

## Topic 4 problems: signal detection theory

1. Use R to calculate  $d'$  and  $c$  for the following (false alarm, hit) pairs.
  - (a) (.45, .88)
  - (b) (.36, .94)
  - (c) (.25, .30)
  - (d) (.85, .95)
2. Explain why the observer's criterion can be estimated as  $\hat{c} = -0.5(z(H)) + z(FA)$ .
3. `sdt.R` simulates a 10,000-trial experiment. Vectorize this code, i.e., rewrite the code without using a `for` loop. Instead, represent the signal number, the decision variable, and the observer's response as 10,000 x 1 vectors.