Problem 7.8

A simple way of demodulating an MSK signal is to use a frequency discriminator, which was discussed in Chapter 4 on angle modulation. Justify this use and specify the linear input-output characteristic of the discriminator.

Solution

The MSK signal is basically an FSK signal, as shown by

$$s(t) = \sqrt{\frac{2E_b}{T_b}}\cos(2\pi f_c t + \theta(t))$$

where

$$\theta(t) = \pm\frac{\pi t}{2T_b}$$

The plus sign corresponds to symbol 1 and the minus sign corresponds to symbol 0.

We may therefore demodulate $s(t)$ by using a frequency discriminator whose input-output characteristic is described in Fig. 1

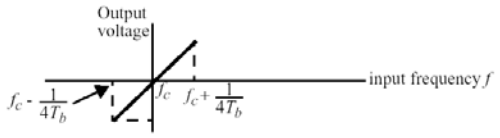

Figure 1