bin/yacc

$ make
yacc -v -d        spin.y
spin.y: aviso: 6 conflictos reducción/reducción [-Wconflicts-rr]
cc -O2 -DNXT -c y?tab.c
rm -f y?tab.c
mv y?tab.o spin.o
...

$ ls -l spin
-rwxr-xr-x 1 vk vk 907896 may 29 23:41 spin

$ sudo cp spin /usr/local/bin/
```

Spin (testing: test 0 – 4)

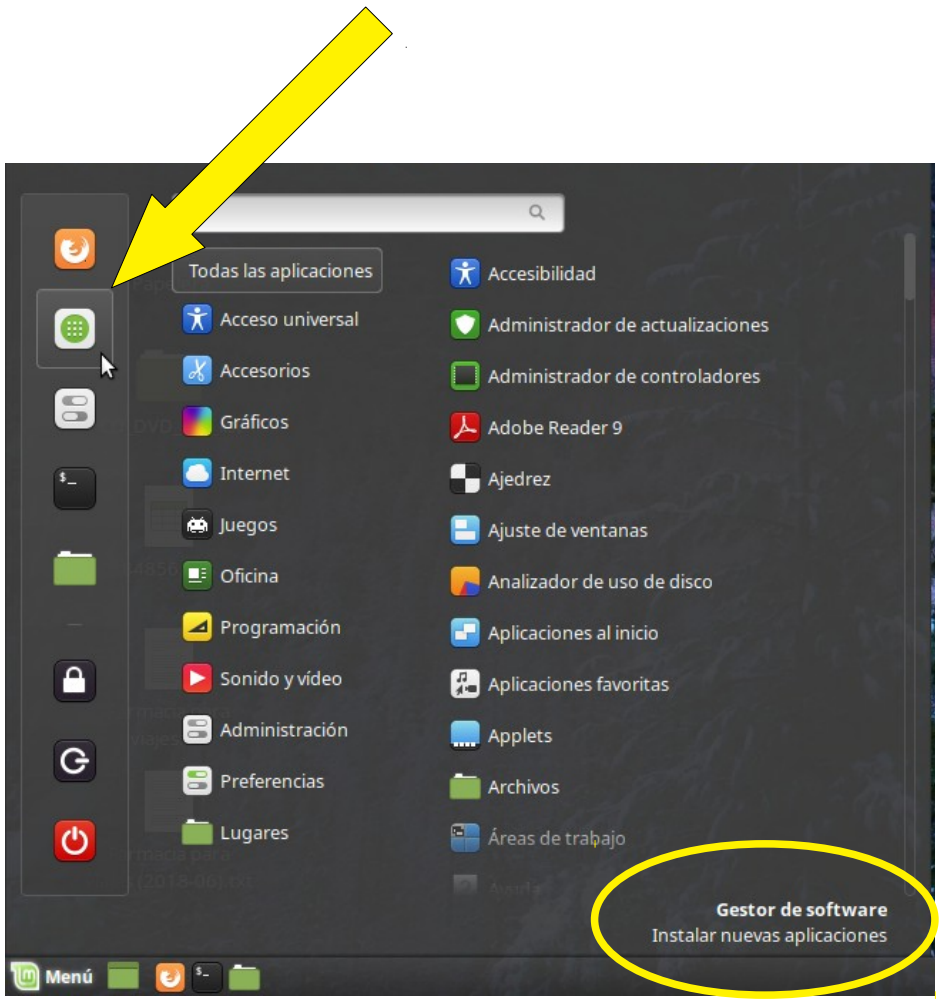
```
$ cd ../Examples/
$ less README_tests.txt
...
$ spin -V                                   # test 0
Spin Version 6.4.8 -- 2 March 2018
$ spin hello.pml                            # test 1
      passed first test!
1 process created
$ spin -a loops.pml                         # test 2
$ cc -DNOREDUCE -o pan pan.c
$ ./pan
...           # ... errors: 0
$ ./pan -a                                  # test 3
...           # ... errors: 1
$ spin -t -p loops.pml                      # test 4
using statement merging
  <<<<<START OF CYCLE>>>>>
...
```

Spin (testing: test 5 – 9)

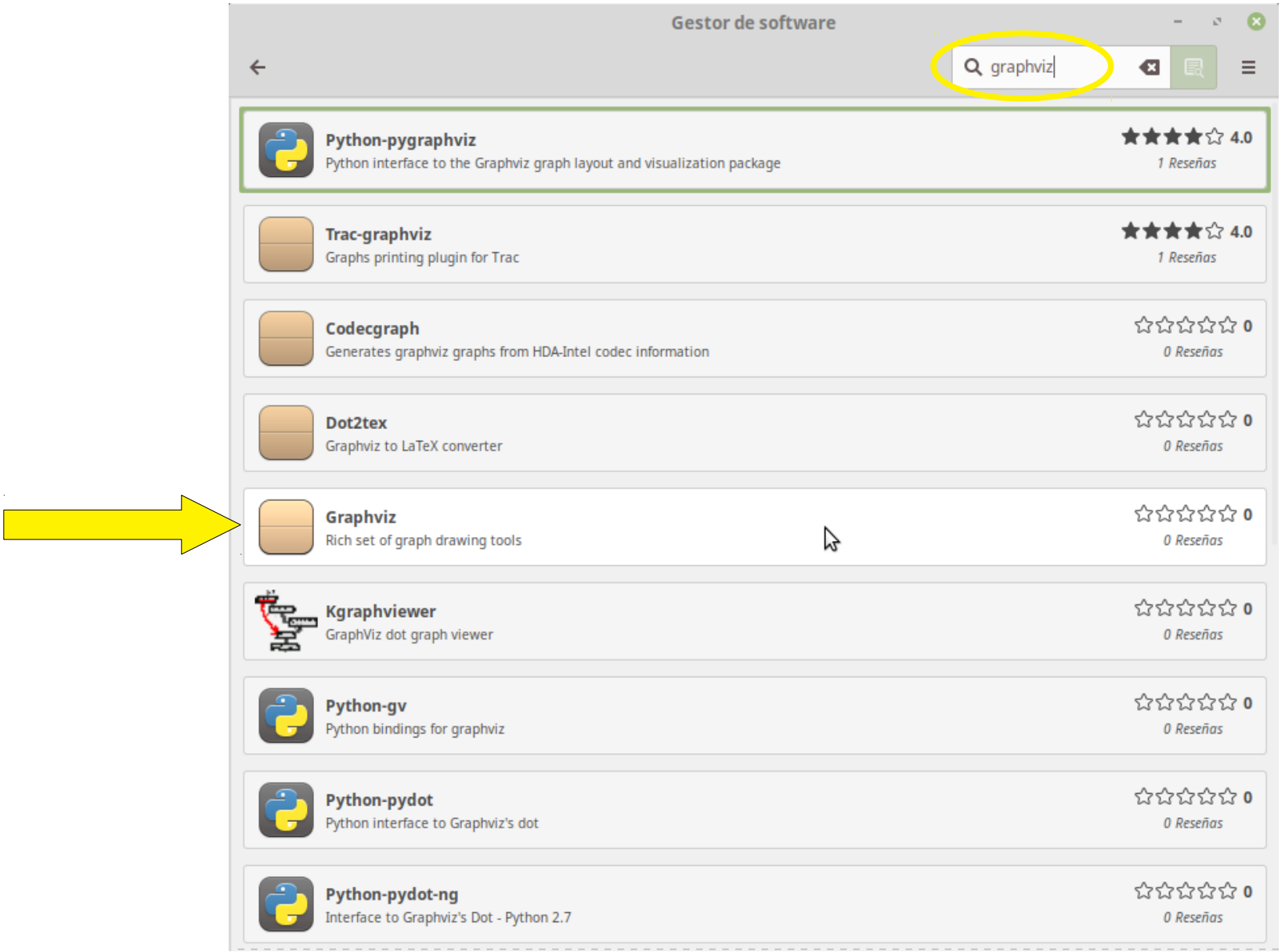

```
$ cc -DNP -DNOREDUCE -o pan pan.c                    # test 5
$ ./pan -l
...
$ spin -a leader0.pml                                # test 6
$ cc -DSAFETY -DNOREDUCE -DNOCLAIM -o pan pan.c
$ ./pan -c0 -n
...
$ cc -DSAFETY -DNOCLAIM -o pan pan.c                 # test 6b
$ ./pan -c0 -n
...
$ spin -o6 -p -g -u10000 priorities.pml              # test 7
...
$ spin -f '[] ( p U ( <> q ))'                       # test 8
...
```

dot

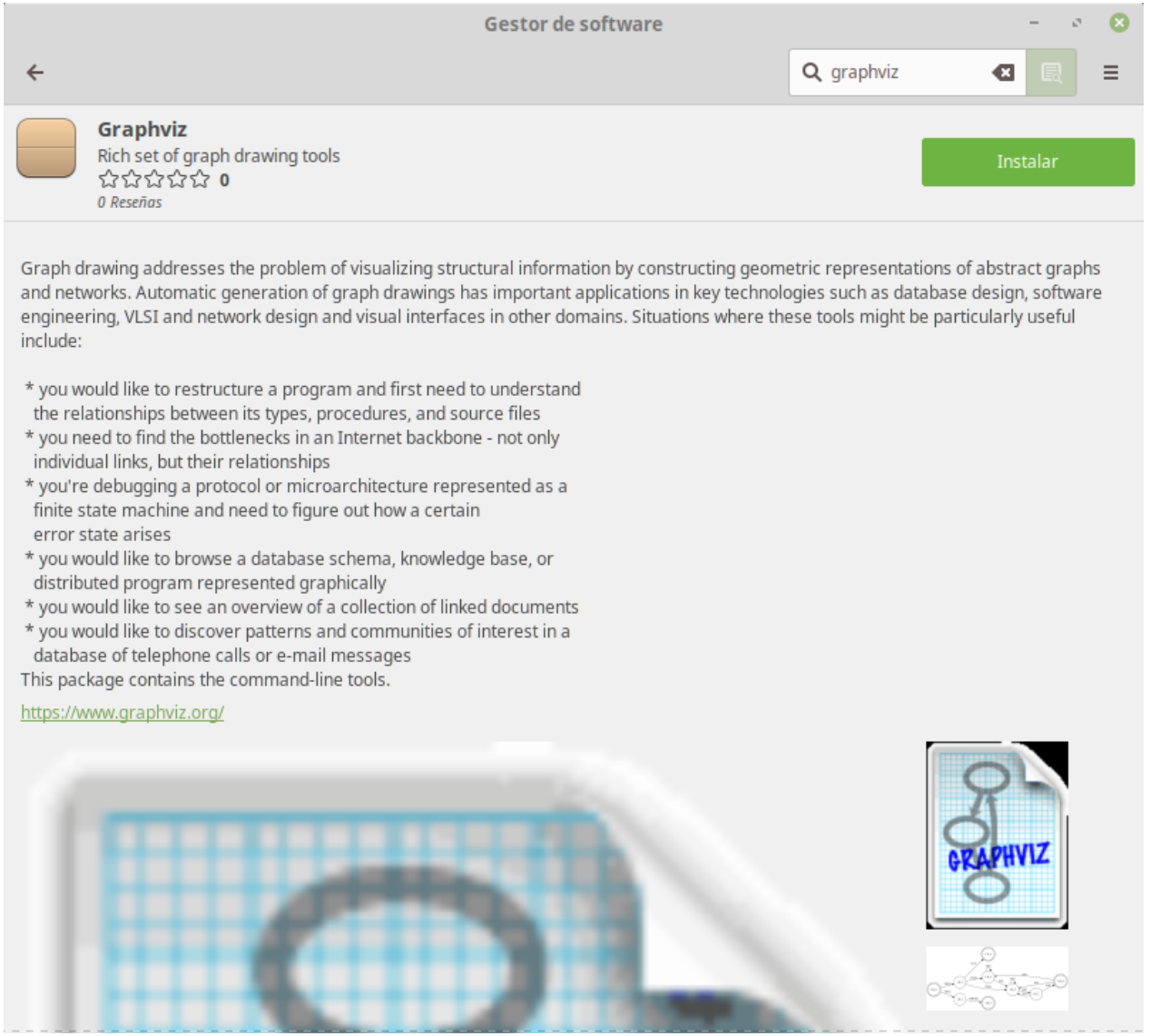
```
$ which dot
$
```



dot


Gestor de software
graphviz
Python-pygraphviz
Python interface to the Graphviz graph layout and visualization package
4.0
1 Reseñas
Trac-graphviz
Graphs printing plugin for Trac
4.0
1 Reseñas
Codecgraph
Generates graphviz graphs from HDA-Intel codec information
0
0 Reseñas
Dot2tex
Graphviz to LaTeX converter
0
0 Reseñas
Graphviz
Rich set of graph drawing tools
0
0 Reseñas
Kgraphviewer
GraphViz dot graph viewer
0
0 Reseñas
Python-gv
Python bindings for graphviz
0
0 Reseñas
Python-pydot
Python interface to Graphviz's dot
0
0 Reseñas
Python-pydot-ng
Interface to Graphviz's Dot - Python 2.7
0
0 Reseñas

dot


Gestor de software
graphviz
Graphviz
Rich set of graph drawing tools
0
0 Reseñas
Instalar
Graph drawing addresses the problem of visualizing structural information by constructing geometric representations of abstract graphs and networks. Automatic generation of graph drawings has important applications in key technologies such as database design, software engineering, VLSI and network design and visual interfaces in other domains. Situations where these tools might be particularly useful include:
* you would like to restructure a program and first need to understand the relationships between its types, procedures, and source files
* you need to find the bottlenecks in an Internet backbone - not only individual links, but their relationships
* you're debugging a protocol or microarchitecture represented as a finite state machine and need to figure out how a certain error state arises
* you would like to browse a database schema, knowledge base, or distributed program represented graphically
* you would like to see an overview of a collection of linked documents
* you would like to discover patterns and communities of interest in a database of telephone calls or e-mail messages
This package contains the command-line tools.
https://www.graphviz.org/
GRAPHVIZ

dot

```
$ which dot
/usr/bin/dot

$ man dot
...
```

http://www.graphviz.org/

http://www.graphviz.org/documentation/

https://graphviz.gitlab.io/_pages/pdf/dotguide.pdf

http://www.linuxjournal.com/article/7275

https://lihuen.info.unlp.edu.ar/index.php/Introducción_a_la_sintaxis_dot_(graphviz)

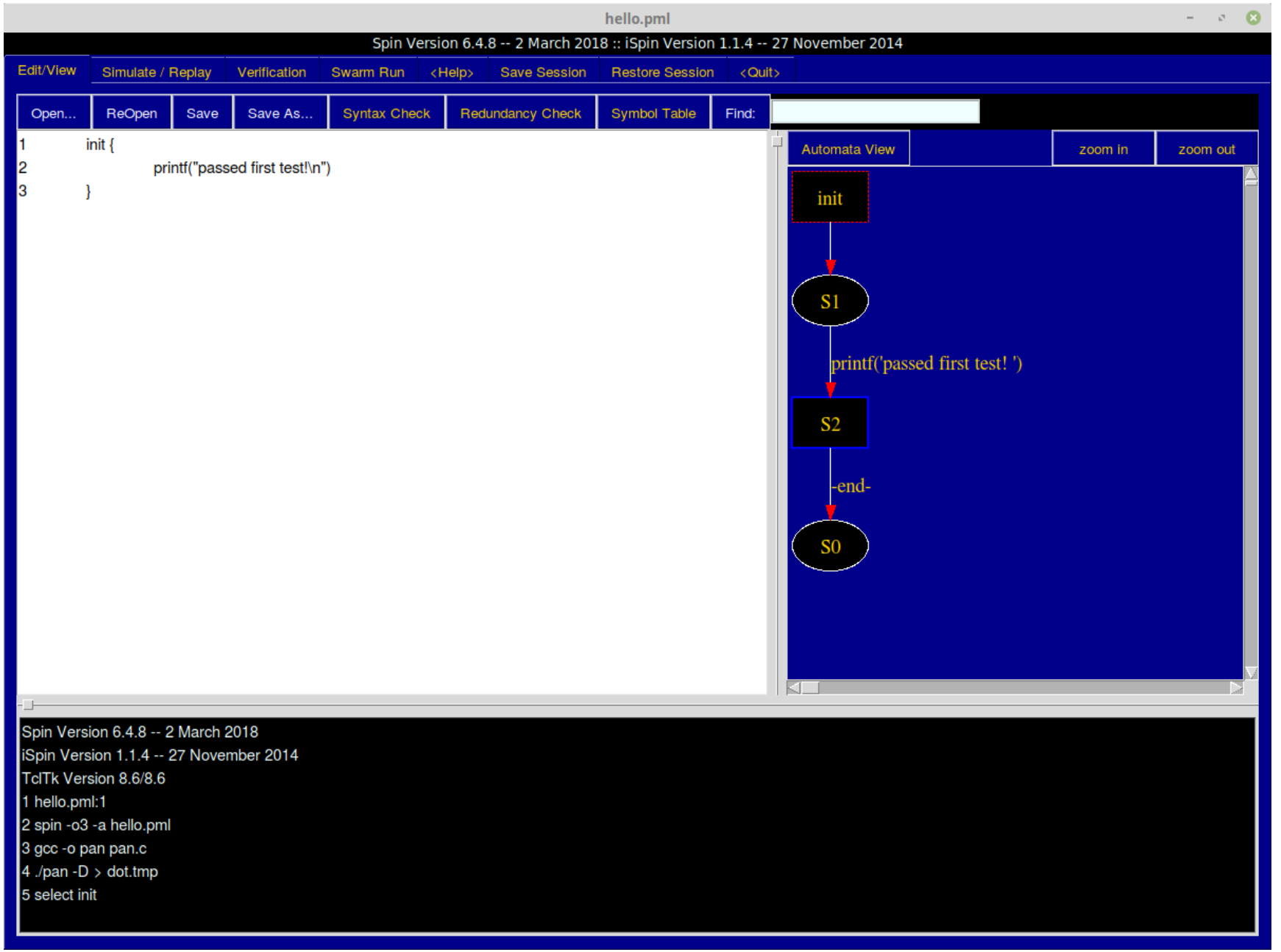
Adding iSpin (Tcl/Tk)

```
$ which wish
/usr/bin/wish
$ wish
% info tclversion
8.6
% puts $tk_version
8.6
% exit

$ pwd
/home/vk/spin-install/Spin/Examples
$ cd ../iSpin/; ls -l
-rw-r--r-- 1 vk vk    492 sep  3  2010 install.sh
-rw-r--r-- 1 vk vk 225860 nov 23  2014 ispin.tcl
-rw-r--r-- 1 vk vk   2751 may  4  2014 Readme.txt
```

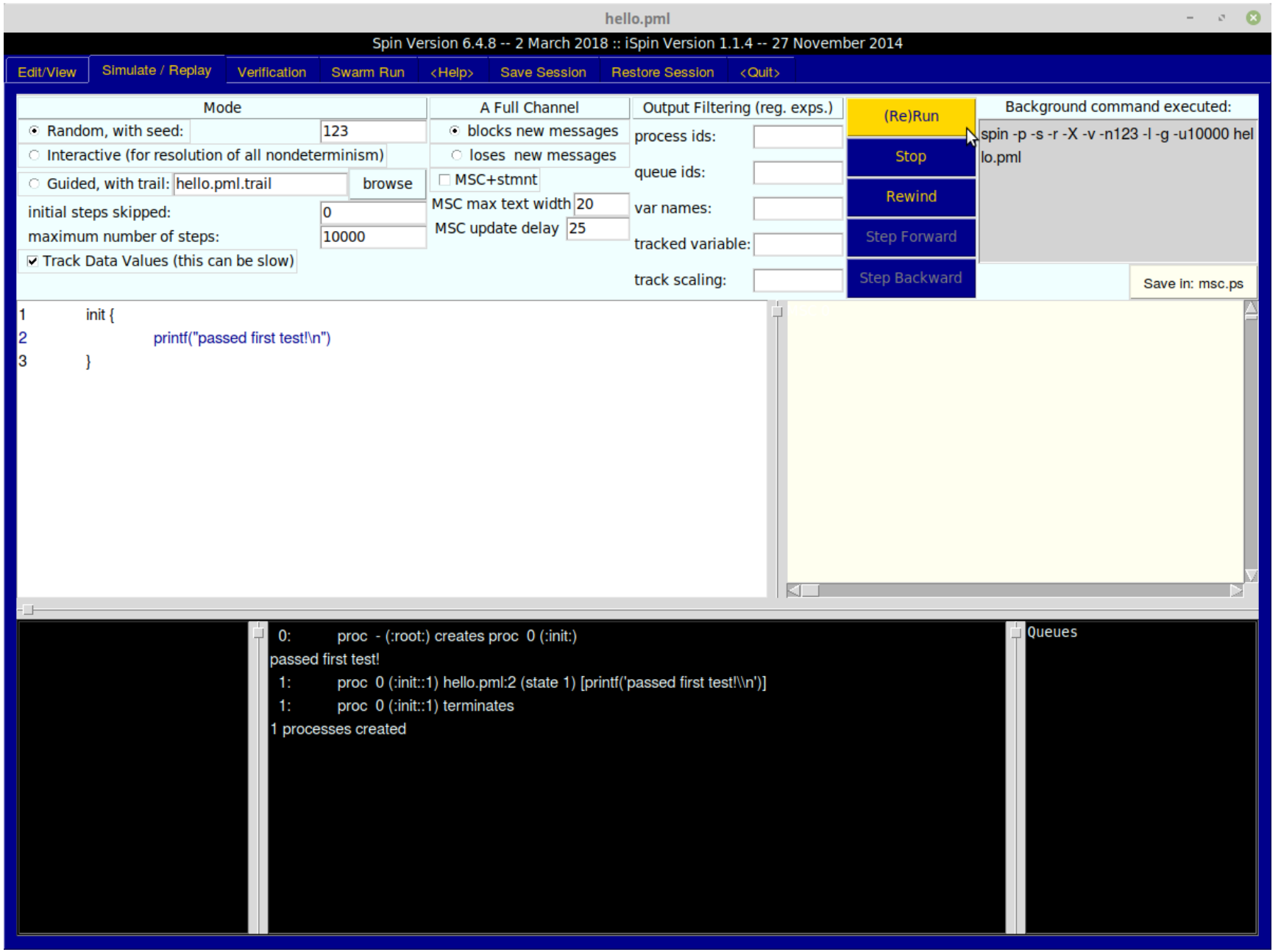
Installing iSpin

```
$ chmod a+x ./install.sh
$ sudo ./install.sh
installed ispin.tcl as /usr/bin/ispin


$ pwd
/home/vk/spin-install/Spin/iSpin

$ cd ../Examples/

$ ispin hello.pml
```

Testing iSpin (Automata View, init)

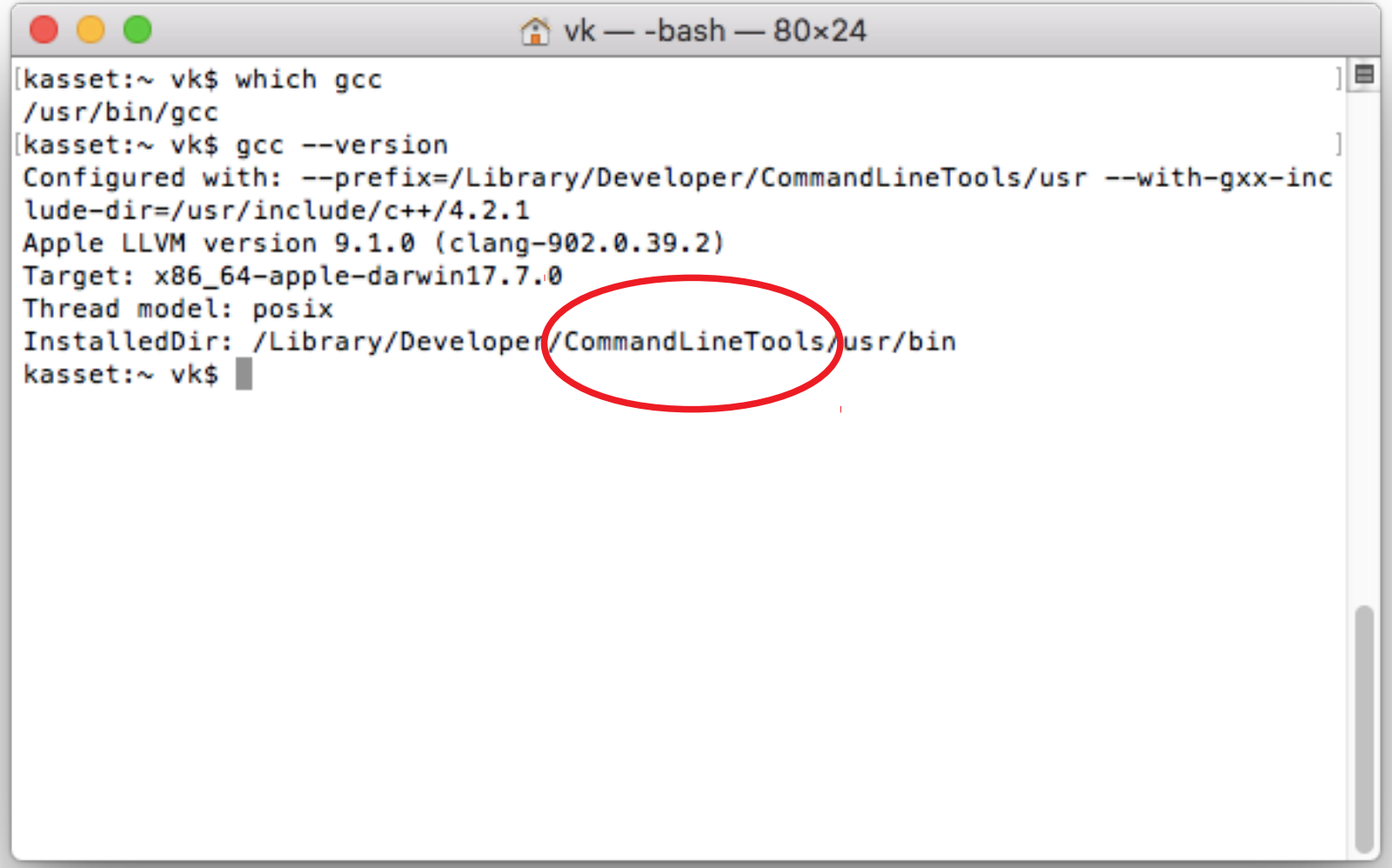


Testing iSpin (Simulate, (Re)Run)



macOS High Sierra
Versión 10.13.6

gcc (on macOS)


vk — -bash — 80×24
kasset:~ vk$ which gcc
/usr/bin/gcc
kasset:~ vk$ gcc --version
Configured with: --prefix=/Library/Developer/CommandLineTools/usr --with-gxx-include-dir=/usr/include/c++/4.2.1
Apple LLVM version 9.1.0 (clang-902.0.39.2)
Target: x86_64-apple-darwin17.7.0
Thread model: posix
InstalledDir: /Library/Developer/CommandLineTools/usr/bin
kasset:~ vk$

Spin (on macOS)

http://spinroot.com
http://spinroot.com/spin/Man/README.html
http://spinroot.com/spin/Src/index.html

Download full distribution, with sources: spin648.tar.gz

Spin (on macOS)

```
$ which gcc
/usr/bin/gcc

$ pwd
/Users/vk

$ mkdir spin-install; cd spin-install

$ mv ~/Downloads/spin648.tar .

$ ls -l
total 1064
-rw-r--r--@ 1 vk  staff  544622 Aug  8 23:53 spin648.tar

$ tar -xf spin648.tar

$ ls -l
total 1064
drwxr-xr-x  7 vk  staff     224 Aug  9 00:00 Spin
-rw-r--r--@ 1 vk  staff  544622 Aug  8 23:53 spin648.tar
```

El punto (dot) indica el directorio actual como el directorio destino

Spin (on macOS)

```
$ ls -l Spin/
total 0
drwxr-xr-x@ 16 vk  staff   512 Mar  2 13:59 Doc
drwxr-xr-x@ 31 vk  staff   992 Mar  2 13:57 Examples
drwxr-xr-x   3 vk  staff   102 Aug  9 00:00 Man
drwxr-xr-x@ 45 vk  staff  1440 Mar  2 13:52 Src6.4.8
drwxr-xr-x@  5 vk  staff   160 May  3  2014 iSpin

$ cd Spin/Src6.4.8/
```

Edit `makefile` (for example, `nano makefile`), adding to the definition of `CFLAGS`:

```
CFLAGS?=-O2 -DNXT -DMAC   -DCPP="\"gcc -E -x c -xassembler-with-cpp\""

$ make
```

Spin (on macOS)

```
$ ls -l spin
-rwxr-xr-x  1 vk  staff  899268 Aug  9 00:11 spin

$ ./spin -V
Spin Version 6.4.8 -- 2 March 2018

$ echo $PATH
/usr/local/bin:/usr/bin:/bin:/usr/sbin:/sbin:/opt/X11/bin

$ ls -l /usr/local
total 0
drwxr-xr-x  3 root  wheel  102 Mar  6 14:10 remotedesktop

$ sudo mkdir /usr/local/bin

$ ls -l /usr/local
total 0
drwxr-xr-x  2 root  wheel   68 Aug 10 13:07 bin
drwxr-xr-x  3 root  wheel  102 Mar  6 14:10 remotedesktop
```

Spin (on macOS - testing)

```
$ sudo cp spin /usr/local/bin/

$ which spin
/usr/local/bin/spin

$ cd ../Examples/
$ less README_tests.txt
...

$ spin -V                                   # test 0
Spin Version 6.4.8 -- 2 March 2018

$ spin hello.pml                            # test 1
      passed first test!
1 process created

$ spin -a loops.pml                         # test 2

$ cc -DNOREDUCE -o pan pan.c
```

Spin (on macOS - testing)

```
$ ./pan
...          # ... errors: 0

$ ./pan -a                                  # test 3
...          # ... errors: 1

$ spin -t -p loops.pml                      # test 4
using statement merging
  <<<<<START OF CYCLE>>>>>
...
```

Adding iSpin (Tcl/Tk)

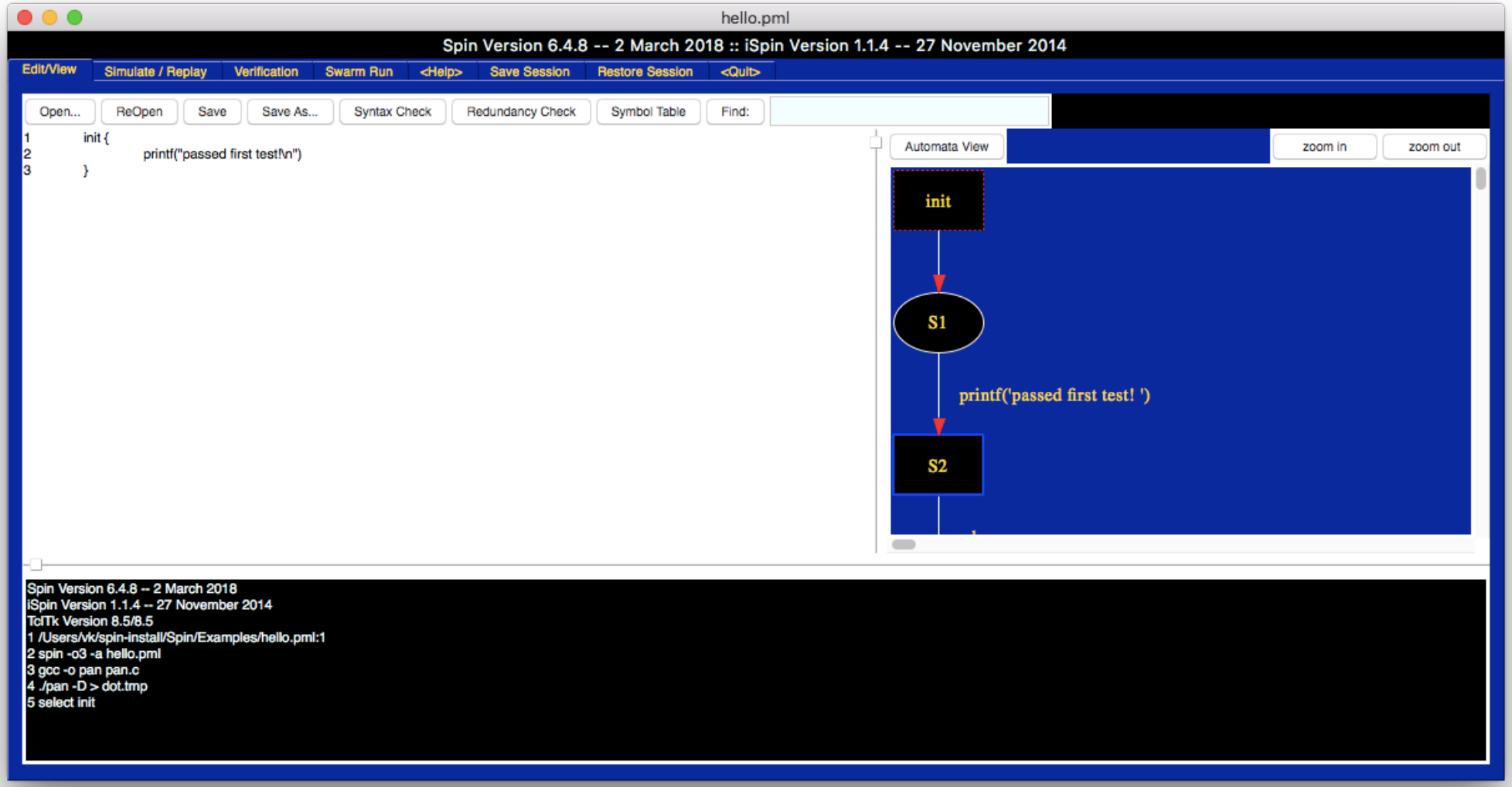
Install Graphviz (http://macappstore.org/graphviz/)

```
$ ruby -e "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/master/install)"
< /dev/null 2> /dev/null ; brew install caskroom/cask/brew-cask 2>
/dev/null

$ brew install graphiz

$ which dot
/usr/local/bin/dot

$ cd ~/spin-install/Spin/iSpin/

$ nano ispin.tcl

# insertar una línea con cd antes de las líneas con wm:
cd
wm title . "ispin"
...
```

Adding iSpin (Tcl/Tk)

```
$ nano install.sh

...
# modificar el directorio destino:
#BIN=/usr/bin
BIN=/usr/local/bin
...

$ chmod a+x install.sh
$ sudo ./install.sh
installed ispin.tcl as /usr/local/bin/ispin

$ cd ../Examples/

$ ispin ~/spin-install/Spin/Examples/hello.pml
```

iSpin (Edit/View, Automata View, init)



iSpin (Simulate/Replay, (Re)Run)