sDmatMinima

February 12, 2015

`sDmatMinima` *Function to identify local minima (in 2D output space) of distance matrix (in high-dimensional input space)*

Description

`sDmatMinima` is supposed to identify local minima of distance matrix (resulting from `sDmat`). The criterion of being local minima is that the distance associated with a hexagon/rectangle is always smaller than its direct neighbors (i.e., 1-neighborhood)

Usage

```
sDmatMinima(sMap, which_neigh = 1, distMeasure = c("median", "mean",
"min",
"max"))
```

Arguments

`sMap`	an object of class "sMap"
`which_neigh`	which neighbors in 2D output space are used for the calculation. By default, it sets to "1" for direct neighbors, and "2" for neighbors within neighbors no more than 2, and so on
`distMeasure`	distance measure used to calculate distances in high-dimensional input space. It can be one of "median", "mean", "min" and "max" measures

Value

- `minima`: a vector to store a list of local minima (represented by the indexes of hexogans/rectangles

Note

Do not get confused by "which_neigh" and the criteria of being local minima. Both of them deal with 2D output space. However, "which_neigh" is used to assist in the calculation of distance matrix (so can be 1-neighborhood or more); instead, the criterion of being local minima is only 1-neighborhood in the strictest sense

See Also

`sDmat`, `sNeighAny`

Examples

```
# 1) generate an iid normal random matrix of 100x10
data <- matrix( rnorm(100*10,mean=0,sd=1), nrow=100, ncol=10)

# 2) get trained using by default setup
sMap <- sPipeline(data=data)

# 3) identify local minima of distance matrix based on "median" distances and direct neighbors
minima <- sDmatMinima(sMap=sMap, which_neigh=1, distMeasure="median")
```