

M_4 Socrates is mortal.

Which combinations of sentences are jointly possible? Mark each “possible” or “impossible.”

1. Sentences M_1 , M_2 , and M_3
2. Sentences M_2 , M_3 , and M_4
3. Sentences M_2 and M_3
4. Sentences M_1 and M_4
5. Sentences M_1 , M_2 , M_3 , and M_4

G. Which of the following is possible? If it is possible, give an example. If it is not possible, explain why.

1. A valid argument that has one false premise and one true premise
2. A valid argument that has a false conclusion
3. A valid argument, the conclusion of which is a necessary falsehood #3: Yes -- provided that one of the premises is necessarily false, for example
4. An invalid argument, the conclusion of which is a necessary truth #4 No -- an invalid argument requires the existence of a counterexample, which is a scenario in which all premises are true and the conclusion is false.
5. A necessary truth that is contingent #5: No -- by definition, "contingent" means sometimes false
6. Two necessarily equivalent sentences, both of which are necessary truths #6: Yes -- two necessarily true sentences always have truth value "T" so they are always already necessarily equivalent.
7. Two necessarily equivalent sentences, one of which is a necessary truth and one of which is contingent #7: No -- the nec. true sentence is always true but the contingent one is sometimes false. Therefore they may not always have the same truth-values.
8. Two necessarily equivalent sentences that together are jointly impossible #8: Yes -- consider if the two sentences were necessarily false. In this case they are not jointly possible (since no scenario would exist that make both true)
9. A jointly possible collection of sentences that contains a necessary falsehood #9: No -- one necessary falsehood means they can't be jointly possible since joint possibility requires a scenario under which ALL are true and that one necessarily false sentence does not allow this.
10. A jointly impossible set of sentences that contains a necessary truth #10: Yes -- although one sentence is necessarily true. Suppose the collection of sentences contains another sentence that is necessarily false. That ruins joint possibility.

H. Which of the following is possible? If it is possible, give an example. If it is not possible, explain why.

1. A valid argument, whose premises are all necessary truths, and whose conclusion is contingent