

# Quiz 8

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## 1 Bayesian Network

We first define that  $S$  is the event that Kyle has symptoms. Then the graphical model contains 2 consequence nodes from  $S$ , which are event  $A :=$  having COVID and  $\hat{A} :=$  COVID-free. Thus, the probability that Kyle having COVID, given that he is having the symptom is

$$P(A|S) = \frac{P(A, S)}{P(S)}$$

Since he is already having the symptom on Monday, thus  $P(S) = 1$ , yielding

$$P(A|S) = P(A, S) = 1 - P(\hat{A}, S)$$

## 2 References

Advance Robotics Fall 2012, University of California at Berkeley.