

Test 1 Formulas

If Y_1, \dots, Y_n are iid continuous r.v.'s
with pdf $f(y)$ and cdf $F(y)$:

$$f_{Y_{(k)}}(y) = \frac{n!}{(k-1)!(n-k)!} [F(y)]^{k-1} f(y) [1-F(y)]^{n-k}$$

with appropriately defined support.

For $Y_{(j)}$ and $Y_{(k)}$, $j < k$:

$$f_{Y_{(j)}, Y_{(k)}}(y_j, y_k) = \frac{n!}{(j-1)!(k-1-j)!(n-k)!} [F(y_j)]^{j-1} f(y_j) \\ [F(y_k) - F(y_j)]^{k-1-j} f(y_k) [1-F(y_k)]^{n-k}$$

with appropriately defined support.