Probability - STAT110 Otago

Students also viewed

ection 7.1

1 terms

izzyn167 Preview

Probability

19 terms

M milliehardiman Preview

Terms in this set (18)

subjective probability	the **individual's personal estimate** of the chance of loss probability as the **degree of belief i**n a statement
Objective Probability	the **long-run** relative frequency of an event based on the assumptions of an infinite number of observations and of no change in the underlying conditions
Experiment definition	an experiment is a process by which observations/ measurements are obtained, e.g.: throwing a fair die,
Event definition	An event is the **outcome** of an experiment, e.g.: - getting a 6
sample space definition	The sample space is the set of all possible outcomes of an experiment, e.g.: - in the case of a fair die, {1, 2, 3, 4, 5, 6}.
Complementary events	$Pr(A) + Pr(\bar{A}) = 1$
Mutually Exclusive Events	There is no intersection between the two events $Pr(A \text{ and } B) = Pr(A \cap B) = 0$ e.g., Māori and Chinese

Conditional Probability Multiplication Rule	$Pr(A \text{ and } B) = Pr(A \cap B) = Pr(A)\, Pr(B\vert A)$
Conditional Probability Addition Rule	$Pr(A \text{ or } B) = Pr(A \cup B) = Pr(A) + Pr(B) - Pr(A \cap B)$
Independent Events	The outcome of one event does not affect the outcome of the second event
independence check (true if)	$Pr(B) \neq Pr(B \mid A)$ or $Pr(A) \neq Pr(A \mid B)$
definitions of *Diagnostic tests*	*Sensitivity* *Specificity* *False positive fraction* *Positive Predictive Value* *Negative Predictive Value*
Sensitivity (Diagnostic tests)	*$Pr(B \mid A)$* *The probability that a person with the disease has a positive test* *Think of this as "the probability of a positive test result, given the person actually has the disease.* *A: some condition (A) is present.* *B: the related test (B) for the presence of A is positive.*
Specificity (Diagnostic tests)	*$Pr(\text{-}B \mid \text{-}A)$* *The probability that a person without the disease has a negative test* *Think of this as "the probability of a negative test result, given the person does NOT have the disease.* *A: some condition (A) is present.* *B: the related test (B) for the presence of A is positive.*

Negative Predictive Value	*Pr(-A | -B)* *The proportion of patients with negative test results who don't have the disease.* *The proportion of patients with negative test results who are correctly diagnosed.* *A: some condition (A) is present.* *B: the related test (B) for the presence of A is positive.*
False positive fraction (Diagnostic tests)	*1 - specificity = Pr(-B | -A).* *A: some condition (A) is present.* *B: the related test (B) for the presence of A is positive.*
Positive Predictive Value	*Pr(A | B)* *The proportion of patients with positive test results who have the disease.* *The proportion of patients with positive test results who are correctly diagnosed.* *A: some condition (A) is present.* *B: the related test (B) for the presence of A is positive.*
Negative Predictive Value	Pr(-A|-B)