

Some generally problematic issues in the exams

2. Epistemic closure under entailment – For all epistemic agents S and for all propositions p, q, if S knows p, and S knows that p entails q, then S knows that q.

3. Instantial model of confirmation – A hypothesis of the form “All F’s are G” is supported by its positive instances, i.e. by observed F’s that are also G.

12. Hempel

equivalence condition – If evidence E confirms hypothesis H_1 , and hypothesis H_2 is logically equivalent to H_1 , then E also confirms H_2 .

Instance condition – Universal generalizations are confirmed by their positive instances. “For all x, if x is a raven, x is black” is logically equivalent to “For all x, if x is not black, x is not a raven.” An instance of a white shoe confirms the second statement, and because it is equivalent, confirms the first as well. It seems counterintuitive that any non black object confirms that all ravens are black.

13. Bayes’ theorem

P (produced by old machine) = 0.15

P (produced by new machine) = 0.60

P (produced by fancy machine) = 0.25

P (defective | old machine) = 0.03

P (defective | new machine) = 0.02

P (defective | fancy machine) = 0.03

P (new machine | defective) = ?

$$\frac{0.60 * 0.02}{0.60 * 0.02 + 0.15 * 0.03 + 0.25 * 0.03}$$

P (new machine | defective) = 0.5

Longer answers – You must address ALL issues that are relevant, and address them IN DEPTH.