If $G(s)$ is perturbed to $G_1(s) = \frac{1}{s-1.1}$ Then
(kaydırma)

$$T_1(s) = \frac{C(s)G_1(s)}{1+C(s)G_1(s)} = \frac{\left(\frac{5s+4}{s}\right)\left(\frac{1}{s-1.1}\right)}{1+\left(\frac{5s+4}{s}\right)\left(\frac{1}{s-1.1}\right)} = \frac{5s+4}{s^2+3.9s+4}$$

$\Rightarrow T_1(0) = 1$, It is still stable and still tracks any step ref i/p
Thus the tracking is ROBUST!
Hafif kaymaya karşı kararlılığı değişmiyor.

Example 5: TDF Conf.

Consider

$$G(s) = \frac{s-1}{s^2-4} = \frac{-1+s}{-4+s^2}$$

$$T(s) = \frac{-1.8(s-1)}{s^2+5.2s+5}$$

(a) Unity feedback config.

$$C(s) = \frac{T(s)}{G(s)[1-T(s)]} = \frac{\frac{-1.8(s-1)}{s^2+5.2s+5}}{\frac{(s-1)}{s^2-4}\left[s^2+5.2s+5+1.8(s-1)\right]}$$

$$= \frac{-1.8(s-1)(s^2-4)}{(s-1)\left[s^2+5.2s+5+1.8(s-1)\right]}$$

$$= \frac{-1.8(s^2-4)}{s^2+5.2s+5+1.8(s-1)} = \frac{-1.8(s^2-4)}{s^2+7s+3.2}$$

Kutup ve sıfırlar sağ tarafta ise sadeleştirilemez. tasarım yapılmaz izin yok.

⚠ The design involves RHP pole-zero cancellations and the system is <u>not</u> totally stable and the design is <u>not</u> acceptab