some circles, to a highly diverse range of statistical techniques, including multi-level modelling, latent growth models and mixture modelling.

A considerable amount of this book is given over to models that deal with the analysis of change. In part, this reflects the enormous developments that have been seen in this area. The book, as its subtitle suggests, is divided into two parts: theory and applications. A perceived advantage of the SEM approach, for many, is that seemingly very diverse statistical models can be integrated within one system. From reading this book, it is not altogether clear how a number of these models could be analysed within the current SEM software. A number of chapters clearly indicate how this might be done; with others, this information is available if one looks at other publications by the same individuals. However, with the web sites of the software developers, discussion groups and sites maintained by individuals and organizations, much of the work presented in this book is accessible to researchers. This process could have been made somewhat easier by some of the contributors.

The book contains chapters on statistical power with small samples, the analysis of panel data, the modelling of preferences using the Thurstonian model, reliability, longitudinal analysis using a component analysis approach, least squares optimal scaling of partially observed linear systems, multi-level modelling and latent differential equation modelling with multivariate multi-occasion indicators. Then, a number of applied topics are presented relating to causal modelling, bipolarity of mood-states and development of a short form of the Eysenck Personality Profiler, followed by four chapters on different aspects of the analysis of change.

Much of psychology is about change. Indeed, the process of experimentation often centres on change. The repeated-measures ANOVA model has served this purpose well, at least within the controlled confines of laboratory research. Its applicability to randomized trials and development process is more questionable. Awareness of these limitations has led to much of the work reported in this book. For those interested in the analysis of change, there is much in this book that is likely to be new and of interest. However, the title may be seen by many as rather over-ambitious, given the restrictive range of material present. Nevertheless, it is a book which I am glad came across my desk.

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Regression analysis for categorical moderators
By Herman Aguinis

This book presents a comprehensive and readily accessible treatment of multiple regression with categorical moderators (MMR-C). Although most of its contents can be gleaned from the ever-expanding ranks of multiple-regression books, the author does provide a useful service in integrating scattered facts and simplifying unnecessarily convoluted presentations. The chapters on homogeneity of error variance, power and evaluation of significance are particularly informative and constitute the high points of the volume. A possible weakness, but one that many newcomers to MMR-C may welcome, is the book’s highly practical focus. I found this tedious at times, especially in the coverage of elementary issues, such as setting up SPSS files for MMR-C analysis.

Chapters 1–3 offer a basic introduction to MMR-C, presenting information which anyone contemplating purchasing such a book should already be familiar with. Considerable space could have been saved and allocated to more complex topics by condensing these three chapters into one.

Chapter 4 presents an outstanding discussion of the (familiar from ANOVA) assumption of homogeneity of variance. The author describes meticulously the assumption itself as well as its impact on Type I and II error rates. Rules of thumb, derived from Monte Carlo simulations, provide helpful guidance, although one must always be wary of mechanically applying such rules. Detecting and remediying violations of the homogeneity assumption are the central topics of this
Chapters 5–7 discuss statistical power in the MMR-C context. Thus, Chapter 5 looks at the various factors affecting power in MMR-C analyses, many of which are applicable to standard multiple regression too, while Chapter 6 offers practical solutions for overcoming power-related problems. Chapter 7 focuses on statistical power computation, presenting a sequence of computer programs that can be downloaded from the author’s web site. While the programs will be useful to researchers and students alike, their description is replete with unnecessary and uninteresting minutiae. A prime example is the inclusion and exhaustive discussion of an early version of a program alongside the enhanced version that superseded it.

Chapter 8 deals with models that are more complex, involving polychotomous categorical variables, interactions and non-linear effects. The discussion of quadratic effects, which can be mistaken for bilinear interactions, and of higher-order interaction effects, is as practical as it is illuminating. As is the case with the rest of the book, the chosen examples provide helpful, step-by-step illustrations of the main issues. However, the recommendation that one should examine the regression coefficient of an interaction of interest only after obtaining a statistically significant result in the omnibus test of the combined effect of all interactions of the same order is imprudent. Thus, when the interest is in evaluating a specific, *a priori* hypothesized interaction, this can and should be done directly without having to examine it along with other interactions in an omnibus test.

When the interest is in testing several interaction terms or in an exploratory evaluation of all possible interaction terms of a certain order, then the trade-off between Type I error control and power must be considered carefully. In general, omnibus tests are problematic when sample sizes are small to moderate. This is especially true in models with many interaction terms that use up degrees of freedom and reduce power. The approach recommended by the author is useful when sample sizes are large and there are no *a priori* hypotheses concerning specific interactions. Even then, it should be remembered that there are cases where the generalization of Fisher’s protected $t$-test approach to multiple regression does not provide adequate coverage against Type I error. For example, one true interaction among a number of null ones can trigger a statistically significant result for the omnibus test, which then allows the researcher to proceed with testing *ad lib* interaction terms in the set, thus increasing the likelihood of a Type I error beyond acceptable levels.

Chapter 9 is one of the book’s most informative, dealing with the assessment of practical, as opposed to statistical, significance and the importance of theory-driven model specification. With respect to assessing the practical significance of a moderating effect, a meaningful distinction is made between measures of improved fit (in terms of variance explained) versus measures of improved prediction (in terms of differential slopes across the subgroups). Several indices of fit improvement are discussed, of which the $f^2$ and modified $f^2$ (which corrects for heterogeneity of variance) are recommended as more appropriate than the widely used and reported $\Delta R^2$.

As regards measures of improved prediction, there is a choice between comparing slopes across the subgroups (in either standardized or unstandardized form) and examining the relative impact of the moderator at selected levels of the predictor (e.g. $-1/0.5 SD$ from the mean). The chapter concludes with a note on the importance of pre-specifying the theoretical model to be tested, with particular emphasis on the *a priori* identification of the criterion and the predictor variables. This choice may well affect the probability of obtaining a significant result on the statistical test of the moderator. In other words, the likelihood of detecting a moderating effect is influenced by which variable is specified as the moderator and which as the criterion.

The book closes with a redundant summary chapter, summarizing the chapter summaries. In general, there is a fair amount of repetition, inflating a text that would have made a perfect addition to the Sage Quantitative Applications in the Social Sciences series into a considerably larger volume. However, this is my only gripe with an otherwise informative, enjoyable and eminently readable book.

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