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- Models that contain besides the random residuals, more random effects are called Linear Mixed Effects Models (LME)

- Distribution of random effects:

  e_{ij}^{*} : Sum of a large number of residual influences on y_{ij} ⇒ Central Limit Theorem (CLT)

  ⇒ e_{ij}^{*} can be approximated by a multivariate normal distribution (Gauss)

  (In R: rnorm : random numbers
  qnorm : quantiles
  dnorm : density values)

  u_i : Sum of a large number of BV-effects

  ⇒ multivariate normal with $E(u) = \emptyset$ and variance σ_u^2

As consequence of u_i and e_{ij}^{*}, y_{ij} are also normal with expected value $E(y_{ij}) = \mu$ and variance σ_p^2