Programming Assignment 4

Assigned: Nov. 4
Due: Nov. 18

This assignment is a generalization of exercise 2 in exercise set 5. As in that exercise, there is a publisher who needs to decide whether to publish a book, and who has the option of consulting with a number of reviewers. The outcome of publishing is either Success, with a specified profit, or Fail with a specified loss. The outcome of not publishing is 0. Consulting with a reviewer costs a specified amount. A reviewer gives a Boolean answer, For or Againsts. Reviewers’ opinions are conditionally independent given the value of Success/Fail.

A. Write a MATLAB function

\[
\text{PubValue(Profit, Loss, Fee, ProbSuc, ProbForSuc, ProbForFail, N)}
\]

This takes the following arguments:

- ValueSuc = Dollar profit if the book succeeds.
- ValueFail = Dollar profit if the book fails.
- Fee = Cost of hiring a reviewer.
- ProbSuc = \(P(\text{Success})\).
- ProbForSuc = \(P(\text{For} \mid \text{Success})\).
- ProbForFail = \(P(\text{For} \mid \text{Fail})\).
- \(N\) = Number of reviewers consulted. May be 0.

The function returns the expected profit to the publisher, assuming that \(N\) reviewers are consulted.

B. Write a MATLAB function

\[
\text{OptimalN(Profit, Loss, Fee, ProbSuc, ProbForSuc, ProbForFail)}
\]

which returns a pair of values: The optimal number of reviewers to consult, and the expected value.