

Given two random variables being independent or not, we have the following equation  $\mathbb{E}(X + Y) = \mathbb{E}(X) + \mathbb{E}(Y) = \int_0^\infty f(x)dx + \int_0^\infty g(y)dy$ . For variation, we need to know the independency to have

$$\text{Var}(X + Y) = \text{Var}(X) + \text{Var}(Y)$$