

1. Record Nr.	UNINA9910830123903321
Autore	Næs Tormod
Titolo	Statistics for sensory and consumer science [[electronic resource] /] / Tormod Næs and Per B. Brockhoff and Oliver Tomic
Pubbl/distr/stampa	Chichester, West Sussex ; ; Hoboken, N.J., : Wiley, 2010
ISBN	9786613174994 0-470-66918-7 0-470-66916-0 1-283-17499-5 1-119-95724-9
Descrizione fisica	1 online resource (308 p.)
Altri autori (Persone)	BrockhoffPer B TomicOliver
Disciplina	664/.07
Soggetti	Food - Sensory evaluation New products
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Machine generated contents note: Contents -- Preface -- Acknowledgements -- Chapter 1. Introduction -- Chapter 2. Important data collection techniques for sensory and consumer studies -- 2.1. Sensory panel methodologies -- 2.2 Consumer tests -- Chapter 3. Quality control of sensory profile data -- 3.1. General introduction -- 3.2. Visual inspection of raw data -- 3.3 Mixed model ANOVA for assessing the importance of the sensory attributes. -- 3.4 Overall assessment of assessor differences using all variables simultaneously -- 3.5 Methods for detecting differences in use of the scale -- 3.6. Comparing the assessors' ability to detect differences between the products. -- 3.7. Relations between individual assessor ratings and the panel average -- 3.8. Individual line plots for detailed inspection of assessors -- 3.9. Miscellaneous methods -- Chapter 4. Correction methods and other remedies for improving sensory profile data. -- 4.1. Introduction -- 4.2. Correcting for different use of the scale. -- 4.3. Computing improved panel averages -- 4.4 Pre-processing of data for three-way analysis -- Chapter 5. Detecting and studying sensory

differences and similarities between products. -- 5.1 Introduction -- 5.2 Analysing sensory profile data - univariate case -- 5.3 Analysing sensory profile data - multivariate case -- Chapter 6. Relating sensory data to other measurements. -- 6.2 Estimating relations between consensus profiles and external data -- 6.3 Estimating relations between individual sensory profiles and external data -- Chapter 7. Discrimination and similarity testing -- 7.1 Introduction -- 7.2 Analysis of data from basic sensory discrimination tests -- 7.3 Examples of basic discrimination testing -- 7.4. Power calculations in discrimination tests. -- 7.5 Thurstonian modelling - what is it really? -- 7. 6 Similarity versus difference testing -- 7.7 Replications - what to do? -- 7.8 Designed experiments, extended analysis and other test protocols -- Chapter 8. Investigating important factors influencing food acceptance and choice (conjoint analysis). -- 8.1 Introduction. -- 8.2. Preliminary analysis of consumer data sets (raw data overview). -- 8.3 Experimental designs for rating based consumer studies -- 8.4 Analysis of categorical effect variables -- 8.5. Incorporating additional information about consumers -- 8.6 Modelling of factors as continuous variables -- 8.7. Reliability/validity testing for rating based methods. -- 8.8. Rank based methodology -- 8.9. Choice based conjoint analysis -- 8.10 Market share simulation -- Chapter 9. Preference mapping for understanding relations between sensory product attributes and consumer acceptance -- 9.1 Introduction -- 9.2 External and internal preference mapping -- 9.3. Examples of linear preference mapping. -- 9.4 Ideal point preference mapping. -- 9.5. Selecting samples for preference mapping -- 9.6. Incorporating additional consumer attributes -- 9.7 Combining preference mapping with additional information about the samples -- Chapter 10. Segmentation of consumer data. -- 10.1 Introduction -- 10.2 Segmentation of rating data -- 10.3. Relating segments to consumer attributes. Chapter 11. Basic Statistics -- Chapter 11 Basic Statistics -- 11.1 Basic concepts and principles. -- 11.2 Histogram, frequency and probability 11.3. Some basic properties of a distribution (mean, variance and standard deviation) -- 11.4. Hypothesis testing and confidence intervals for the mean -- 11.5 Statistical process control -- 11.6 Relationships between two or more variables -- 11.7. Simple linear regression. -- 11.8 Binomial distribution and tests -- 11.9 Contingency tables and homogeneity testing -- Chapter 12. Design of experiments for sensory and consumer data -- 12. 1. Introduction. -- 12.2. Important concepts and distinctions. -- 12.3. Full factorial designs -- 12.4. Fractional factorial designs - screening designs -- 12.5. Randomised blocks and incomplete block designs -- 12.6 Split-plot and nested designs -- 12.7 Power of experiments -- Chapter 13. ANOVA for sensory and consumer data -- 13.1 Introduction -- 13.2 One-way ANOVA -- 13.3 Single replicate two-way ANOVA -- 13.4 Two-way ANOVA with randomized replications Chapter 13.5 Multi-way ANOVA -- 13.6. ANOVA for fractional factorial designs. -- 13.7 Fixed and random effects in ANOVA: Mixed models. -- 13.8 Nested and split-plot models. Chapter 13.9 Post hoc testing -- Chapter 14. Principal Component Analysis -- 14.1 Interpretation of complex data sets by PCA 14.2 Data structures for the PCA -- 4.3 PCA - Description of the method -- 14.4. Projections and linear combinations. -- 14.5. The scores and loadings plots -- 14.6. Correlation loadings plot. -- 14.7 Standardisation -- 14.8 Calculations and missing values -- 14.9. Validation -- 14.10 Outlier diagnostics -- 14.11 Tucker-1 -- 14.12 The relation between PCA and factor analysis (FA) -- Chapter 15. Multiple regression, principal components regression and partial least squares regression. -- 15.1 Introduction. -- 15.2. Multivariate linear

regression -- 15.3. The relation between ANOVA and regression analysis -- 15.4 Linear regression used for estimating polynomial models -- 15.5 Combining continuous and categorical variables. -- 15.6. Variable selection for multiple linear regression -- 15.7. Principal components regression (PCR) -- 15.8. Partial Least Squares (PLS) regression -- 15.9. Model validation - prediction performance -- 15.10. Model diagnostics and outlier detection -- 15.11 Discriminant analysis -- 15.12 Generalised linear models, logistic regression and multinomial regression -- Chapter 16. Cluster analysis - unsupervised classification -- 16.1 Introduction -- 16.2 Hierarchical clustering -- 16.3. Partitioning methods. -- 16.4. Cluster analysis for matrices. -- 17. Miscellaneous methodologies -- 17.1. Three-way analysis of sensory data -- 17.2. Relating three-way data to two-way data -- 17.3. Path modelling -- 17.4. MDS-multidimensional scaling Chapter 17.5 Analysing rank data -- 17.6. The L-PLS method -- 17.7. Missing value estimation -- Nomenclature, symbols and abbreviations -- Index.

Sommario/riassunto

"As we move further into the 21st Century, sensory and consumer studies continue to develop, playing an important role in food science and industry. These studies are crucial for understanding the relation between food properties on one side and human liking and buying behaviour on the other. This book by a group of established scientists gives a comprehensive, up-to-date overview of the most common statistical methods for handling data from both trained sensory panels and consumer studies of food. It presents the topic in two distinct sections: problem-orientated (Part I) and method orientated (Part II), making it to appropriate for people at different levels with respect to their statistical skills. This book succesfully makes a clear distinction between studies using a trained sensory panel and studies using consumers. Concentrates on experimental studies with focus on how sensory assessors or consumers perceive and assess various product properties. Focuses on relationships between methods and techniques and on considering all of them as special cases of more general statistical methodologies. It is assumed that the reader has a basic knowledge of statistics and the most important data collection methods within sensory and consumer science. This text is aimed at food scientists and food engineers working in research and industry, as well as food science students at master and PhD level. In addition, applied statisticians with special interest in food science will also find relevant information within the book"--

"This book will describe the most basic and used statistical methods for analysis of data from trained sensory panels and consumer panels with a focus on applications of the methods. It will start with a chapter discussing the differences and similarities between data from trained sensory and consumer tests"--
