Theorem The standard power(β) distribution is a special case of the minimax(β, γ) distribution when $\gamma = 1$.

Proof Let $X \sim$ minimax(β, γ). The probability density function of X is

$$f_X(x) = \beta\gamma x^{\beta-1}(1 - x^\beta)^{\gamma-1} \qquad\qquad 0 < x < 1.$$

When $\gamma = 1$, this becomes

$$\begin{aligned} f_X(x) &= \beta x^{\beta-1}(1 - x^\beta)^0 \\ &= \beta x^{\beta-1} \qquad\qquad 0 < x < 1. \end{aligned}$$

which is the probability density function of a standard power(β) random variable.

APPL verification: The APPL statements

```
assume(beta > 0);
X := [[x -> beta * gamma * x ^ (beta - 1) * (1 - x ^beta) ^ (gamma - 1)],
      [0, 1], ["Continuous", "PDF"]];
subs(gamma = 1, %);
```

verify the result.