Software Tools for

 19 Tara

 macOS High Sierra
Versión 10.13.6

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 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.
```
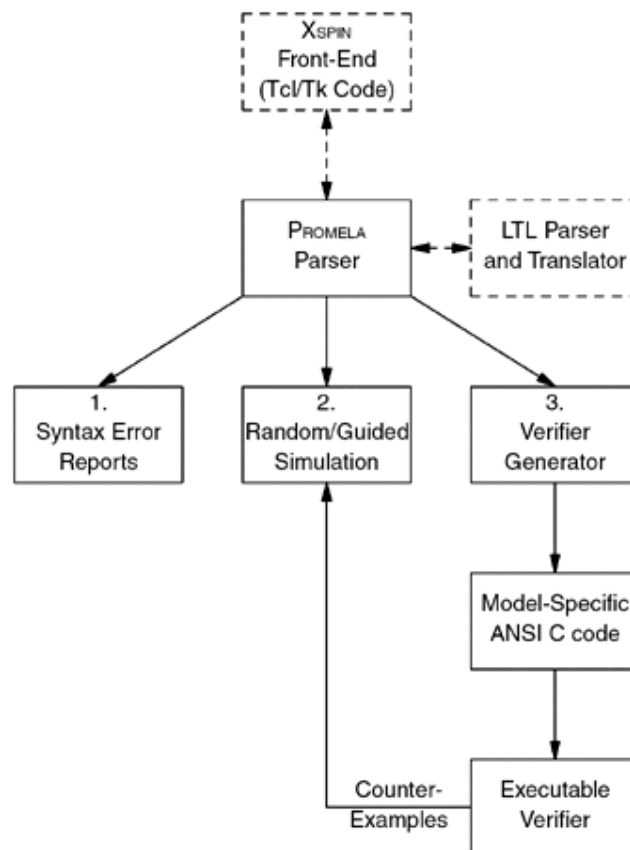
Spin (only to update)

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 .
```

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

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

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>>>>>
...
```
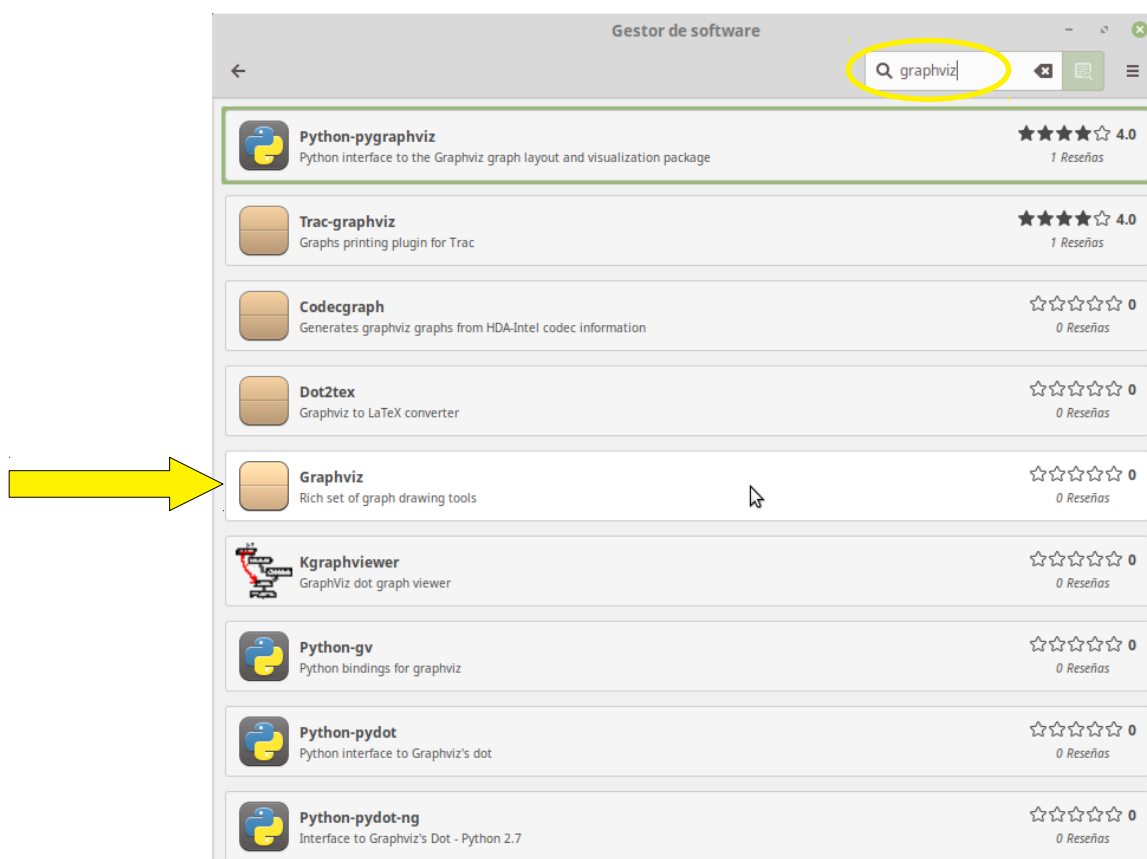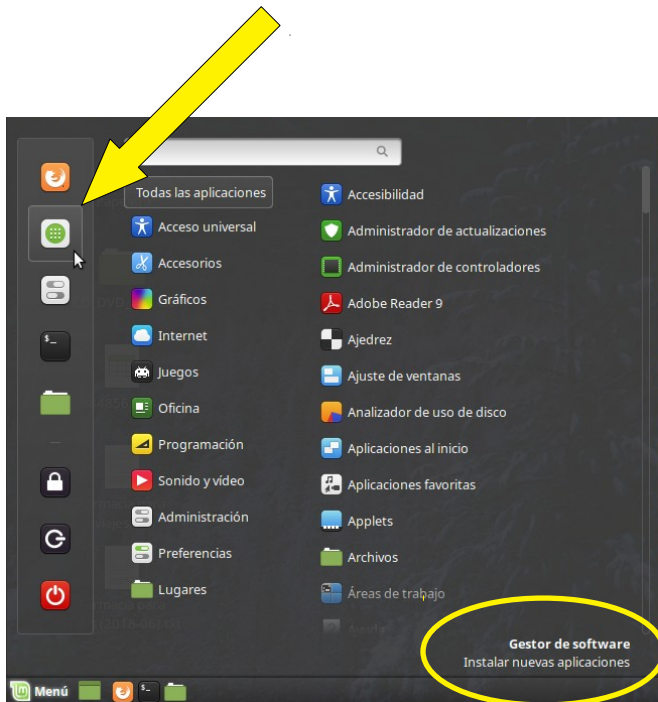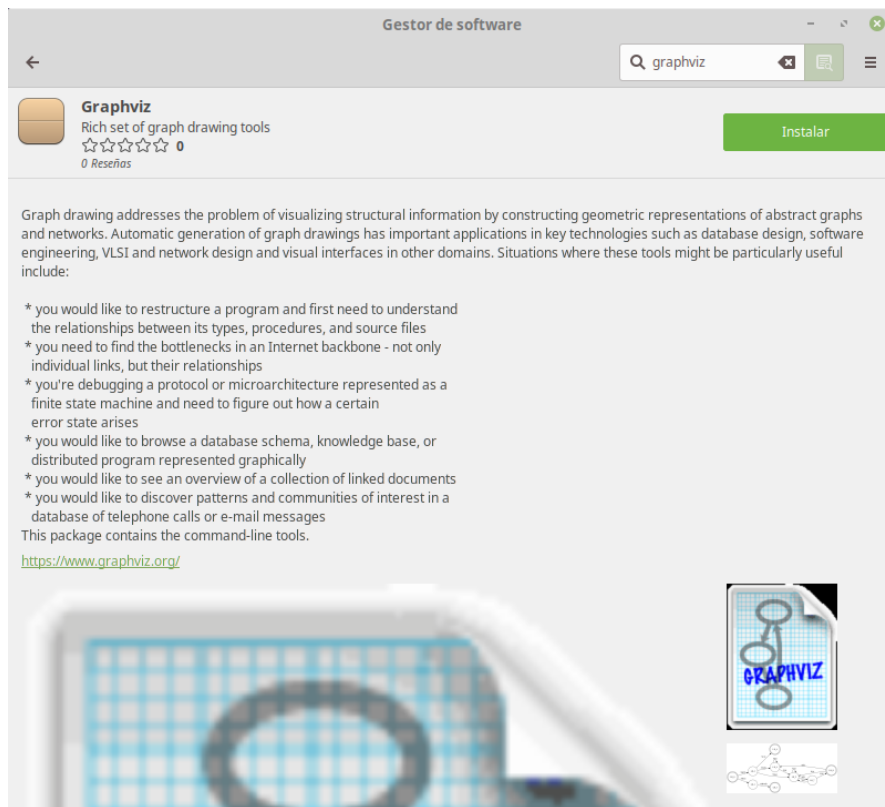
Spin (testing: test 5 – 9)

```
$ 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

dot

---

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
```
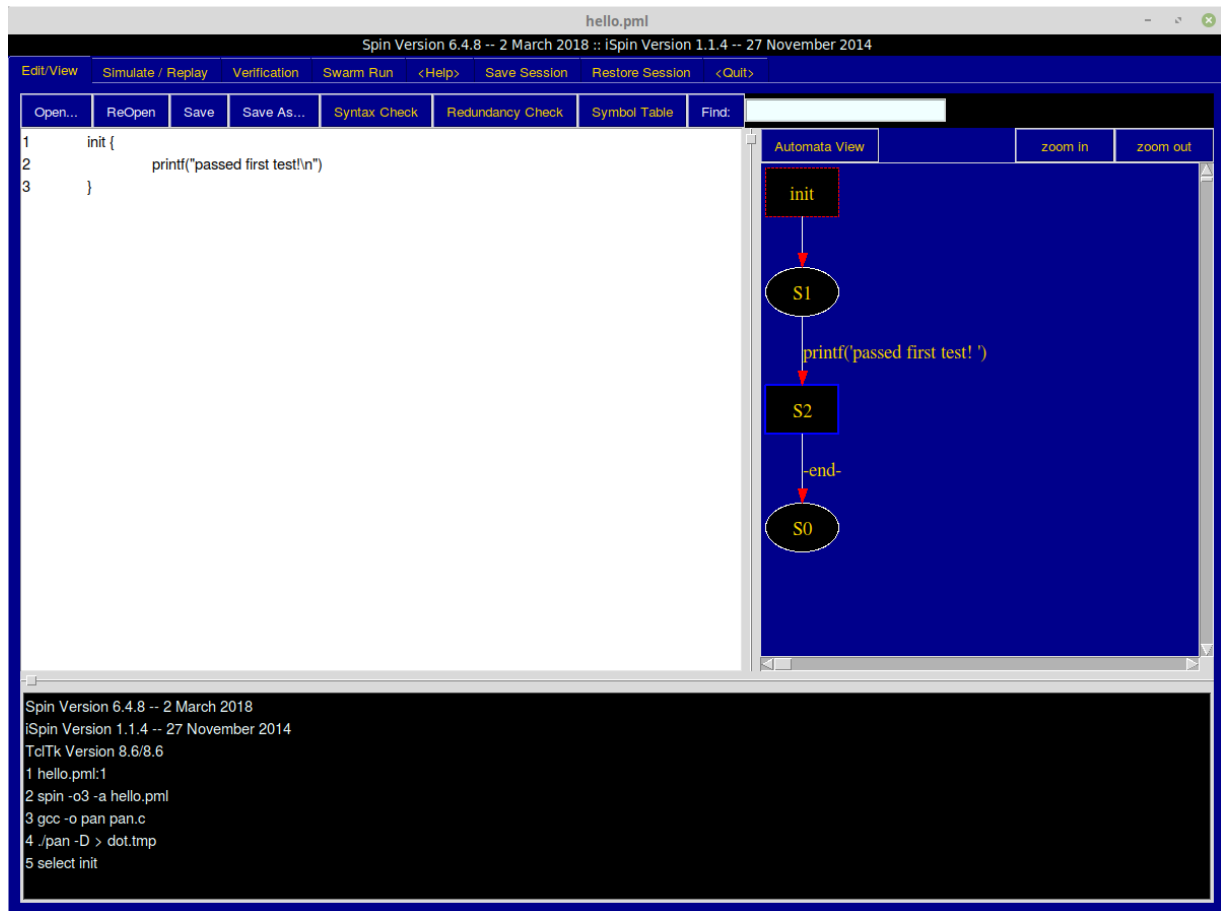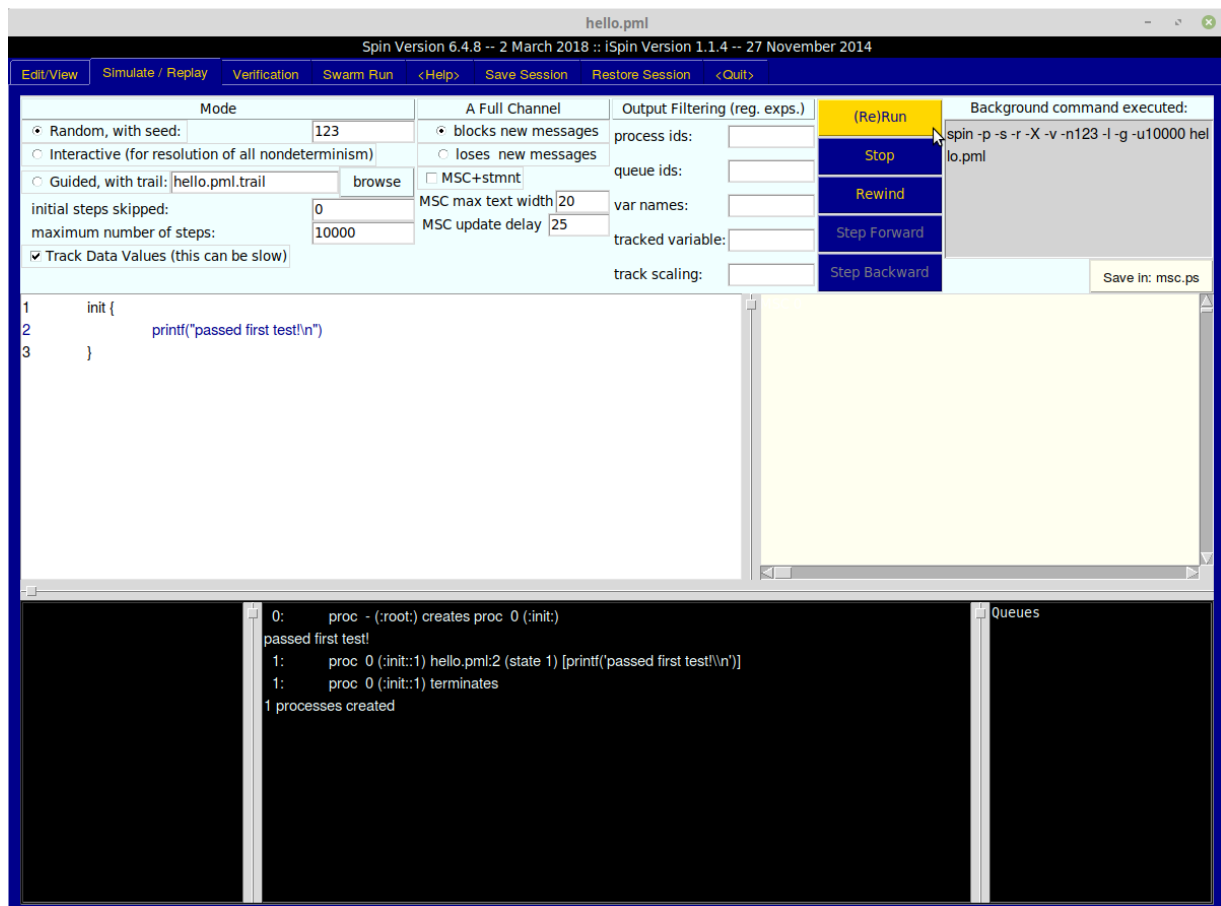
Testing iSpin (Automata View, init)

Testing iSpin (Simulate, (Re)Run)

macOS High Sierra Versión 10.13.6

gcc (on macOS)


```
[kasset:~ vk$ which gcc
/usr/bin/gcc
[kasset:~ vk$ gcc --version
Configured with: --prefix=/Library/Developer/CommandLineTools/usr --with-gxx-inc
lude-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"
...
```

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Clase 1 - Software tools
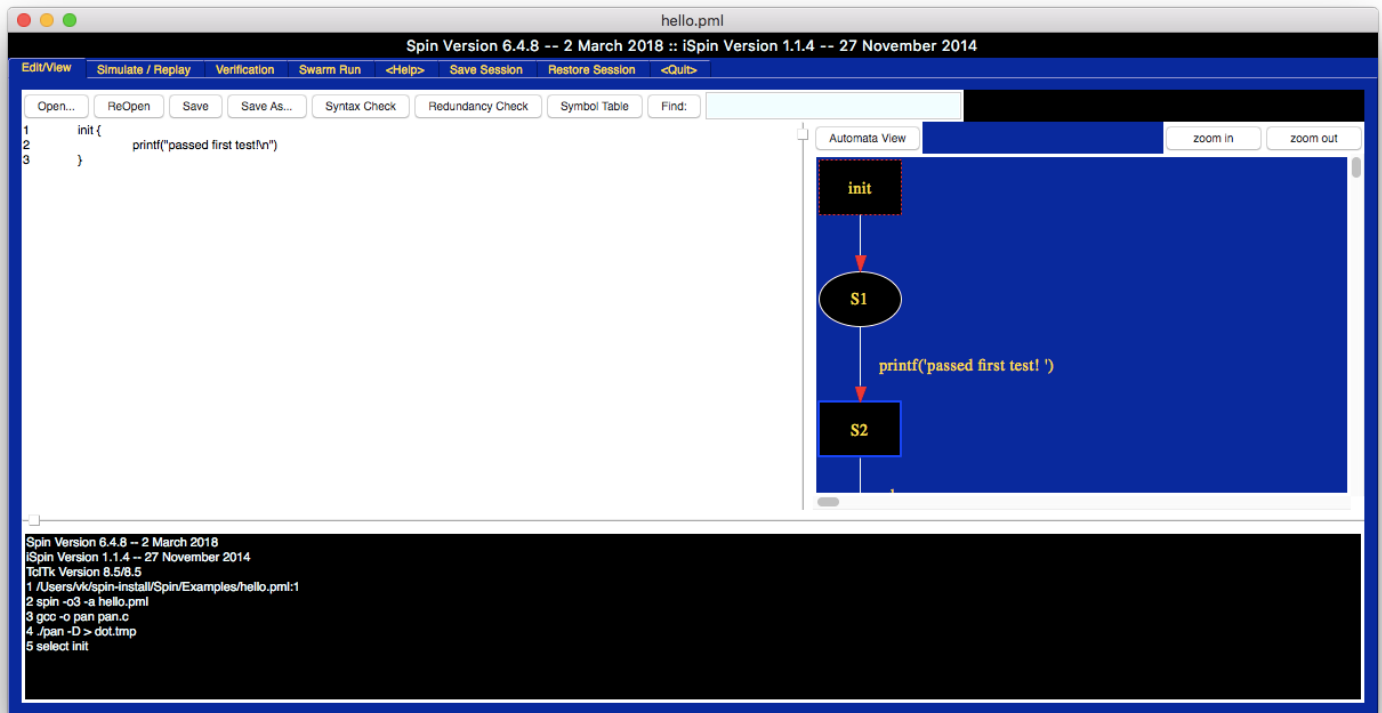
Adding iSpin (Tcl/Tk)

```
$ 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
```

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Clase 1 - Software tools

iSpin (Edit/View, Automata View, init)

iSpin (Simulate/Replay, (Re)Run)