Day 3

$$\mathrm{Var}\left(\frac{\tilde{Z}}{N}\right) = E\left[\left(\frac{\tilde{Z}}{N} - \underbrace{E\left(\frac{\tilde{Z}}{N}\right)}_{=0 \text{ by assumption}}\right)^2\right]$$

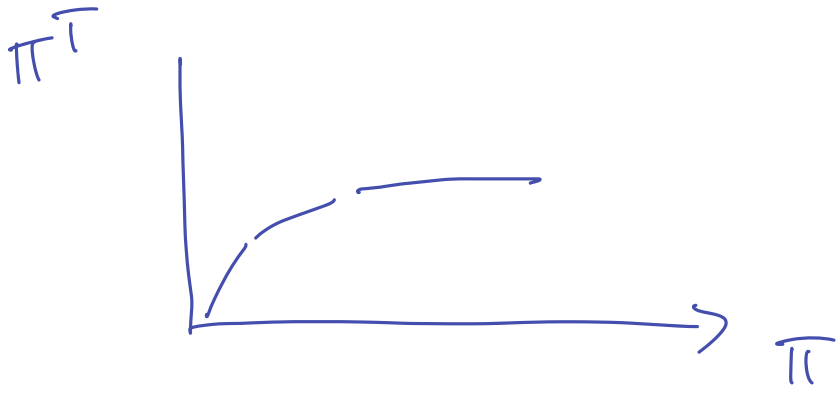
$$= E\left(\left(\frac{\tilde{Z}}{N}\right)^2\right)$$

$$= E\left[\frac{1}{N^2} \cdot \tilde{Z}^2\right] = \frac{1}{N^2} E\left[\tilde{Z}^2\right]$$

$$\mathrm{Var}(\tilde{Z}) = E\left[\tilde{Z} - \underbrace{E(\tilde{Z})}_{=0 \text{ by assumption}}\right]^2$$

$$= E(\tilde{Z})^2$$

$$\sigma_z^2 = \frac{1}{N^2} \cdot \sigma_{\tilde{Z}}^2$$



Kahneman / Tversky (1979)