Chapter 4: Uncertainty in Decision-Making

# Mathematical Expectation

## Corresponding reading: Chapter 4, Page 3

### Purpose: Gaining deeper insight about using mathematical expectation.

1. Refer to the Fantasia Restaurant example discussed in the text. Based on the given payoffs and probabilities, the Boston location is the best alternative with an expected payoff of 105. If the Fantasia Restaurant chooses the Boston location, what will be its *real* profit?
2. Explain, in your own words, how mathematical expectation is related the possible *real-world* outcomes you mentioned in part (a). Note that we want a relationship in the *real-world*, **not** a relationship in an abstract sense in the mathematical world (e.g., the expected payoff is the weighted average of possible payoffs).

Hint: what happens if the Fantasia Restaurant could do the experiment (i.e., choosing the location) many times, e.g., 100 times? What would be the payoff in each of those experiments? What would be the average of those 100 numbers?

1. Given that the Fantasia Restaurant is actually choosing the location only *once*, do you still think they should use the mathematical expectation approach? Why?

***Note:*** *Understanding the case and what you need to do is PART OF THE CASE. If you do not understand a specific part, or are not sure what you should do, you need to review the corresponding reading section in the text before asking for help. You might also need to do some search on the internet. That is all part of the case and your learning process.*