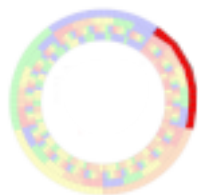


Rationality Color Wheel Worksheet 3

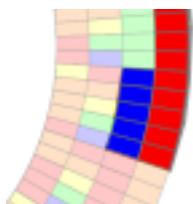
This worksheet is part of a series that illustrates how you can use the Rationality Color Wheel to think critically.

Evidence and Tests

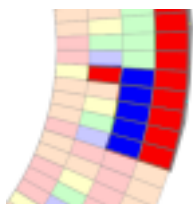
Example 3: A resident of a small town committed a crime. A detective in the town narrows down the potential suspects to 20 people and decides to use a forensic test to pin down the culprit. The test is sensitive. If a person committed the crime, the test will return a positive result 95% of the time, and has a false positive rate of only 5%. The test returns a positive result for one of the suspects. Has the detective found her perp?



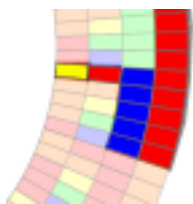
Before the test, each suspect is "very unlikely" (5%) to be the culprit.



If a suspect is guilty, they are "very likely" (95%) to get a positive test result.



If a suspect is innocent, they are "very unlikely" (5%) to get a positive test result.



Yet, the color wheel correctly shows, that the suspect flagged by the test only has a "fair" (50%) chance of being the culprit (literally a coin toss)!

Was this result surprising? What did you think the likelihood was? Our intuition about probability is often wrong. How might errors like these play out in a jury? How might errors like these play out in other areas of society?

