STAT 500

t Distribution Information

- Definition: A continuous random variable T has a t distribution with ν degrees of freedom if T can be expressed as:

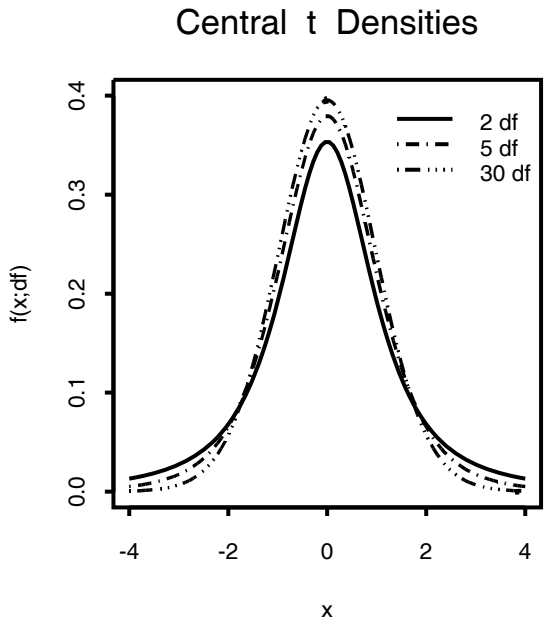
$$T = \frac{Z}{\sqrt{W/\nu}}$$

  where $Z \sim N(0,1)$, $W \sim \chi^2_\nu$ and Z and W are independent.

- The parameter of the t distribution is the degrees of freedom ν.

- A t distribution is usually denoted as t_ν. A particular percentile p of the t distribution is denoted as $t_{\nu,p}$.

- Here is a picture of the density function of a t distribution. The distribution is bell-shaped, centered at 0, and has a larger variance than a standard normal distribution.



- As $\nu \to \infty$, the t distribution tends to the standard normal distribution $Z \sim N(0,1)$.