2. $g_1 = f_1 + (h_2 * f_2)$

$g_2 = f_2 + (h_1 * f_1)$

Taking Fourier Transforms,

$$G_1 = F_1 + H_2 F_2 \quad , \quad G_2 = F_2 + H_1 F_1$$

Soleing this system of linear equations yields

$$F_1 = \frac{G_1 - G_2 H_2}{1 - H_1 H_2} \quad , \quad F_2 = \frac{G_2 - G_1 H_1}{1 - H_1 H_2}$$

Observing the solutions, it is easy to see the problem with the solution. Our solution ceases to be defined if $H_1 H_2 = 1$ at any point, as the denominators in the solution become 0.