Example 2: Community-level Hypothesis Test using BlockBootID with mvabund

Setting Up

First load the data and R packages you need into the R workspace.

```
load("PlayData_for_Examples.RData") ### load the data for the examples
source("LoadFunctions.R") #### Source the functions required to run the block bootstrap


#Install packages if required
if(!require(mvabund)) { install.packages("mvabund", repos = "http://cran.us.r-project.org");
require(mvabund) }
library(mvabund)
```

Motivation

We want to test an assemblage/ community of species for the significance of a bunch of variables, using "mvabund::summary".

This example assumes a block size is selected by the user already, from either pilot study or as in Example 3. They can then use **BlockBootID** to generate an ID matrix for input into mvabund.

```
set.seed(42)

lookuptables.folderpathname = "LookupTables/"

######## Get a bootID matrix (takes a minute or two)
BootID.example2 = BlockBootID(x = x ,
                              y = y,
                              block_Ls = 0.1,
                              NBoot = 500,
                              Grid_space = 0.01,
                              lookuptables.folderpath =  lookuptables.folderpathname)
```

```
## [1] "file exists"
## [1] "creating lookup table LookupTables/ lookup_table _L 0.1 _grid_space_ 0.01 _sampling_type_ sites
```

Run hypothesis test/ summary in mvabund

running time <2 minutes

```
responseMultiSpecies=mvabund(multispecies_dat[,1:20]) #20 species multivariate reponse
mod.1  = manyglm(responseMultiSpecies~temperature, data = multispecies_dat,family="binomial")
mod.2  = manyglm(responseMultiSpecies~temperature*treatment, data = multispecies_dat,family="binomial")
anova.results = anova(mod.1, mod.2, bootID=BootID.example2, resamp="case")
```

```
## Warning in anova.manyglm(mod.1, mod.2, bootID = BootID.example2, resamp =
## "case"): 'montecarlo' or 'pit.trap' should be used for binomial regression.
```

```
## Warning in anova.manyglm(mod.1, mod.2, bootID = BootID.example2, resamp =
## "case"): case resampling with score and LR tests is under development. try
## case resampling with wald test.

## Using <int> bootID matrix from input.
## Time elapsed: 0 hr 0 min 34 sec
```

The treatment is not significant.