

Phi 270 F05 test 1

1. Define entailment by completing the following: Γ entails ϕ (i.e., $\Gamma \Rightarrow \phi$) if and only if (Your answer need not replicate the wording of the text's definitions, but it should define entailment in terms of the ideas of truth values and possible worlds. Remember that Γ is a set, not a sentence, so it does not have a truth value; but any members of it are sentences and have truth values.)

answer

2. Suppose you know that (i) the set containing ϕ and ψ is inconsistent (i.e., $\phi, \psi \Rightarrow$) and (ii) the set containing ψ and χ is inconsistent (i.e., $\psi, \chi \Rightarrow$). What, if anything, can you conclude about the consistency or inconsistency of the set containing ϕ and χ ? That is, what can you conclude about the truth of a claim that $\phi, \chi \Rightarrow$? Be sure to explain your answers in terms of the definition of inconsistency.

answer

3. Consider the following exchange:

Al: I'm going to the restaurant Chuck told us about.

Bob: I was there yesterday. Do you have health insurance?

Bob could be said to convey information about the restaurant not only through his assertion but also through the question that follows it. Use the idea of *implicature* to explain how this might work. (Just what information you think might be conveyed by the question is less important than your explanation of how that information would be conveyed.)

answer

Analyze the sentences below in as much detail as possible, presenting the result in both symbolic and English notation (i.e., using both ... and). Be sure that the unanalyzed components of your answer are complete and independent sentences; also try to respect any grouping in the English.

4. The water was cool and clear.

answer

5. Adam found Barb's number and called her, but she was out; nevertheless, he went to the party.

answer

Use derivations to check whether each of the claims of entailment below holds. If an entailment fails, present a counterexample by providing a table in which you calculate the truth values of the premises and conclusion on an assignment of truth values that divides an open gap.

Do not use the rule Adj in the first derivation, but you may use it in the second.

6. $(A \wedge B) \wedge C \Rightarrow C \wedge A$

answer

7. $F \wedge C, A \wedge (D \wedge E) \Rightarrow E \wedge (B \wedge C)$

answer

Phi 270 F05 test 1 answers

1. Γ entails ϕ (i.e., $\Gamma \Rightarrow \phi$) if and only if there is no possible world in which all members of Γ are true but ϕ is false. (Or: ... if and only if, in every possible world in all members of Γ are true, ϕ is true as well.)
2. You know, from (i), that ϕ and ψ cannot be true together and, from (ii), that ψ and χ cannot be true together. But it may still be possible for ϕ and χ to be true together (provided ψ is false). Therefore, (i) and (ii) do not provide enough information for you to be able to conclude that the set containing ϕ and χ is inconsistent.
3. The specific information conveyed will depend on the circumstances; but Bob's question fits into the conversation—i.e., is appropriate—only if eating at the restaurant makes having health insurance somehow relevant. So it would be an implicature of the question that eating at the restaurant makes whether you have health insurance in some way significant. (In most contexts, the specific suggestion would probably be that eating at the restaurant puts one's health in danger; but, in certain contexts, the suggestion might be something different—for example, that the restaurant is very expensive.)
4. The water was cool and clear
 The water was cool \wedge the water was clear
 $C \wedge R$
 both C and R
 C: the water was cool; R: the water was clear
5. Adam found Barb's number and called her, but she was out; nevertheless, he went to the party
 Adam found Barb's number and called her, but she was out \wedge Adam went to the party
 $(\text{Adam found Barb's number and called her} \wedge \text{Barb was out}) \wedge \text{Adam went to the party}$
 $((\text{Adam found Barb's number} \wedge \text{Adam called Barb}) \wedge \text{Barb was out}) \wedge \text{Adam went to the party}$
 $((F \wedge C) \wedge O) \wedge W$
 both both F and C and O and W
 C: Adam called Barb; F: Adam found Barb's number; O: Barb was out; W: Adam went to the party

