

```

## Load libraries
library(splines)
library(MASS)

library(doParallel) ##to make cluster (on Windows)

## Loading required package: foreach
## Loading required package: iterators
## Loading required package: parallel

library(foreach) ##to use foreach function that does the parallel processing
library(doRNG) ##for reproducible seeds when doing parallel processing

## Loading required package: rngtools
## Warning: package 'rngtools' was built under R version 3.3.2
## Loading required package: pkgmaker
## Warning: package 'pkgmaker' was built under R version 3.3.2
## Loading required package: registry
## Warning: package 'registry' was built under R version 3.3.2
##
## Attaching package: 'pkgmaker'
## The following object is masked from 'package:base':
##
##      isNamespaceLoaded

##Source functions
source("../functions.R")

## Define the number of tests
ntest <- 10000

## Set number of simulations
nSims <- 200

```

Do the simulations for a variety of alternative distributions:

```

alts <- c("alt_beta", "alt_chisq_large_3_3", "alt_chisq_large",
          "alt_chisq_small_3_3", "alt_chisq_small",
          "alt_t_large", "alt_t_small",
          "alt_z_large",
          "alt_z_small")

```

1 Probability of being a false positive is linear

```

## Set up the time vector and the probability of being null
tme <- seq(0,1, length=ntest)
pi0 <- tme

plot(pi0 ~ tme)

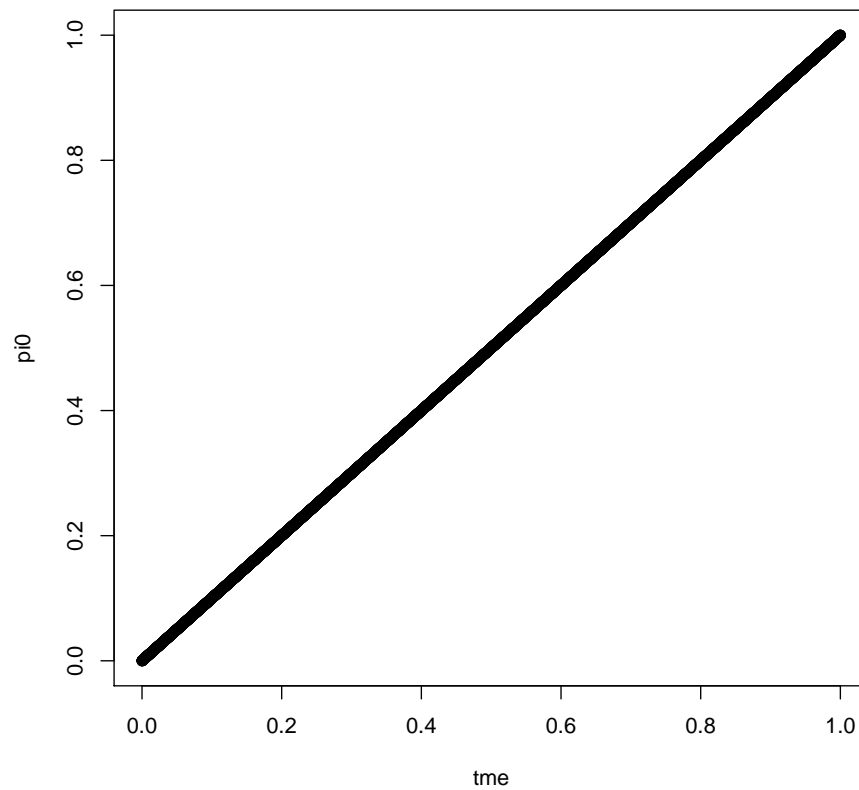
set.seed(309441)

for(alt in alts)
{
  pValuesSims <- run_sims_alt(alt, nSims, pi0)

  zValuesSims <- pValuesSims[(2*ntest+1):(3*ntest)]
  nullHypSims <- pValuesSims[(ntest+1):(2*ntest)]
  pValuesSims <- pValuesSims[1:ntest]

  ##save results
  save(file=paste(alt, "simResults_5.RData", sep="/"),
        list=c("pi0", "tme", "nullHypSims", "pValuesSims", "zValuesSims"))
}

```



Session info:

```
devtools::session_info()

## Session info -----
## setting      value
## version      R version 3.3.1 (2016-06-21)
## system       x86_64, mingw32
## ui           RTerm
## language      (EN)
## collate       English_United States.1252
## tz            America/New_York
## date          2018-08-31

## Packages -----
## package      * version date          source
```

##	codetools	0.2-14	2015-07-15	CRAN	(R 3.3.1)
##	devtools	1.12.0	2016-06-24	CRAN	(R 3.3.3)
##	digest	0.6.12	2017-01-27	CRAN	(R 3.3.3)
##	doParallel	* 1.0.10	2015-10-14	CRAN	(R 3.3.1)
##	doRNG	* 1.6	2014-03-07	CRAN	(R 3.3.1)
##	evaluate	0.10	2016-10-11	CRAN	(R 3.3.1)
##	foreach	* 1.4.3	2015-10-13	CRAN	(R 3.3.1)
##	highr	0.6	2016-05-09	CRAN	(R 3.3.1)
##	iterators	* 1.0.8	2015-10-13	CRAN	(R 3.3.0)
##	knitr	* 1.17	2017-08-10	CRAN	(R 3.3.3)
##	magrittr	1.5	2014-11-22	CRAN	(R 3.3.1)
##	MASS	* 7.3-45	2016-04-21	CRAN	(R 3.3.1)
##	memoise	1.0.0	2016-01-29	CRAN	(R 3.3.1)
##	pkgmaker	* 0.22	2014-05-14	CRAN	(R 3.3.2)
##	registry	* 0.3	2015-07-08	CRAN	(R 3.3.2)
##	rngtools	* 1.2.4	2014-03-06	CRAN	(R 3.3.2)
##	stringi	1.1.1	2016-05-27	CRAN	(R 3.3.0)
##	stringr	1.2.0	2017-02-18	CRAN	(R 3.3.3)
##	withr	1.0.2	2016-06-20	CRAN	(R 3.3.1)
##	xtable	1.8-2	2016-02-05	CRAN	(R 3.3.1)