\[ I_j = v_j (a^2-a)y_{ik} + (v_j - v_k)ay_{ik} \]
\[ I_k = v_k [(1-a)y_{ik} + ay_{ik}] - v_i ay_{ik} = (y_{ik}v_k - av_i) \]

A tap with an off nominal tap of 1:1 (pu) can be represented in the above \( \pi \) network.