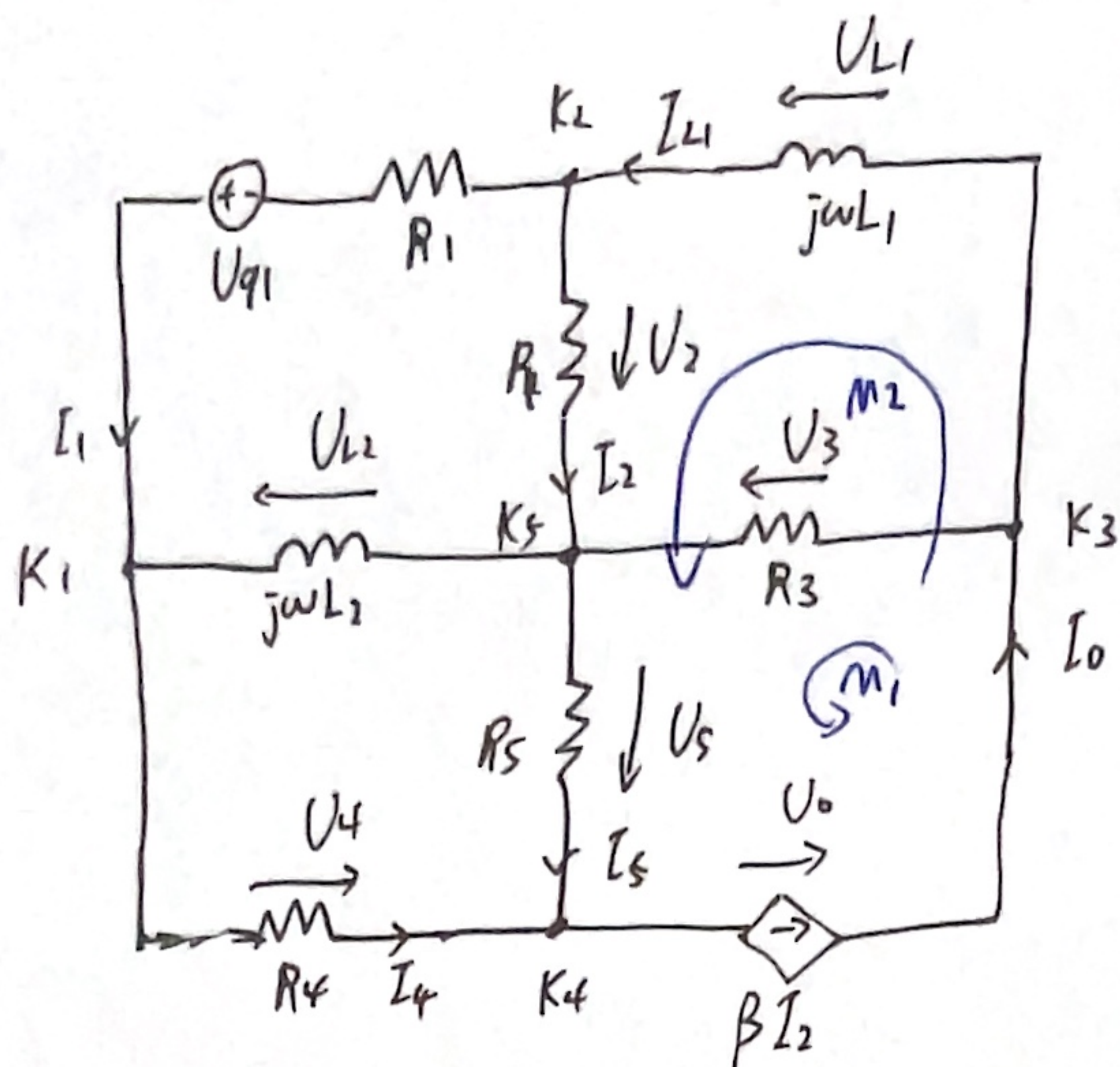
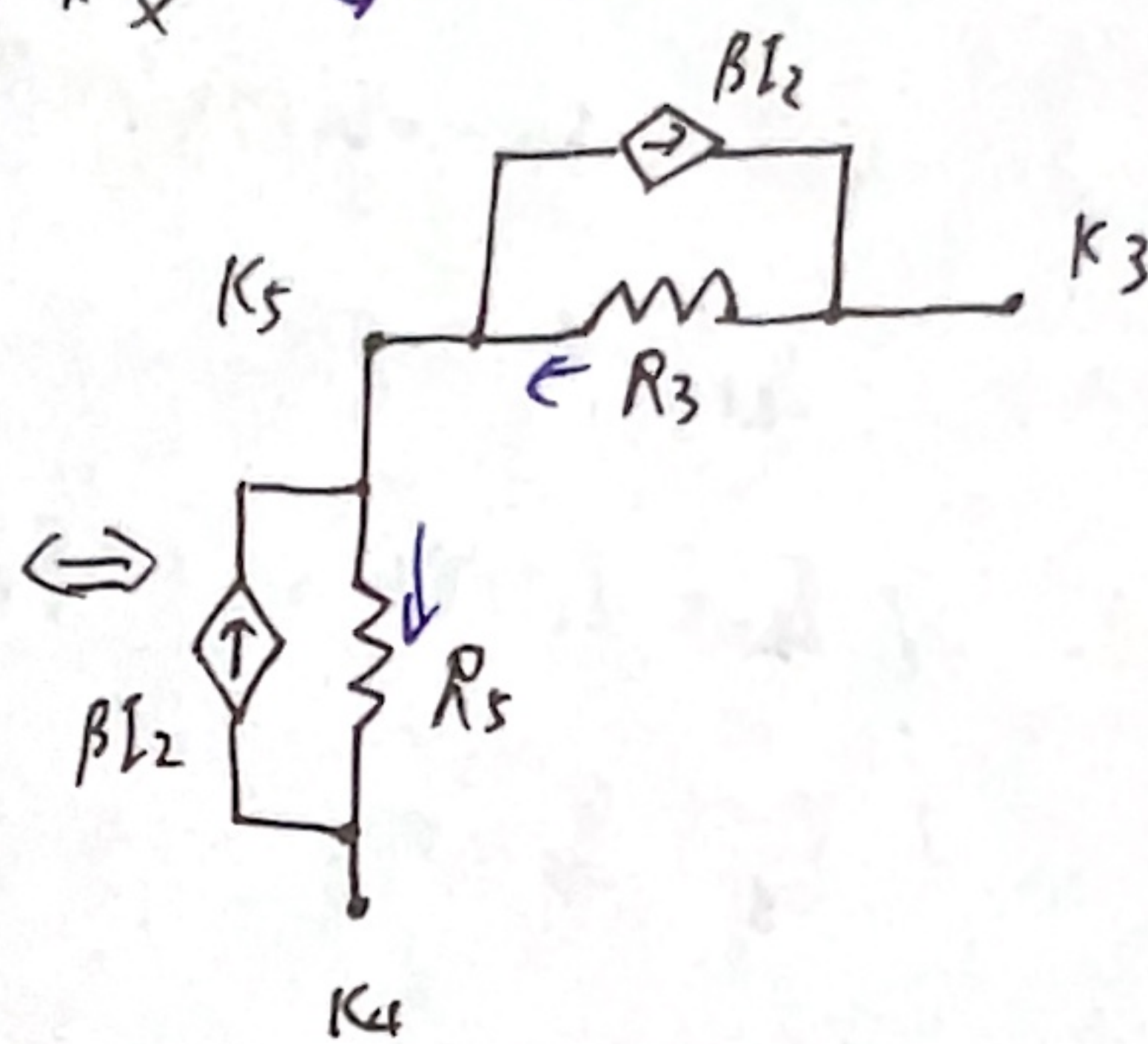
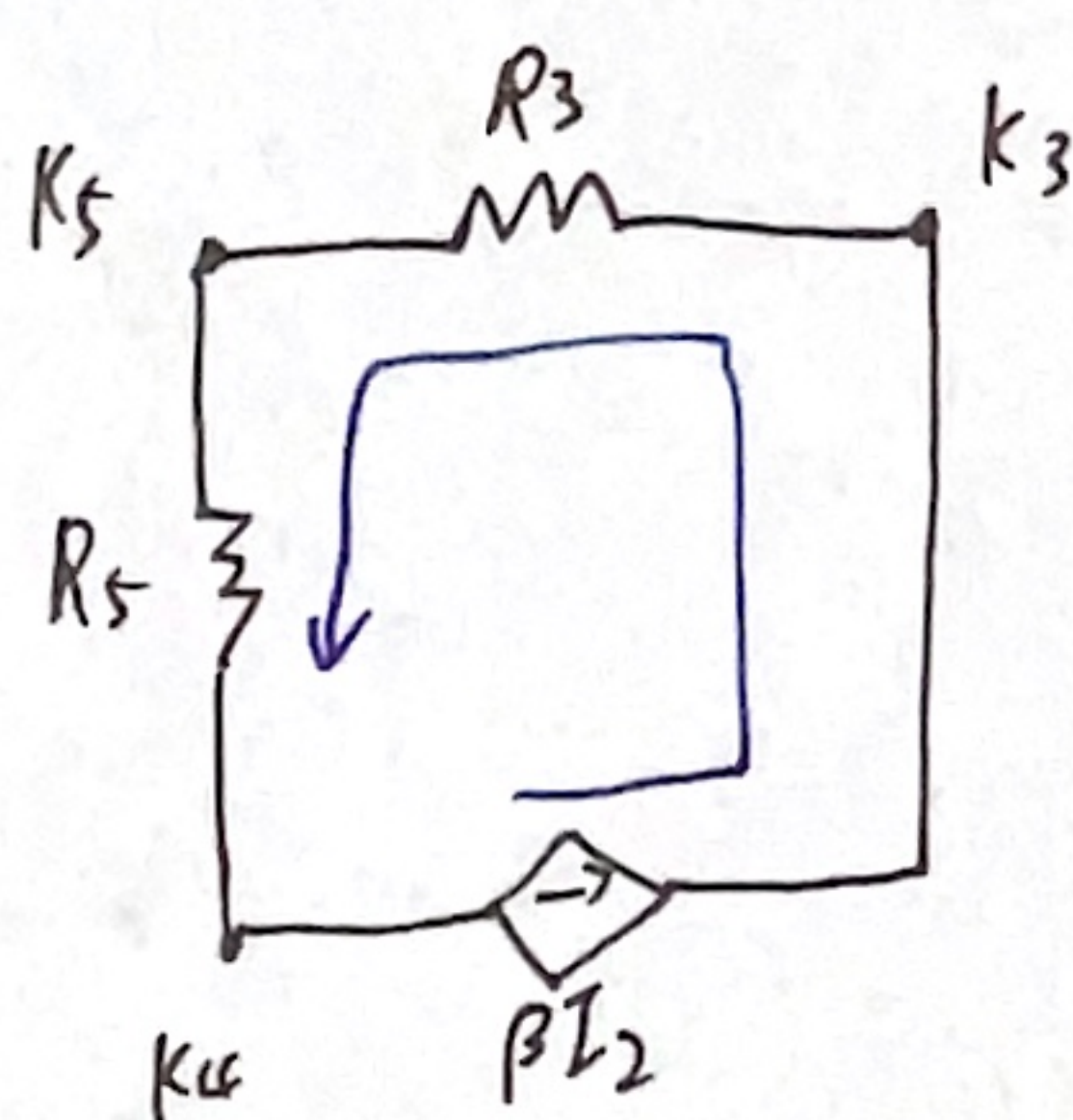


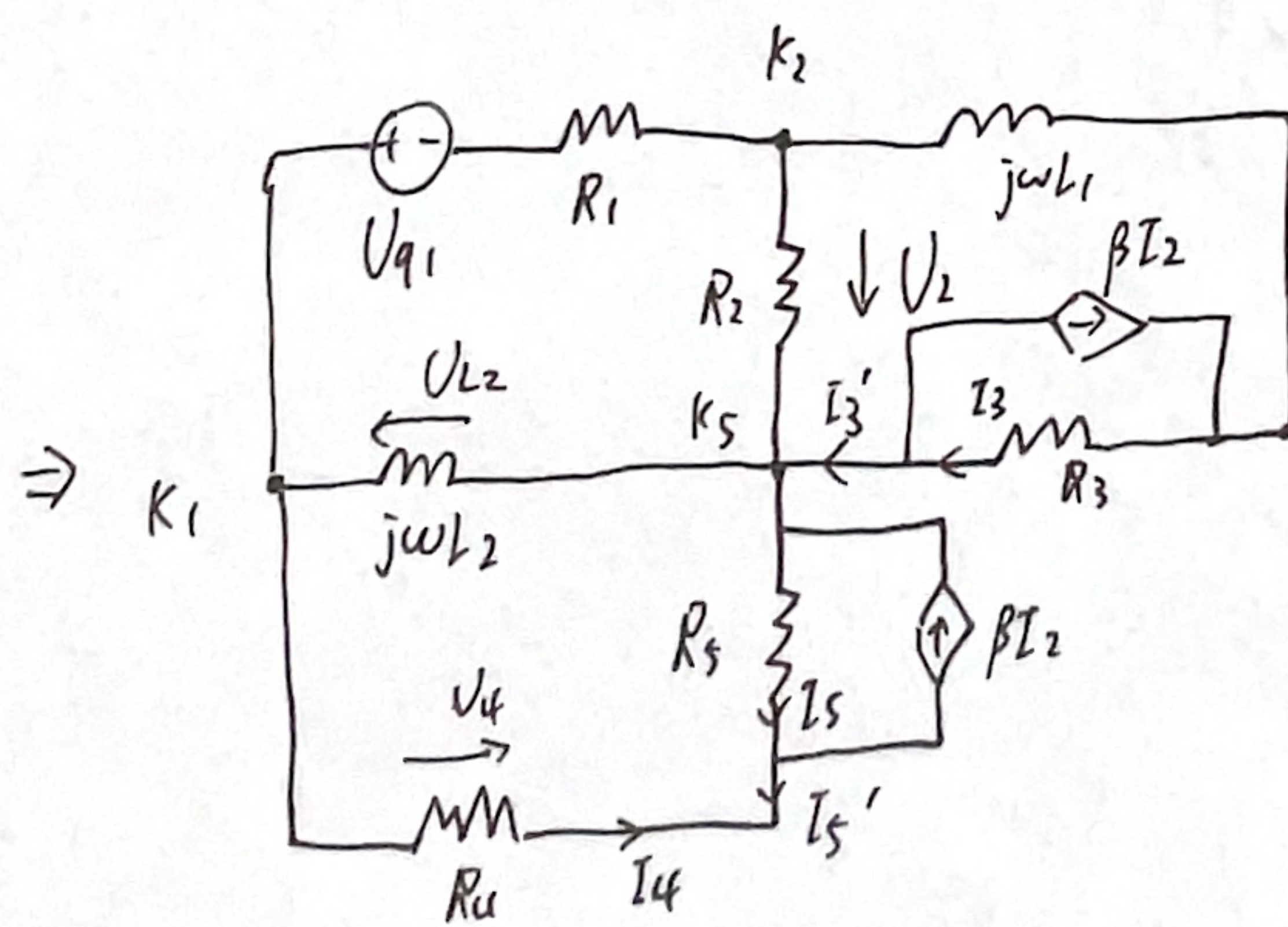
# Aufgabe 13



a. Verschieben  $\beta I_2$ ,  $I_4$  &  $I_{L1}$  nicht  $\mathcal{M}_1$  nicht  $I_4, L_1$



电流方向依然相同



KVL:  $U_0 = -U_3 - U_5$  Zurückgewinn von  $U_0$

$$I_3' = I_3 + \beta I_2$$

$$I_5' = I_5 + \beta I_2$$

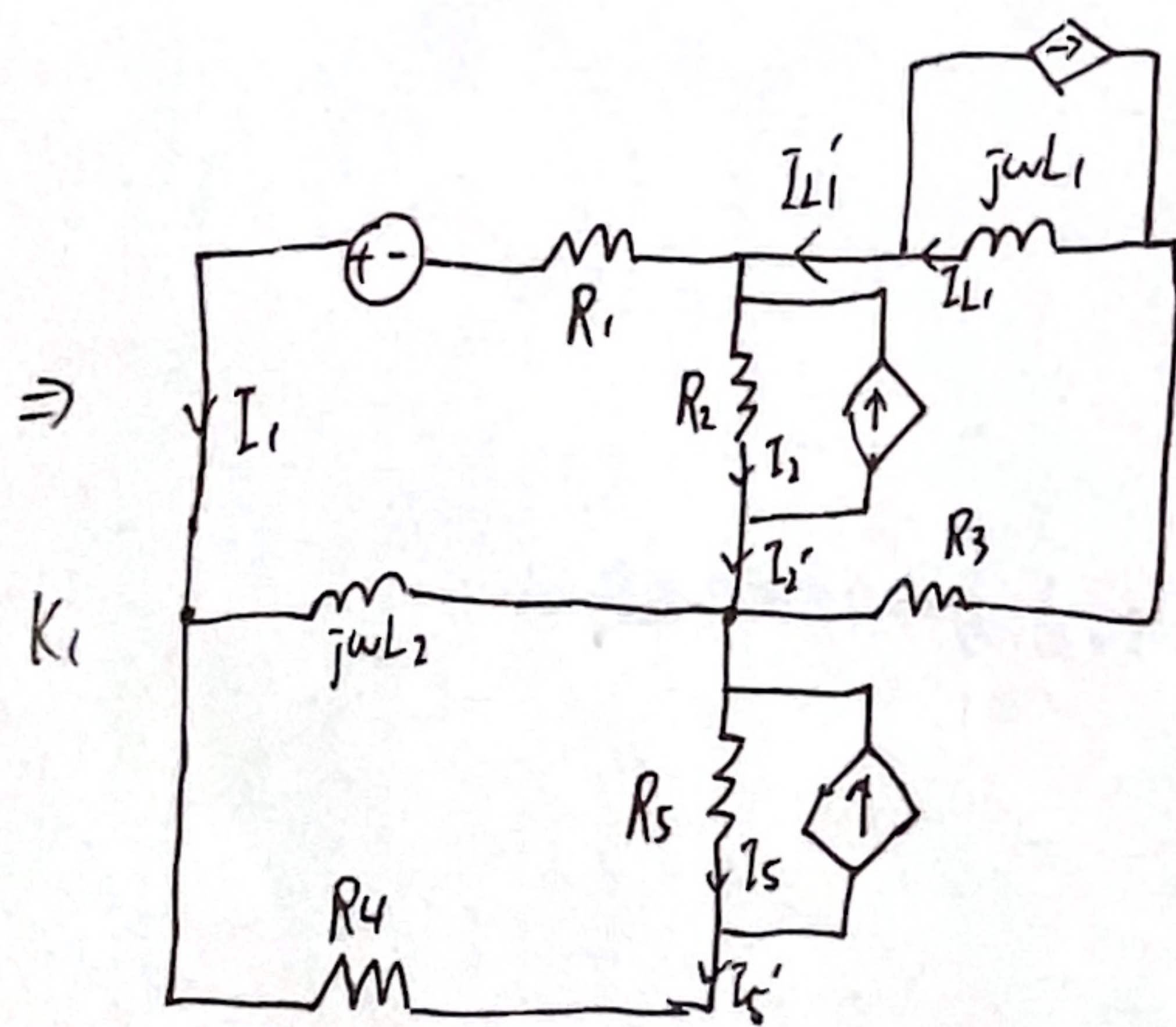
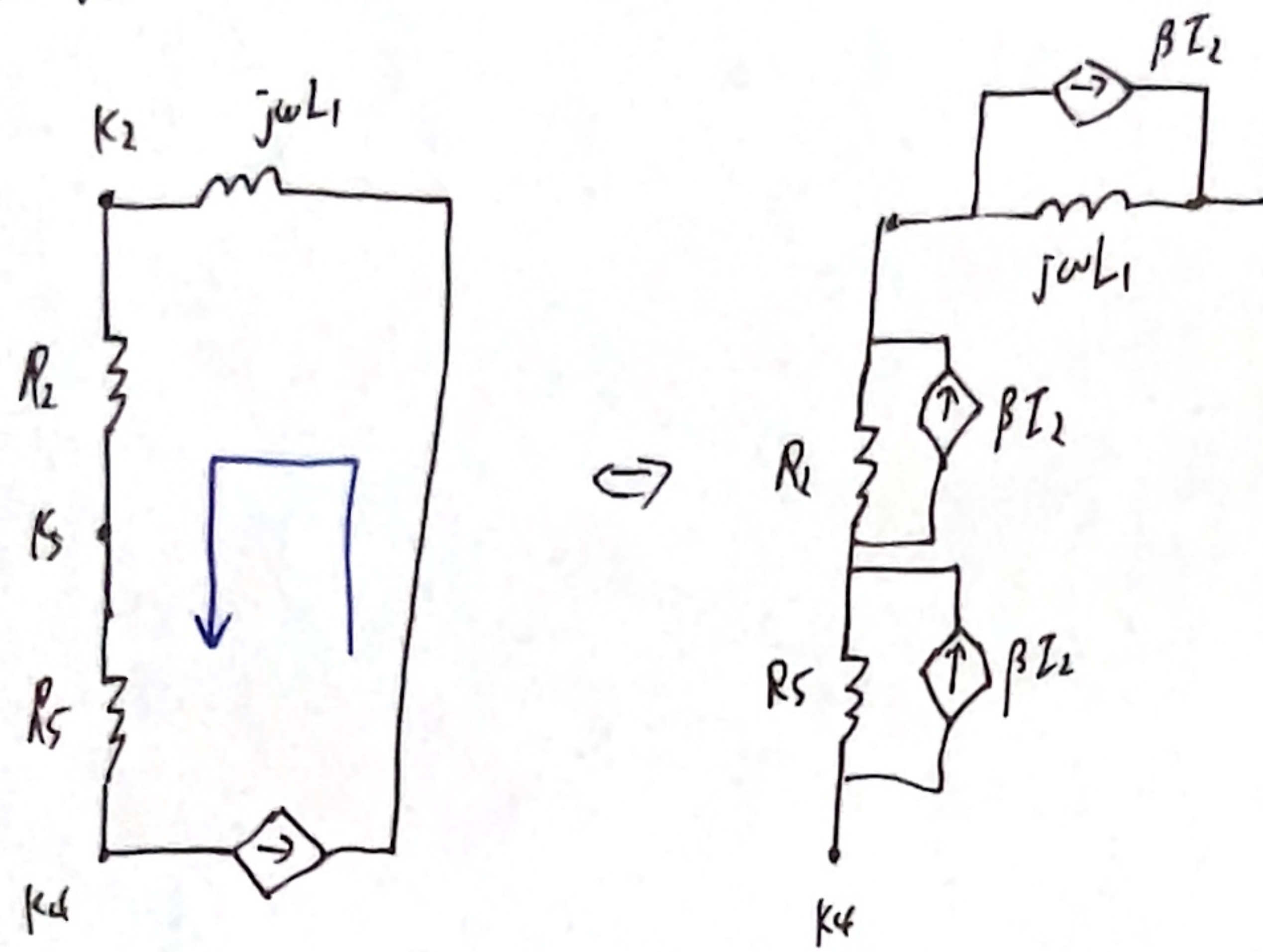
$$I_3 = I_3' - \beta I_2$$

$$I_5 = I_5' - \beta I_2$$

Energystrom 改变



b. Verschieben  $\beta I_2$ ,  $I_3, I_4$  nicht  $M_2$  nicht  $I_3, I_4$



$$KVL: U_0 = -U_{L1} - U_2 - U_5$$

$$\begin{cases} I_{L1}' = I_{L1} + \beta I_2 \\ I_2' = I_2 + \beta I_2 = (1 + \beta) I_2 \\ I_5' = I_5 + \beta I_5 \end{cases}$$

$$\Rightarrow \begin{cases} I_{L1} = I_{L1}' - \beta I_2 \\ I_2 = \frac{1}{1 + \beta} I_2' \\ I_5 = I_5' - \beta I_5 \end{cases}$$

受控源在已知的支路  $\Rightarrow$  Beseitigung

$$\beta I_2 \rightarrow \beta \frac{1}{1 + \beta} I_2' = \frac{\beta}{1 + \beta} I_2'$$

$$\text{重新列写 } I_2' = I_2 + \beta I_2$$

$$\Rightarrow I_2' = \frac{1}{R_2} U_2 + \frac{\beta}{1 + \beta} I_2'$$

$$I_2' \frac{1}{1 + \beta} = \frac{1}{R_2} U_2 \Leftrightarrow U_2 = I_2' \frac{R_2}{1 + \beta}$$

