Peter Lewis

Maps and Statistics

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Methuen & Co Ltd

First published 1977 by Methuen & Co Ltd
11 New Fetter Lane, London EC4P 4EE

Printed in Great Britain at the
University Printing House, Cambridge

ISBN 0 416 65370 7 *hardback*
ISBN 0 416 65380 4 *paperback*

Library of Congress Cataloging in Publication Data

Lewis, Peter, 1938–
Maps and statistics.

Bibliography: p. 310
Includes index.
1. Maps, Statistical. I. Title.
GA109.8.L48 1977 001.4'226 77-1184
ISBN 0-470-99094-5

The Field of Geography

Progress in modern geography has brought rapid changes in course work. At the same time the considerable increase in students at colleges and universities has brought a heavy and sometimes intolerable demand on library resources. The need for cheap textbooks introducing techniques, concepts and principles in the many divisions of the subject is growing and is likely to continue to do so. Much post-school teaching is hierarchical, treating the subject at progressively more specialized levels. This series provides textbooks to serve the hierarchy and to provide therefore for a variety of needs. In consequence some of the books may appear to overlap, treating in part of similar principles or problems, but at different levels of generalization. However, it is not our intention to produce a series of exclusive works, the collection of which will provide the reader with a 'complete geography', but rather to serve the needs of today's geography students who mostly require some common general basis together with a selection of specialized studies.

Between the 'old' and the 'new' geographies there is no clear division. There is instead a wide spectrum of ideas and opinions concerning the development of teaching in geography. We hope to show something of that spectrum in the series, but necessarily its existence must create differences of treatment as between authors. There is no general series view or theme. Each book is the product of its author's opinions and must stand on its own merits.

University of London,
King's College
August 1971

W. B. Morgan
J. C. Pugh

Categorization of test procedures

PROPOSITION	MEASUREMENT	
	NOMINAL *Class or category*	DISCRETE QUANTITY *Position in sequence, ranked*
RANDOMNESS	Probability distributions Binomial (1.9, 2.2.1) Multinomial (2.2.2) Hypergeometric (2.2.3, 2.3.1) Poisson (2.2.4) Number of runs (2) (3.1.1) Number of runs (1) (3.1.2) Number of runs, linked pairs (3.1.3) Wald-Wolfowitz (3.4.1)	Cox and Stuart (3.3.1) Kolmogorov (3.5.1)
INDEPENDENCE DEPENDENCE ASSOCIATION	Fisher's exact (2.3.1) Chi-square (2.3.2, 2.5, 2.6, 3.5.2) Cramer's coefficient (2.4) Tschuprow's coefficient (2.4) Pearson's contingency coefficient (2.4) Kendall's phi coefficient (2.4) Cross-product ratio (2.4) Chi-square ($r \times c$) (2.5) Chi-square ($r \times c \times l$) (2.6) Log-linear models (2.6)	Chi-square ($r \times 2$) subsets (2.5) Chi-square ($r \times 2$) regression (2.5) Chi-square ($r \times c \times l$) (2.6) Log-linear models (2.6)
EQUALITY OF LOCATION IDENTITY OF DISTRIBUTION GOODNESS-OF-FIT	Sign test (1.9) Wald-Wolfowitz (3.4.1) Westenberg-Mood median test (3.4.2) Chi-square (goodness-of-fit) (3.5.2) McNemar's test (Ex. 3.7)	Wilcoxon rank-sum (2.7.1) Mann-Whitney, U (2.7.2) Kruskal-Wallis (2.7.3) Friedman (2.7.4) Matched-pairs sign test (3.4.2) Wilcoxon signed-rank (3.4.3)

Point symbol maps are discussed in section 2. Line symbol maps and angular measurements are discussed in section 3. Numbers in brackets indicate the article in which the test statistic is discussed in detail.

SCALE

CONTINUOUS QUANTITY	
Distribution-free or not-normal	*Von Mises (angular) Normal*
Runs up and down, Edgington (3.2.1) Periodicity in runs, Noether (3.2.2) Kolmogorov (3.5.1)	
Cox and Stuart (3.3.1) Spearman's rho (3.3.2) Daniel's test for trend (3.3.2) Kendall's tau (3.3.2) Kendall's concordance, *W* (3.3.2)	*t* for *b* coefficient *t* for Pearson's *r* coefficient
Smirnov test (3.4.4) Kolmogorov test (3.5.1) Lilliefors test (3.5.1) Kuiper's test (angular data) (3.6.1) Mardia's uniform scores test (angular data) (3.6.2)	*t* in 1 and 2 sample cases *F* in multi-sample cases Goodness-of-fit not needed by assumption Watson and Williams, Rayleigh for angles

Acknowledgements

I should like to thank the following for permission to reproduce the tables in appendix 2: Addison-Wesley Publishing Company for table 9; Biometrika Trustees for tables 4, 6, 7, 12 and 17; Department of Statistics, Florida State University, for table 14; Institute of Mathematical Statistics, Hayward, California, for tables 10 and 15; *Journal of the American Statistical Association* for tables 3(b), 8, 11 and 16; *Journal of the Royal Statistical Society* for table 18; *Statistica Neerlandica* for table 13; and Stanley Thornes (Publishers) Ltd for tables 1, 2, 3(a) and 5.

Implicit in any book is the debt owed to the people whose work appears in the references. It is a pleasure to offer my thanks to those people who have contributed to the development of this book. Like the other authors in this series I have benefited from the suggestions made so pleasantly by Bill Morgan, the series editor, and by Janice Price, general editor for Methuen. I should like to thank Toby Lewis of Hull University and Joyce Snell of Imperial College, London, for reading the manuscript and making valuable recommendations, and I hope my response to those suggestions has been adequate. My thanks, too, to the technical and secretarial staff of the Department of Geography, Birkbeck College, for producing the fair copies of the illustrations and for typing a difficult manuscript. My deepest thanks happily go to Rosemary and Simon and Catherine for providing the environment for writing this book, for giving so much encouragement during its preparation, and for helping on so many of the jobs that arose at all stages of its formation.

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