

**THEORY TESTING
IN ORGANIZATIONAL
BEHAVIOR:
The *Variet* Approach**

FRED DANSEREAU

State University of New York at Buffalo

JOSEPH A. ALUTTO

State University of New York at Buffalo

FRANCIS J. YAMMARINO

University of Kentucky

With the collaboration of
MacDonald Dumas
University of West Indies, Trinidad

The Institute for Theory Testing, Williamsville, NY 14231

DANSEREAU, FRED

Theory testing in organizational behavior.

Bibliography; p.

Includes index.

1. Organization. 2. Paradigms (Social sciences)
3. Organizational behavior. 4. Multivariate analysis.

I. Alutto, Joseph A. II. Yammarino,

Francis J. III. Title.

HM131.D34 1984 302.3'5 83-19057

ISBN 0-13-914408-0

Editorial/production supervision and
interior design: Sonia Meyer
Cover design: Lundgren Graphics, Ltd.
Manufacturing buyer: Ed O'Dougherty

(c) 1999 Dansereau, Alutto, & Yammarino
©1984 by Prentice-Hall, Inc.
Englewood Cliffs, New Jersey 07632

All rights reserved. No part of this book may be
reproduced, in any form or by any means,
without permission in writing from the publisher.

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

ISBN 0-13-914408-0

Prentice-Hall International, Inc., *London*
Prentice-Hall of Australia Pty. Limited, *Sydney*
Editora Prentice-Hall do Brasil, Ltda., *Rio de Janeiro*
Prentice-Hall Canada Inc., *Toronto*
Prentice-Hall of India Private Limited, *New Delhi*
Prentice-Hall of Japan, Inc., *Tokyo*
Prentice-Hall of Southeast Asia Pte. Ltd., *Singapore*
Whitehall Books Limited, *Wellington, New Zealand*

*To those willing to experience the challenge
of exploring new solutions
to traditional problems of science*

CONTENTS

PREFACE ix

INTRODUCTION 1

PART I BASIC CONCEPTS

1 TRADITIONAL APPROACHES AND THE VARIENT PARADIGM 3

A Variet Approach to Statistics 4 A Variet Approach to Entities 9

A Variet Approach to Variables 16 The Variet Paradigm 24

Overview of the Book 26 Perspectives on the Variet Paradigm 29

Summary 31 *Review Questions* 32

2 THE VARIET MATRIX: CONCEPTUALIZATIONS 33

Introduction 33 The Entity Axis 37 The Variable Axis 53

Summary 63 *Review Questions* 64

PART II HOW THEORIES ARE FORMULATED

3 THEORY: FORMULATIONS 65

Introduction 65 Selecting Entities 67 Selecting Variables 82

Summary 86 *Review Questions* 86

4 THEORY: AN ILLUSTRATIVE FORMULATION 87

Theory A: Role Theory 88 Theory B: Exchange Theory 95
Comparison of Theory A and Theory B 104

Summary 108 Review Questions 108

**PART III
HOW DATA ARE ANALYZED**

5 DATA ANALYTIC TECHNIQUES 110

The General Linear Tensor 111 Total Correlation Analysis 116
Within and Between Analysis (WABA) 120 Varient Applications of
WABA 135 Traditional Applications of WABA 141

Summary 144 Review Questions 144

6 DEDUCTIVE ALIGNMENT 145

Single-Level Analysis 145 Multiple-Level Analysis 153
Multiple-Variable Analysis 157 Multiple-Relationship Analysis 161

Summary 164 Review Questions 165

7 INDUCTIVE ALIGNMENT 166

Tests of Significance 166 Single-Level Analysis 168
Multiple-Level Analysis 185 Multiple-Variable Analysis 186
Multiple-Relationship Analysis 187

Summary 188 Review Questions 188

**PART IV
HOW CONCLUSIONS ARE DRAWN ABOUT THEORY
AND DATA**

8 INFERENCES 190

Theory and Deduction 191 Data Analysis and Induction 192
Inferences 198

Summary 199 Review Questions 200

9	TESTING THEORIES: A GROUP-COLLECTIVITY ILLUSTRATION	201		
	Theory and Deduction	201	Data Analysis and Induction	206
	Inferences and Summary	220	Review Questions	221
10	TESTING THEORIES: A PERSON – DYAD – GROUP ILLUSTRATION	222		
	Theory and Deduction	222	Data and Induction	227
	Inferences and Summary	239	Review Questions	241
11	TESTING THEORIES: COMPLETING THE ANALYSIS	242		
	Theory and Deduction	242	Data Analysis and Induction	243
	Inferences and Summary	258	Review Questions	261
 PART V ADDITIONAL WAYS CONCLUSIONS ARE DRAWN ABOUT THEORY AND DATA				
12	SUMMARY AND EXTENSIONS OF THE VARIANT PARADIGM	262		
	WABA in More General Terms	263	Time in the Variant Paradigm	264
	The Extended Variant Paradigm	275	Theoretical Issues	276
	Empirical Issues	277		
	Summary	278	Review Questions	279
13	IMPLICATIONS	280		
	Bivariate Correlations	280	Partial Correlations	283
	Correlation and Regression	288	One-Way Analysis of Variance (ANOVA)	295
	Analysis of Covariance (ANCOVA)	299	The <i>n</i> -Way Analysis of Variance	300
	Summary	307	Review Questions	308
14	COMPARISON TO OTHER APPROACHES	309		
	Measurement	309	Methodological Approaches	316
	Inferences	318		
	Summary	320	Review Questions	320

**15 THE VARIET PARADIGM AND THEORY TESTING IN THE
FUTURE 321**

Variet Conceptualizations	321	Theory	324	Data Analysis	324
Inferences	324	Applied Issues	325		
	<i>Conclusion</i>	328	<i>Review Questions</i>	328	

APPENDICES

Appendix A	Tables	330	Appendix B	Key Geometric Properties	336
	Appendix C	Key Algebraic Properties	339		
Appendix D	Mathematical Proofs	343	Appendix E	Degrees of Freedom	350
	Appendix F	Traditional Applications of WABA	354		
Appendix G	Measures Used at MCO	362			
Appendix H	Computerized WABA	372	Appendix I		
	Answers to Review Questions	382			

REFERENCES 397

NAME INDEX 407

SUBJECT INDEX 410