Division methods – Modified TWINSPAN (Two-Way Indicator Species Analysis)

Kiril Vassilev

- Divisive techniques construct classification from top to bottom e.g. begin with all sites in a single cluster, which is divided until individual sites separately
- Numerical classification method developed specifically for hierarchical classification of community data
- It is based on the concept that a group of relevés will have a corresponding group of indicator species that characterize that type
- TWINSPAN was created by Hill (1979) and incorporated in FORTRAN programme

- TWINSPAN partitions the dissimilarity space determined by the main gradient in the data
- Recommended to be used if you have heterogeneous data set presenting different vegetation types
- Number of clusters cannot be set manually, e.g. in each division step cluster are divided into 2 smaller clusters (2 – 4 – 8 – 16 – 32 – etc)
- The only rule incorporated in TWINSPAN capable of changing this sequence is “minimum group size for division”

Modified TWINSPAN

- Better respect structure of ecological data
- Cluster heterogeneity can be measured using different indices
- Heterogeneity – range & complexity
- Whittaker's beta & total inertia reflect both aspects, Jaccard & Sorensen dissimilarities are independent of the dataset size until range of its heterogeneity is fixed

- Whittaker’s beta & total inertia – dataset size-dependent
- Jaccard & Sorensen dissimilarities – measure higher heterogeneity in smaller groups
- Minimum group size option can be set to a higher value to prevent division of smaller clusters