

ddsPLS Exploration

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```
library(ddsPLS2)
```

```
ddsPLS2::ddsPLS2_App()
```

This code chunk opens an applet that can be used to build models using ddsPLS. Note that it requires the X and Y variables as separate csv files.

Code copied from the simulation_ssdpls2 repository created by Hadrien Lorenzo.

```
# Creates a toy data set for the ddsPLS function
toy_ex <- get_toy_example()
```

```
# Creates model from the toy data
toy_mod <- ddsPLS(toy_ex$X, toy_ex$Y)
```

```
toy_results <- toy_mod$results
```

Recreate Toy Example

This is a recreation of the toy example created by Hadrien Lorenzo, the original example can be found [here](#).

```
# Creates toy data set to be used
simu_toy <- get_toy_example(n=50,sqrt_1_minus_sig2 = 0.9025,p = 1000)
```

```
# Creates vector of lambda values to be used
lambdas <- seq(0,1,length.out = 30)
```

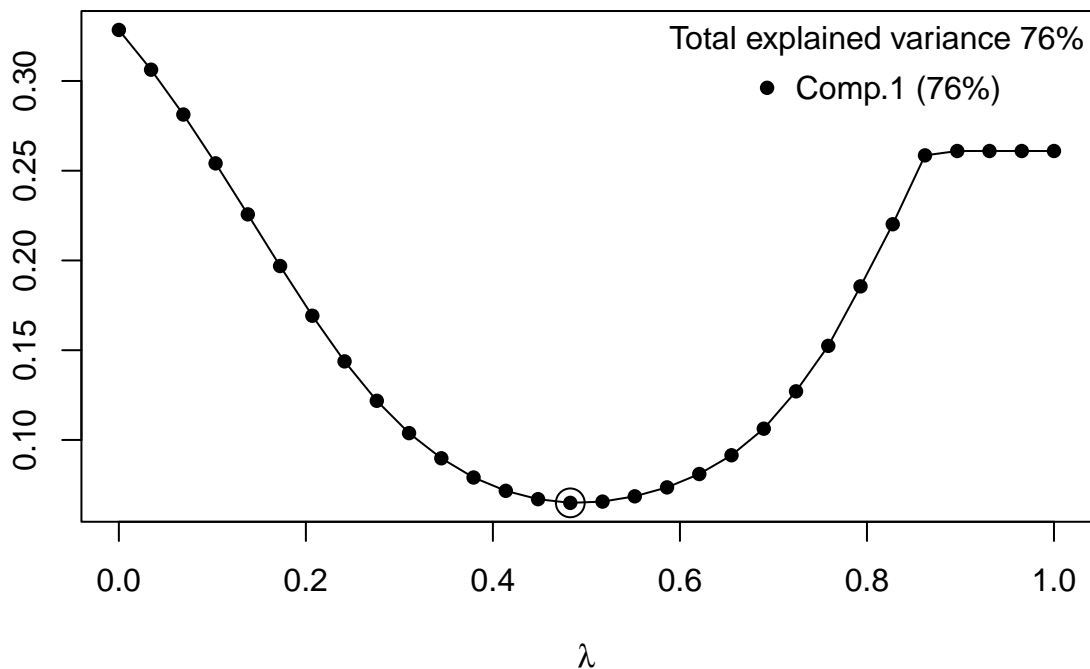
```
# Sets number of bootstrap samples to run
n_B <- 100
```

```
# Creates model using ddsPLS algorithm
model_toy <- ddsPLS(simu_toy$X,simu_toy$Y,
                    lambdas = lambdas,
                    n_B = n_B,
                    verbose = T # whether trace during process
                    )
```

```
##
##           |-----|
##           |   ddsPLS   |
## =====
## Should we build component 1 ? Bootstrap pending...
##      lambda   R2   R2h   Q2   Q2h   VarExpl   VarExpl.Tot
##      0.48 0.77 0.77 0.7 0.7      76%      76%
##                                     ...component 1 built!
## Should we build component 2 ? Bootstrap pending...
```

```
##                                     ...component 2 not built!
## =====
##                                     =====
```

$$\bar{R}_B^2 - \bar{Q}_B^2$$



Design 1

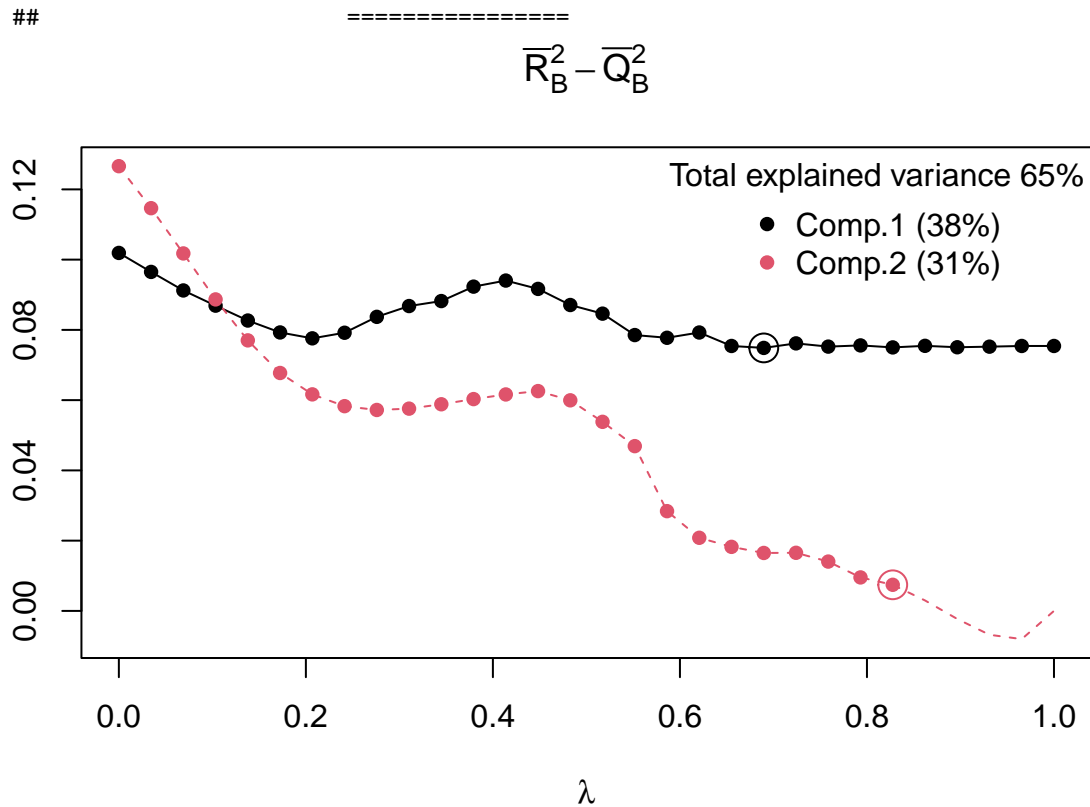
```
simu_1 <- get_design_1(n=50,sqrt_1_minus_sig2 = 0.99,p = 1000,q = 3)
```

What does the NCORES argument do? Setting it to integers greater than 1 gives an error.

Is there a way to include more components in the model?

```
model_1 <- ddsPLS(simu_1$X,simu_1$Y,
  lambdas = lambdas,
  n_B=n_B,
  verbose=T)
```

```
##                                     -----
##                                     | ddsPLS |
## =====
## Should we build component 1 ? Bootstrap pending...
##      lambda  R2  R2h  Q2  Q2h  VarExpl  VarExpl.Tot
##      0.69 0.38 0.38 0.3 0.3      38%      38%
##                                     ...component 1 built!
## Should we build component 2 ? Bootstrap pending...
##      lambda  R2  R2h  Q2  Q2h  VarExpl  VarExpl.Tot
##      0.83 0.39 0.08 0.38 0.24      31%      65%
##                                     ...component 2 built!
## Should we build component 3 ? Bootstrap pending...
##                                     ...component 3 not built!
## =====
```



```
model_1_Q2 <- ddsPLS(simu_1$X,simu_1$Y,
  criterion = "Q2",
  lambdas = lambdas,
  n_B=n_B,
  verbose=T)
```

```
##
## |-----|
## | ddsPLS |
## =====
## Should we build component 1 ? Bootstrap pending...
##      lambda  R2  R2h  Q2  Q2h VarExpl VarExpl.Tot
##      0.21 0.42 0.42 0.35 0.35    42%    42%
##
## ...component 1 built!
## Should we build component 2 ? Bootstrap pending...
##      lambda  R2  R2h  Q2  Q2h VarExpl VarExpl.Tot
##      0 0.7 0.27 0.52 0.26    27%    69%
##
## ...component 2 built!
## Should we build component 3 ? Bootstrap pending...
##      lambda  R2  R2h  Q2  Q2h VarExpl VarExpl.Tot
##      0 0.92 0.23 0.55 0.01    28%    98%
##
## ...component 3 built!
## Should we build component 4 ? Bootstrap pending...
##
## ...component 4 not built!
## =====
##
```

