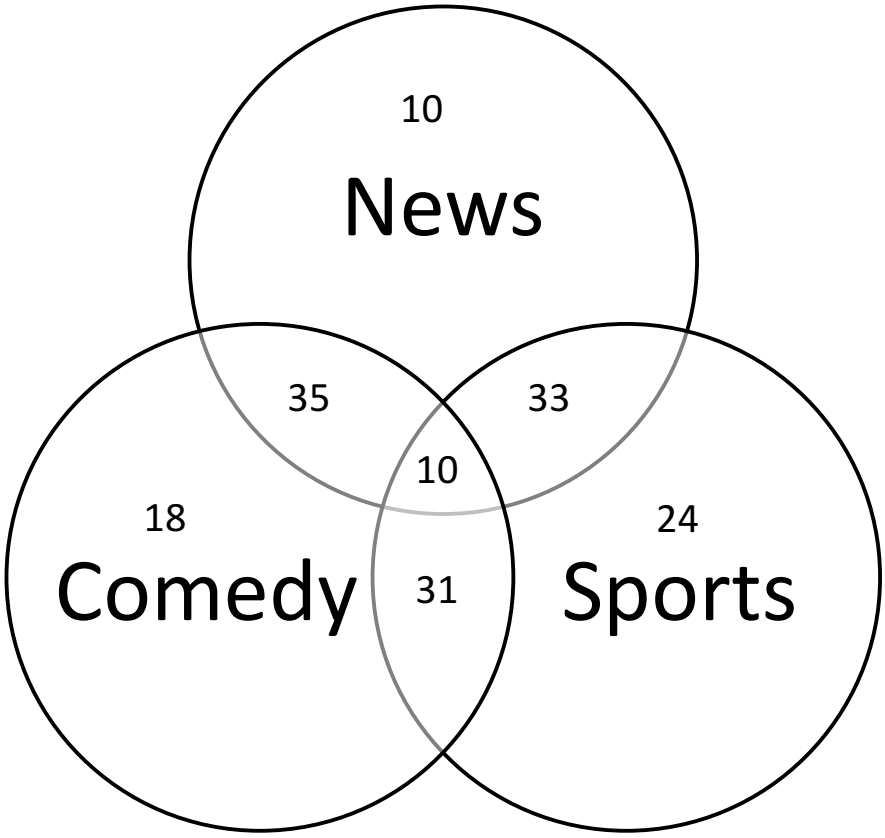
CS 427

HOMEWORK 5

BAKER, ALEX

Problem 1



a) (35+10)/250 = 45/250 = 18%
b) (10+33+24)/250 = 67/250 = 26.8%
c) 18/250 = 7.2%

Problem 2

ex(X) = E[X]*P(X) – 4*(1-P(X))

E[X] = 1*(1/6) + 2*(1/6) + 3*(1/6) + 4*(1/6) + 5*(1/6) + 6*(1/6) = 3.5
ex(X) = 3.5*(1/6) – 4(5/6) = -2.75

This is not a reasonable game since you will loose on average $2.75 per turn.

Problem 3

E – Tested positive
F – Has the disease

$P(F|E) = (P(E|F) * P(F)) / P(E)$

$P(E|F) = 1\text{-}P(E|\text{not } F) = 1 – 0.03 = 0.97$
$P(F) = 0.10$
$P(E) = 0.9$

$P(F|E) = (0.97 * 0.1) / 0.9 = 10.7\%$

Problem 4

E – good driver
F – had an accident

P(E|F) = (P(F|E) * P(E)) / P(F)

P(F|E) = 0.05
P(E) = 0.25
P(F) = 0.05 + 0.15 + 0.25 = 0.45

P(E|F) = (0.05 * 0.25) / 0.45 = 2.78%