Tutorial A03 Answer Key

A03.5 Exercises

Question 1. Are the following arguments valid? Why, or why not?

1. Someone is sick.
   Someone is unhappy.
   So someone is unhappy and sick.

Answer: Invalid. The person who is sick might not be the person who is unhappy.

2. If he loves me then he gives me flowers.
   He gives me flowers.
   So he loves me.

Answer: Invalid. Even if his loving me suffices for his giving me flowers, he might give me flowers even if he does not love me – for example, perhaps he feels guilty for not loving me despite his many confessions of love.

3. Beckham is famous.
   Beckham is a football player.
   Therefore, Beckham is a famous football player.

Answer: Invalid. Beckham might be a famous chef who is a football player but not a famous football player.

4. If it rains, the streets will be wet.
   If the streets are wet, accidents will happen.
   Therefore, accidents will happen if it rains.

Answer: Valid. If raining suffices for making the streets wet and the streets being wet suffices for accidents happening, then raining suffices for accidents happening.

5. John was in Britain when Mary died in Hong Kong.
   So Mary could not have been killed by John.

Answer: Invalid. Perhaps John shot Mary on Monday, and flew to Britain on Tuesday, but Mary died on Friday.

6. If there is life on Pluto then Pluto contains water.
   But there is no life on Pluto.
   Therefore Pluto does not contain water.
Answer: Invalid. Even if life on Pluto suffices for Pluto containing water, there might be neither life nor water on Pluto; perhaps Pluto is too cold and dry for either.

7. There were two rabbits in the room last week.  
   No rabbit has left the room since then.  
   Therefore there are two rabbits in the room now.  

Answer: Invalid. As you know, rabbits can reproduce!

8. All whales have wings.  
Moby does not have wings.  
So Moby is not a whale.  

Answer: Valid. If having wings is necessary for being a whale and Moby does not have wings, then Moby cannot be a whale.

Question 2. Consider this argument:  

• If there is a square in the picture then there is a circle as well.  
Therefore, if there is a circle in the picture there is a triangle in the picture.  

Based on the four pictures, which of them constitute invalidating counterexamples to the argument, and which do not?  

Answer: Only the second one from the right

Question 3. Are these arguments valid?  

1. John shot himself in the head. So John is dead.  

Answer: This is not valid. Although the conclusion is very likely to be true given the premise, it is not a logical consequence of the premise. Perhaps a brilliant doctor managed to save John.

2. John shot himself in the head. So John shot himself in the head.  

Answer: This is valid. This is a circular argument, because the conclusion is also a premise. It is nonetheless valid, because it is impossible for the premises to be true while the conclusion is false.

3. All management consultants are bald. Peter is bald. So Peter is a management consultant.  

Answer: This is not valid. That all management consultants happen to be bald does not demand that all bald people are management consultants. Peter could have another
career and be bald. For example, perhaps Peter is a monk who happened to have shaved his hair.

4. If time travel is possible, we would now have lots of time-travel visitors from the future. But we have no such visitors. So time travel is not possible.

Answer: This is valid. If having visitors from the future is necessary for the possibility of time travel and there are no visitors from the future, it follows that time travel is impossible.

5. Jen is either in San Diego or in Tokyo. Since she is not in Tokyo, she is in San Diego.

Answer: This is valid. If Jen must be in one of two places and happens not to be in one of the places, Jen must be in the other place.

6. Some people are nice. Some people are rich. So some people are rich and nice.

Answer: This is not valid. Those who are rich might not be the same as those who are nice.

7. If I drink, then I will be happy. If I am happy, then I will dance. So if I drink, then I will dance.

Answer: Valid. If my drinking suffices for my happiness and my happiness suffices for my dancing, then my drinking suffices for my dancing.

8. Every red fish is a fish.

Answer: A trick question! This is a necessarily true statement, but it is not an argument and so not a valid argument.

9. The services of mobile phone companies are getting worse as there has been an increasing number of complaints against mobile phone companies by consumers.

Answer: This is not valid, because the increase in complaints might only be due to the increase in the number of mobile phone users.

10. All capitalists exploit the weak and the poor. Property developers exploit the weak and the poor. So property developers are capitalists.

Answer: This is not valid. Perhaps there are non-capitalists who also exploit.