Relationship between χ^2 & F 24-1

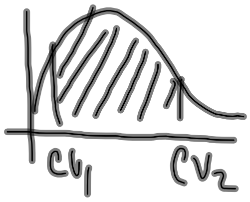
$x \sim F_{r,\infty} \Rightarrow r \cdot x \sim \chi^2_r$

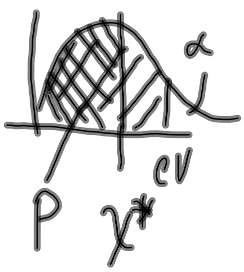
conversely

$x \sim \chi^2_r \Rightarrow \frac{x}{r} \sim F_{r,\infty}$ ←

$\chi^* = \boxed{\frac{v^T W v}{\sigma_0^2} \sim \chi^2_r}$ — chi-squared test

$$\frac{\frac{v^T W v}{\sigma_0^2}}{r} \sim F_{r,\infty} \qquad \frac{\frac{v^T W v}{r}}{\sigma_0^2} = \boxed{\frac{\hat{\sigma}_0^2}{\sigma_0^2} \sim F_{r,\infty}}$$ — F test





$A = 1 - P$ 24-2

reject H_0 if $A < \alpha$

accept otherwise

χ^*, $P = cdf('chi2', \chi^*, r)$

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consequences of not passing global test

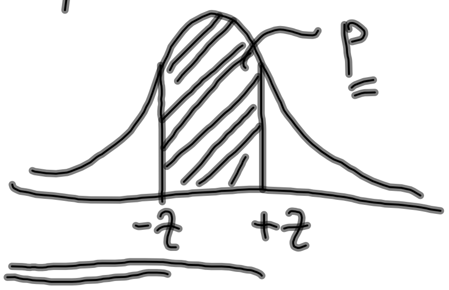
σ_0^2 x

$\Sigma_{xx} = \sigma_0^2 Q_{xx}$

$\Sigma_{xx} = \hat{\sigma}_0^2 Q_{xx}$

$\hat{\sigma}_0^2 = \frac{v^T W v}{r}$

Confidence interval for 1 RV 24-3



$$\text{Prob}(-z < R < +z) = F(z) - F(-z)$$

$$F(-z) = 1 - F(z)$$

Oct 19-9:29 AM