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Discussions

15.3.6 Central Limit Theorem

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We can actually say more about the sample mean estimate in the classical result known as the *Central Limit Theorem (CLT)* which shows that:

$$\text{As } N \rightarrow \infty : \quad f(\bar{x} - \mu_x) \rightarrow \mathcal{N}(0, \sigma_x^2/N)$$

(15.21)

There are so many important implications in the CLT that it is hard to know where to start. We will emphasize just one: the CLT applies to any distribution of the random variable \mathbf{X} . For example, \mathbf{X} could have a bimodal distribution, and still $\bar{x} - \mu_x$ will approach a normal

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