

### Exercise: Legal reasoning

(Source: Peter Lee.) Suppose a crime has been committed. Blood is found at the scene for which there is no innocent explanation. It is of a type which is present in 1% of the population.

1. The prosecutor claims: "There is a 1% chance that the defendant would have the crime blood type if he were innocent. Thus there is a 99% chance that he is guilty". This is known as the **prosecutor's fallacy**. What is wrong with this argument?
2. The defender claims: "The crime occurred in a city of 800,000 people. The blood type would be found in approximately 8000 people. The evidence has provided a probability of just 1 in 8000 that the defendant is guilty, and thus has no relevance." This is known as the **defender's fallacy**. What is wrong with this argument?