orglhull

Authors: David Zelený, fix for R version 2.15.0 introduced by Paolo Piras.

Function used for drawing convexhull around groups of samples in 3D ordination diagrams, as a supplementary to functions `ordirgl` and `orglspider` from `library (vegan3d)`

To import the function definition directly into R, use the following:

```
source
('http://www.davidzeleny.net/anadat-r/doku.php/en:customized_functions:orglhull?do=
export_code&codeblock=1')
```

orglhull.r

```
orglhull <- function (object, groups, display = 'sites', choices = 1:3,
show.groups = NULL,  ...)
{
require (geometry, quietly = T)
require (rgl, quietly = T)
pts <- scores (object, choices = choices, display = display, ...)
if (!is.null(show.groups))
{take <- groups %in% show.groups
  pts <- pts[take, , drop = FALSE]
  groups <- groups[take]}
out <- seq (along = groups)
inds <- names (table (groups))
for (is in inds)
  {
  gr <- out[groups == is]
  if (length (gr) == 2)
    {
    X <- pts[gr,]
    rgl.lines (X[,1], X[,2], X[,3], lwd = 2, ...)
    }

  if (length (gr) == 3)
    {
    X <- pts[gr,]
    rgl.triangles (X[,1], X[,2], X[,3], ...)
    }
  if (length (gr) > 3)
    {
    X <- pts[gr,]
    # check if the points are not situated in hyperplane
      bas.matrix <- X[1:3,]
      D <- det (bas.matrix)
      d <- 1
      bas.matrix.a <- bas.matrix
      bas.matrix.a[,1] <- 1
      a <- -d/D*det (bas.matrix.a)

      bas.matrix.b <- bas.matrix
```

```
      bas.matrix.b[,2] <- 1
      b <- -d/D*det (bas.matrix.b)

      bas.matrix.c <- bas.matrix
      bas.matrix.c[,3] <- 1
      c <- -d/D*det (bas.matrix.c)
      kolik <- a*X[,1]+b*X[,2]+c*X[,3] + d
      save (X, file = 'X.r')
      if (all (abs (kolik) <=  1e-10)) X <- X + runif (length (X), min =
-1e-5, max = 1e-5)

    tr <-  t (convhulln (X,"FA")$hull)
    print (tr)
    rgl.triangles (X[tr,1], X[tr,2], X[tr,3], ...)
    }
   }
   invisible ()
}
```

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