Contents

Foreword ix

Introduction

 Theories of testing in the philosophy of science 7 Introduction 7 Philosophical perspectives on theory and evidence 8 Methodological principles 16 Implications for testing behaviour 22 Summary and conclusions 27

3

2. Formal theories of testing 29

1

Introduction29Testing as decision making30The Bayesian approach to testing37Information theory42Implications for testing behaviour46Summary and conclusions47

Wason's rule discovery task 49 Introduction: Wason's experiments on hypothesis-testing behaviour 49 Wason's rule discovery task, or 2-4-6 task 50 Summary and conclusions 71

- viii CONTENTS
- 4. Wason's selection task 73 Introduction 73 Original explanations of selection task performance 74 Content variations and falsifying strategies 84 Statistical inference and the selection task: A good marriage? 89 Relevance 110 Conclusions 114
- Hypothesis testing under uncertainty 117 Introduction 117 Hypothesis testing with probabilistic tasks 118 Testing with verbal tests 131 Summary and conclusions 136
- 6. The probability value perspective 139 Rationality and bias in testing 139 The probability-value model 144 Applications and future research 148
- Acknowledgement 150
- References 151
- Appendix 1 161
- Appendix 2 161
- Author Index 163
- Subject Index 167