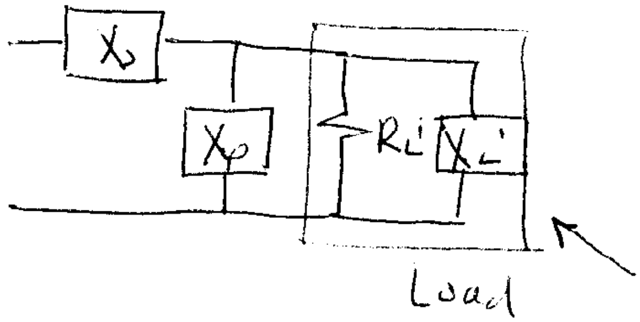
Absorption - Parallel configuration

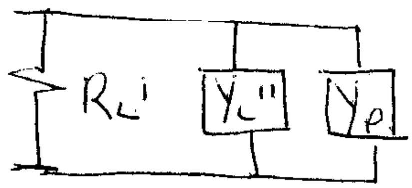


(Similar for π network)

$$R_L' = \frac{R_L^2 - X_L^2}{R_L}$$

$$X_L' = R_L R_L' / X_L$$

Convert to:



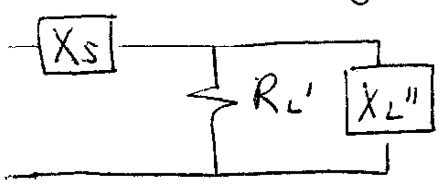
$$Y_L'' = \frac{1}{X_L''}$$

$$Y_p = \frac{1}{X_p}$$

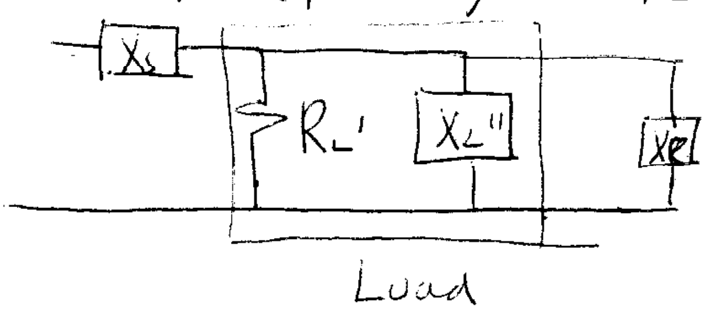
$$Y_L' = \frac{1}{X_L'} = Y_L'' + Y_p$$

Find $X_L'' = \dfrac{1}{\frac{1}{X_L'} + \frac{1}{X_p}}$

Replace X_p by part of Load



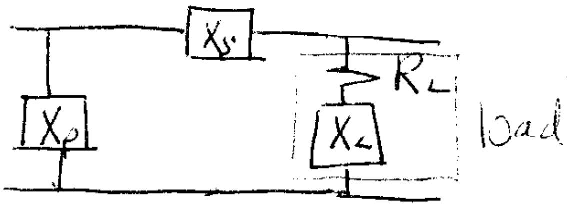
Resonate (parallel) the X_L''



$$\omega^2 = X_R X_L''$$

$$X_R = \frac{\omega^2}{X_L''}$$

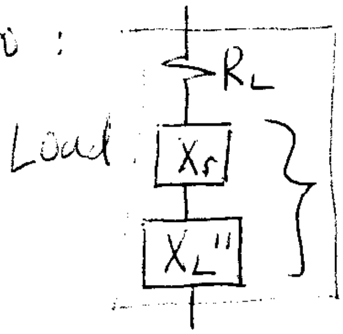
Absorption – Series Configuration



Absorb as much of X_L as possible into X_s

(Similar for T network)

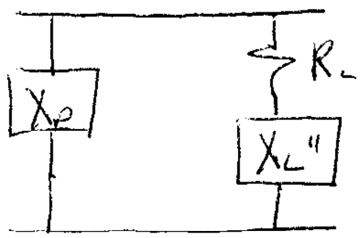
Convert to:



$X_L = X_s + X_L''$

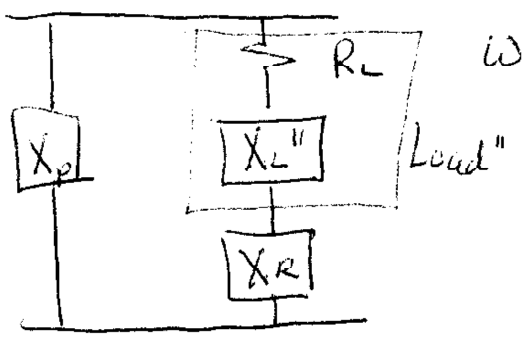
Find $X_L'' = X_L - X_s$

Replace X_s by X_s part of load:



(You are using your load as part of the matching circuit)

Now Resonate (series) the X_L''



$\omega^2 = X_R X_L''$

Find $X_R = \dfrac{\omega^2}{X_L''}$