Example 2.6

$$Z(te^{-at}) = ?$$

Solution

$$Z(te^{-at}) = Z(t)\Big|_{z = ze^{aT}}$$

$$= \frac{T z^{-1}}{(1 - z^{-1})^2}\Big|_{z = ze^{aT}}$$

$$= \frac{T z^{-1}e^{-aT}}{(1 - z^{-1}e^{-aT})^2}$$