

Statistics Applied to Bioinformatics

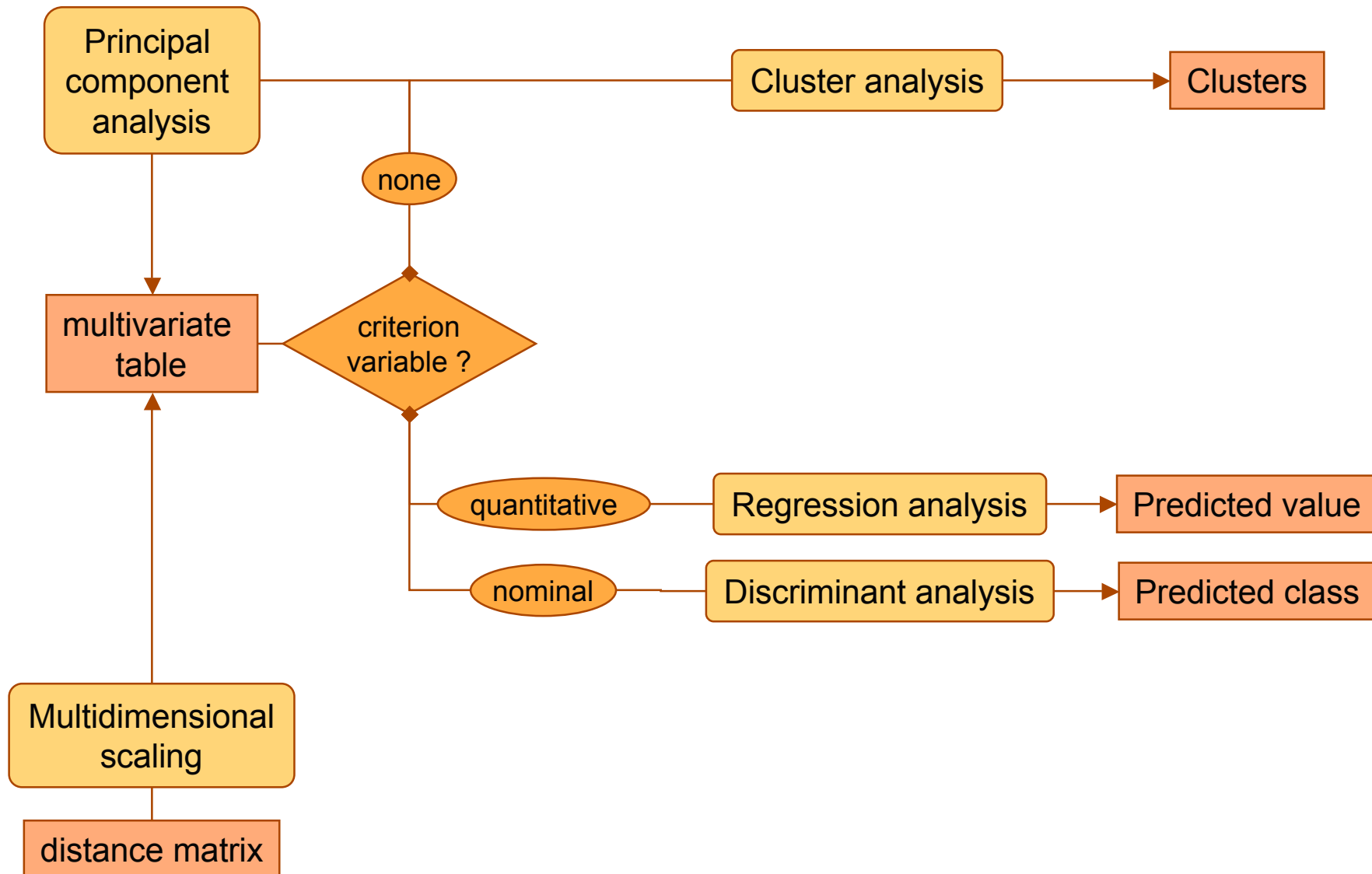
***Multivariate analysis
Summary***

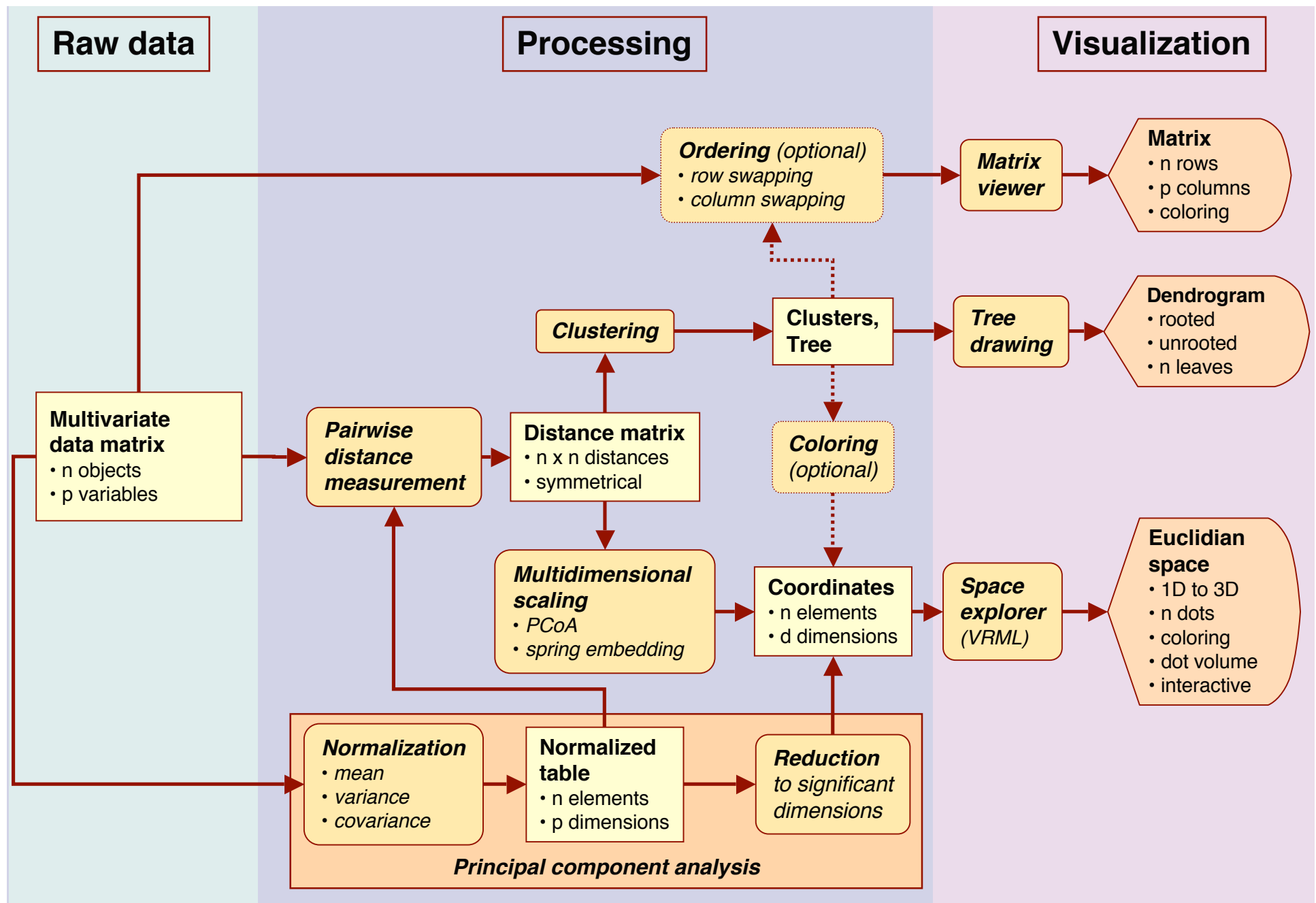
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Typical questions in multivariate analysis

- No criterion variable
 - Can the objects be separated in distinct classes on the basis of the variables ?
□ **Cluster analysis**
 - Which variables, or combinations of variables (factors), are the most explanatory for the differences between objects ?
□ **Factor analysis**
- Quantitative criterion variable
 - Is the criterion variable correlated with the predictor variables ?
□ **Correlation analysis**
 - Can we predict the value of the criterion variable on the basis of the predictor variables ?
□ **Regression analysis**
- Nominal criterion variable
 - Can we predict the value of the criterion variable on the basis of the predictor variables ?
□ **Discriminant analysis**

Flowchart of the approaches in multivariate analysis





Adapted from Gilbert et al. (2000). *Trends Biotech.* 18(Dec), 487-495.