## **Certain Events**

Events with 100% probability

1. We need something better than the squared error loss
2. Consider the scenario of a random variable X that maps to the winner in a tournament of 4 teams: A, B, C, D
3. We stop watching after the semi-finals, so we are unaware of the outcome, but in truth, team A has won, thus it is a certain event, with probabilities (P(A) = 1, P(B) = 0, P(C) = 0, P(D) = 0).

|  |  |  |
| --- | --- | --- |
| X | P(X=x)  True distribution, unknown to us. | Ŷ  Predicted by us |
| A | 1 (Certain event) | 0.6 |
| B | 0 | 0.2 |
| C | 0 | 0.15 |
| D | 0 | 0.15 |

1. Before the tournament’s completion, based on the point we have watched till(Semi-finals), we can predict the probabilities of each team’s chance at victory (P(A) = 0.6, P(B) = 0.2, P(C) = 0.15, P(D) = 0.15)