

$$g(\vec{y}) = y_2 - y_1^2$$

$$g(x, y) = y - x^2$$

$$g(\bar{X}_n, \bar{Y}_n) = \bar{Y}_n - \bar{X}_n^2$$

$$P = \frac{1}{1 + \mu}$$

$$\text{var}(x) = \frac{1 - P}{P^2} = \frac{1 - \frac{1}{1 + \mu}}{\left(\frac{1}{1 + \mu}\right)^2}$$

$$= (1 + \mu)^2 \left[1 - \frac{1}{1 + \mu} \right]$$
$$= (1 + \mu)^2 \left[\frac{1 + \mu - 1}{1 + \mu} \right] = \mu (1 + \mu)$$