$with(inttrans):$
$assume(r > 0);$
$assume(alphaval > 0);$
$assume(betaval > 0);$
$fourier\left(\mathrm{Dirac}\left(t - \frac{r}{alphaval}\right), t, \mathrm{omega}\right);$

$$e^{-\frac{\mathrm{I}\, r\sim\, \omega}{alphaval\sim}} \tag{1}$$

$fourier\left(\mathrm{Dirac}\left(t - \frac{r}{betaval}\right), t, \mathrm{omega}\right);$

$$e^{-\frac{\mathrm{I}\, r\sim\, \omega}{betaval\sim}} \tag{2}$$

$u := \left(\mathrm{Heaviside}\left(t - \frac{r}{alphaval}\right) - \mathrm{Heaviside}\left(t - \frac{r}{betaval}\right)\right) \cdot t;$

$$\left(\mathrm{Heaviside}\left(t - \frac{r\sim}{alphaval\sim}\right) - \mathrm{Heaviside}\left(t - \frac{r\sim}{betaval\sim}\right)\right) t \tag{3}$$

$fourier(u, t, \mathrm{omega});$

$$\mathrm{I}\left(\frac{\left(-r\sim\,\omega + \mathrm{I}\, alphaval\sim\right) e^{-\frac{\mathrm{I}\, r\sim\,\omega}{alphaval\sim}}}{alphaval\sim\,\omega^{2}} + \frac{\left(r\sim\,\omega - \mathrm{I}\, betaval\sim\right) e^{-\frac{\mathrm{I}\, r\sim\,\omega}{betaval\sim}}}{betaval\sim\,\omega^{2}}\right) \tag{4}$$