

1. Record Nr.	UNINA9910830888603321
Autore	Bernardo J. M
Titolo	Bayesian theory [[electronic resource] ] / Jose M. Bernardo, Adrian F.M. Smith
Pubbl/distr/stampa	Chichester ; ; New York, : Wiley, c2000
ISBN	1-282-30786-X 9786612307867 0-470-31687-X 0-470-31771-X
Descrizione fisica	1 online resource (611 p.)
Collana	Wiley series in probability and statistics
Altri autori (Persone)	SmithAdrian F. M
Disciplina	519.5 519.542
Soggetti	Bayesian statistical decision theory Statistical decision
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Originally published: 1994.
Nota di bibliografia	Includes bibliographical references (p. [489]-554) and indexes.
Nota di contenuto	BAYESIAN THEORY; Contents; 1. INTRODUCTION; 1.1. Thomas Bayes; 1.2. The subjectivist view of probability; 1.3. Bayesian Statistics in perspective; 1.4. An overview of Bayesian Theory; 1.4.1. Scope; 1.4.2. Foundations; 1.4.3. Generalisations; 1.4.4. Modelling; 1.4.5. Inference; 1.4.6. Remodelling; 1.4.7. Basic formulae; 1.4.8. Non-Bayesian theories; 1.5. A Bayesian reading list; 2. FOUNDATIONS; 2.1. Beliefs and actions; 2.2. Decision problems; 2.2.1. Basic elements; 2.2.2. Formal representation; 2.3. Coherence and quantification; 2.3.1. Events, options and preferences 2.3.2. Coherent preferences 2.3.3. Quantification; 2.4. Beliefs and probabilities; 2.4.1. Representation of beliefs; 2.4.2. Revision of beliefs and Bayes' theorem; 2.4.3. Conditional independence; 2.4.4. Sequential revision of beliefs; 2.5. Actions and utilities; 2.5.1. Bounded sets of consequences; 2.5.2. Bounded decision problems; 2.5.3. General decision problems; 2.6. Sequential decision problems; 2.6.1. Complex decision problems; 2.6.2. Backward induction; 2.6.3. Design of experiments; 2.7. Inference and information; 2.7.1. Reporting beliefs as a decision problem

2.7.2. The utility of a probability distribution; 2.7.3. Approximation and discrepancy; 2.7.4. Information; 2.8. Discussion and further references; 2.8.1. Operational definitions; 2.8.2. Quantitative coherence theories; 2.8.3. Related theories; 2.8.4. Critical issues; 3. GENERALISATIONS; 3.1. Generalised representation of beliefs; 3.1.1. Motivation; 3.1.2. Countable additivity; 3.2. Review of probability theory; 3.2.1. Random quantities and distributions; 3.2.2. Some particular univariate distributions; 3.2.3. Convergence and limit theorems; 3.2.4. Random vectors, Bayes' theorem; 3.2.5. Some particular multivariate distributions; 3.3. Generalised options and utilities; 3.3.1. Motivation and preliminaries; 3.3.2. Generalised preferences; 3.3.3. The value of information; 3.4. Generalised information measures; 3.4.1. The general problem of reporting beliefs; 3.4.2. The utility of a general probability distribution; 3.4.3. Generalised approximation and discrepancy; 3.4.4. Generalised information; 3.5. Discussion and further references; 3.5.1. The role of mathematics; 3.5.2. Critical issues; 4. MODELLING; 4.1 Statistical models; 4.1.1. Beliefs and models; 4.2. Exchangeability and related concepts; 4.2.1. Dependence and independence; 4.2.2. Exchangeability and partial exchangeability; 4.3. Models via exchangeability; 4.3.1. The Bernoulli and binomial models; 4.3.2. The multinomial model; 4.3.3. The general model; 4.4. Models via invariance; 4.4.1. The normal model; 4.4.2. The multivariate normal model; 4.4.3. The exponential model; 4.4.4. The geometric model; 4.5. Models via sufficient statistics; 4.5.1. Summary statistics; 4.5.2. Predictive sufficiency and parametric sufficiency; 4.5.3. Sufficiency and the exponential family; 4.5.4. Information measures and the exponential family

---

Sommario/riassunto

This highly acclaimed text, now available in paperback, provides a thorough account of key concepts and theoretical results, with particular emphasis on viewing statistical inference as a special case of decision theory. Information-theoretic concepts play a central role in the development of the theory, which provides, in particular, a detailed discussion of the problem of specification of so-called prior ignorance. The work is written from the authors' committed Bayesian perspective, but an overview of non-Bayesian theories is also provided, and each chapter contains a wide-ranging critical

---