

Example 11

$$\begin{aligned} &?laplace \\ &?Heaviside \\ &with(intrans) \\ &[addtable, fourier, fouriercos, fouriersin, hankel, hilbert, invfourier, invhilbert, invlaplace, \end{aligned} \tag{1.1}$$

$$\begin{aligned} &invmellin, laplace, mellin, savetable, setup] \\ &_EnvUseHeavisideAsUnitStep = 1 \\ &_EnvUseHeavisideAsUnitStep = 1 \end{aligned} \tag{1.2}$$

$$\begin{aligned} &Heaviside(0) \\ &undefined \end{aligned} \tag{1.3}$$

$$\begin{aligned} &NumericEventHandler(invalid_operation = `Heaviside/EventHandler`(value_at_zero = 1)) : \\ &Heaviside(0) \\ &1 \end{aligned} \tag{1.4}$$

$$\begin{aligned} &laplace(diff(diff(diff(diff(y(t), t), t), t), t), t, s) \\ &s^4 \mathcal{L}(y(t), t, s) - D^{(3)}(y)(0) - s D^{(2)}(y)(0) - s^2 D(y)(0) - s^3 y(0) \end{aligned} \tag{1.5}$$

$$\begin{aligned} &assume(w0 > 0, L > 0, E > 0, i > 0) \\ &w := t \rightarrow piecewise\left(0 < t < \frac{L}{2}, w0 \cdot \left(1 - \frac{2}{L} \cdot t\right), \frac{L}{2} < t < L, 0\right) \\ &w := t \mapsto \begin{cases} w0 \cdot \left(1 - \frac{2 \cdot t}{L}\right) & 0 < t < \frac{L}{2} \\ 0 & \frac{L}{2} < t < L \end{cases} \end{aligned} \tag{1.6}$$