Theorem The standard uniform distribution is a special case of the standard power distribution when $\beta = 1$.

Proof The standard power distribution has probability density function

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

When $\beta = 1$, this reduces to

$$f(x) = 1 \qquad 0 < x < 1,$$

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

APPL verification: The APPL statements

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

yield the same probability density function

$$f(x) = 1 \qquad 0 < x < 1,$$

which verifies the relationship.