Example

- Flip 2 coins, fair, independent, let X be number of heads
- $$\Omega = \{HH, HT, TH, TT\}$$
- $X = \{2, 1, 1, 0\}$ for each of those;
- Therefore

$$\mathbb{E}[X] = 2 \cdot \frac{1}{4} + 1 \cdot \frac{1}{4} + 1 \cdot \frac{1}{4} + 0 \cdot \frac{1}{4} = \frac{1}{2} + \frac{1}{4} + \frac{1}{4} + 0 = 1.$$