

Theorem The standard triangular distribution is a special case of the triangular distribution when $a = -1, b = 1, c = 0$.

Proof The triangular distribution has probability density function

$$f(x) = \begin{cases} \frac{2(x-a)}{(b-a)(c-a)} & a < x < c \\ \frac{2(b-x)}{(b-a)(b-c)} & c \leq x < b. \end{cases}$$

When $a = -1, b = 1, c = 0$ this probability density function becomes

$$\begin{aligned} f(x) &= \begin{cases} \frac{2(x+1)}{2} & -1 < x < 0 \\ \frac{2(1-x)}{2} & 0 \leq x < 1 \end{cases} \\ &= \begin{cases} x + 1 & -1 < x < 0 \\ 1 - x & 0 \leq x < 1, \end{cases} \end{aligned}$$

which is the probability density function of the standard triangular distribution.

APPL verification: The APPL statements

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X := TriangularRV(-1, 0, 1);
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yield the probability density function of a standard triangular random variable.