Introduction to component-based methods in sensory evaluation

This tutorial surveys some of the most frequently used methods for exploring multivariate data sets from sensory and consumer science. Component-based methods are often applied for data reduction and visualization of results.

The tutorial is divided into three parts.

In Part 1, we contrast principal component analysis (PCA) with principal variable analysis, then discuss multiple factor analysis (MFA), which is often used to investigate multiblock sensory evaluation data of various formats.

Part 2 focuses on the application of multivariate regression methods for sensoryinstrumental correlations, discussing principal component regression (PCR) and partial least squares regression (PLSR).

In Part 3, we discuss applications of ANOVA-simultaneous component analysis (ASCA) for the exploration of sensory data sets and temporal sensory data sets. ASCA involves partitioning the variance into main and interacting factors in an ANOVA-like manner and decomposing each variance partition into components.

Methods will be illustrated by example using free software such as R.

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Duration: 3 hours tutorial + 1 hour of breaks including time for lunch

Audience: Sensory scientists and statisticians interested in component-based methods

Background: Attendees should be familiar with multivariate data sets and have at least a basic knowledge of statistics

Laptop: It is not a coding workshop, so a laptop is not required.

Examples will be shown mostly in R. Instructions for tutorial participants will be provided on a tutorial webpage to be provided later.