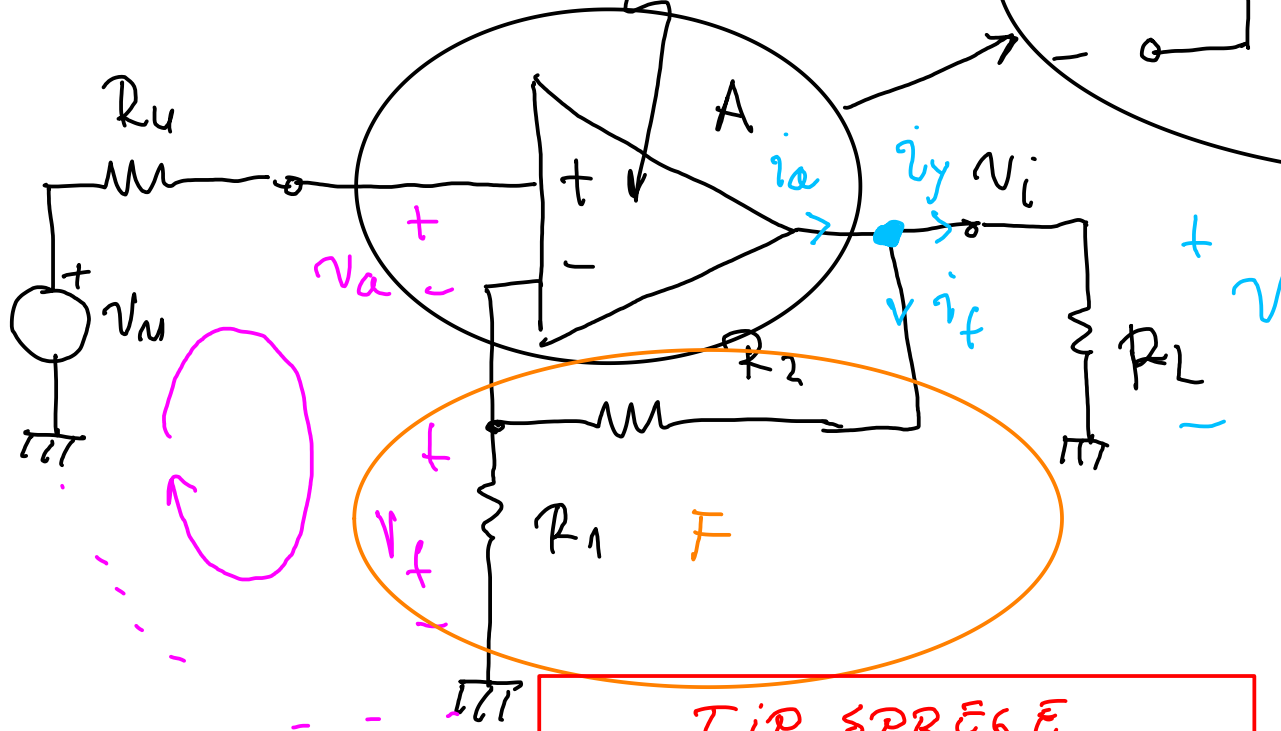
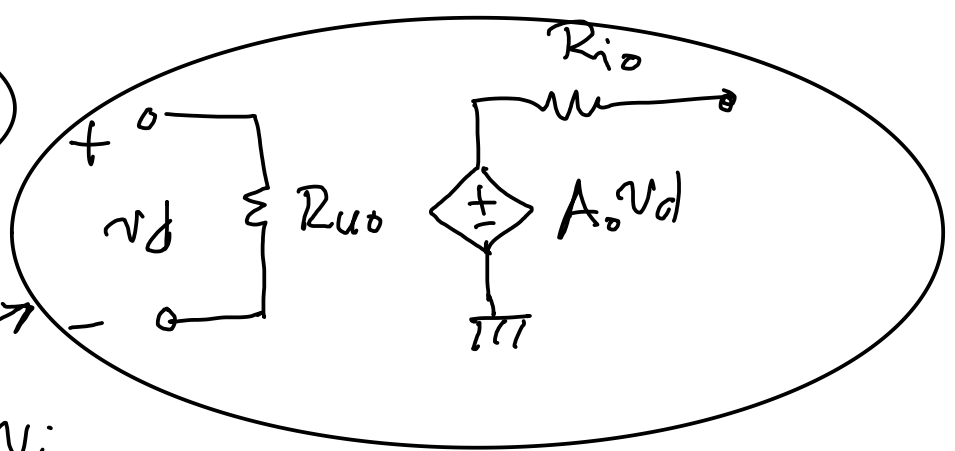


P1

REALNI OPAMP
 A_o, R_{uo}, R_{io}



$i_a \neq i_f \neq i_y$
"ČVOR"
NA IZLAZU



PARALELNOM VEZOM
DETEKTOJEMO NAPON
(ANALOGIJA SA
VOLTIMETROM)



TIP SPREŠE
REDNO - NAPONSKA
(NAPONSKI POJAČAVAČ)
"VA"

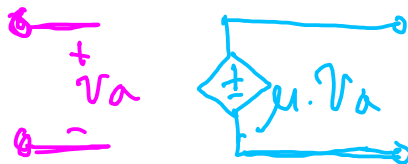
$v_u \neq v_a \neq v_f$



"KONTURA" NA ULAZU

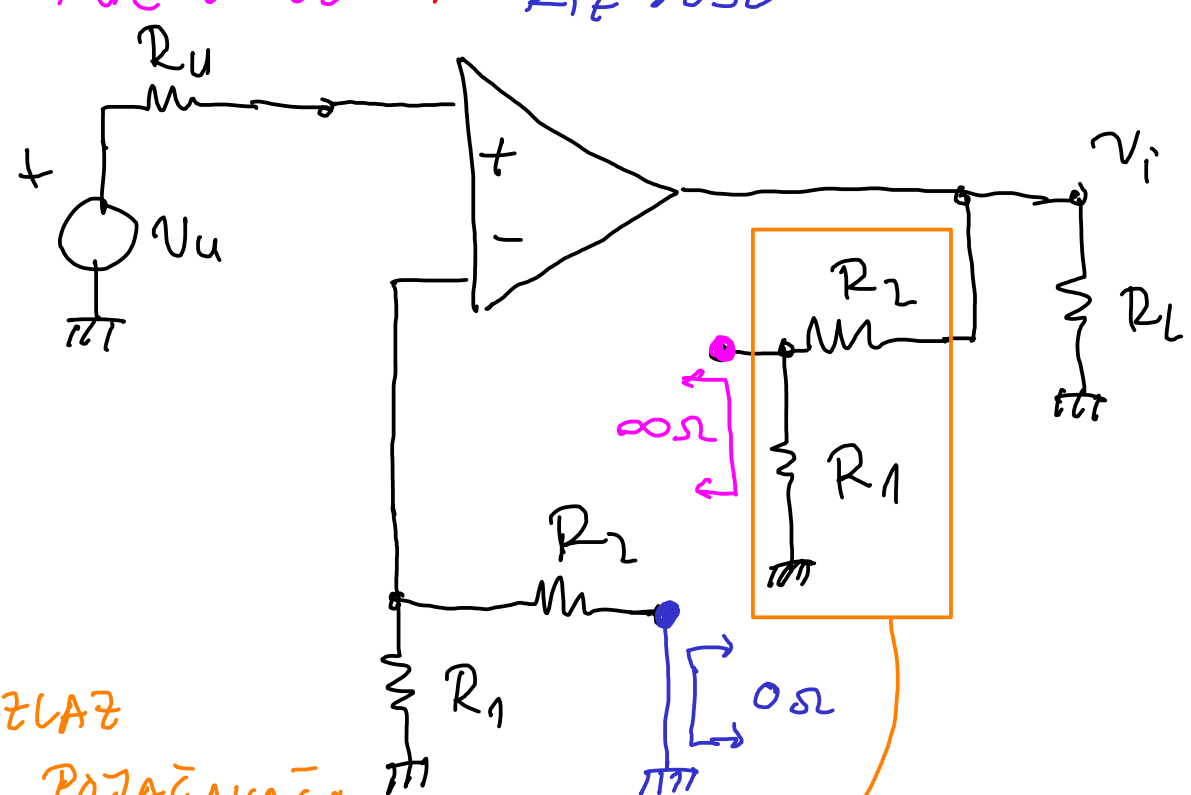
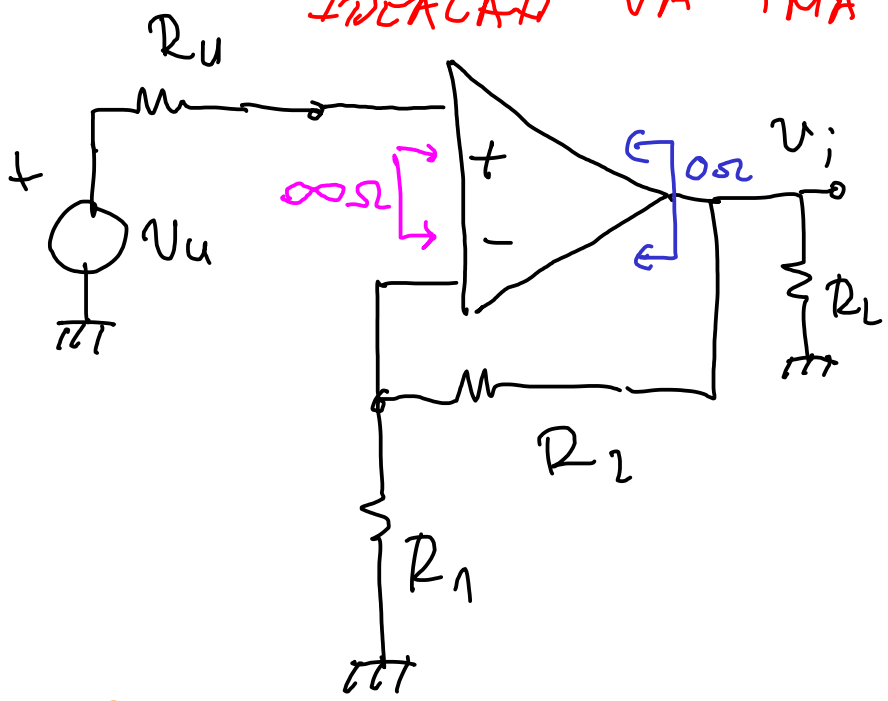


"REDNA" $\Rightarrow R_u \uparrow$



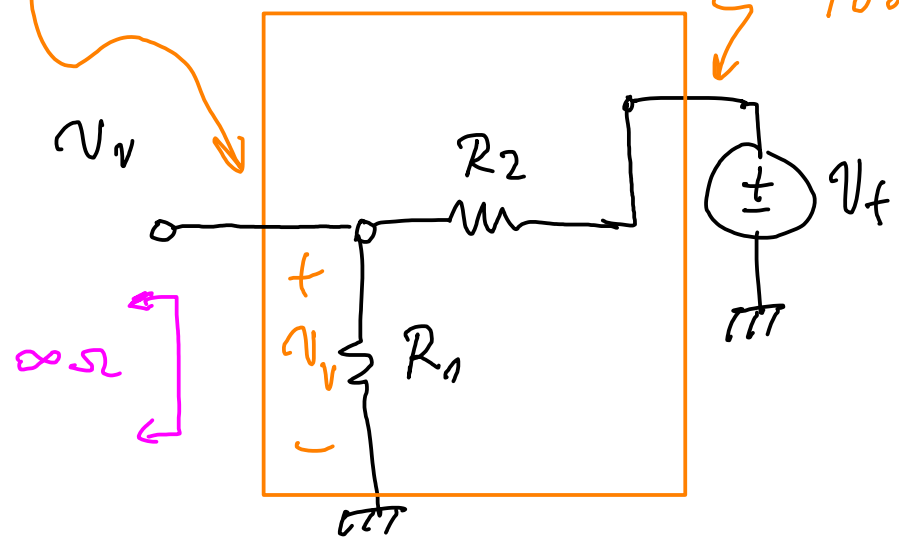
$R_{iL} \Leftarrow$ "NAPONSKA"

"IDEALNA VA IMA $R_{ue} \rightarrow \infty \Omega$; $R_{iz} \rightarrow 0 \Omega$ "



ULAZ POJACAVACA

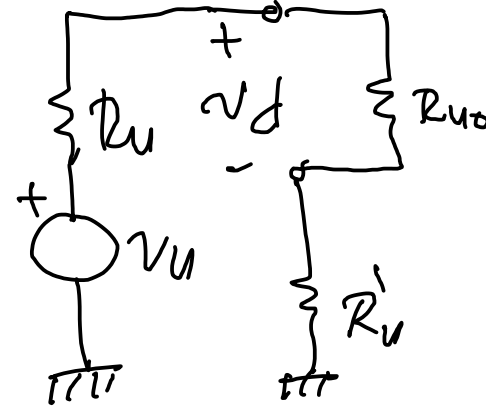
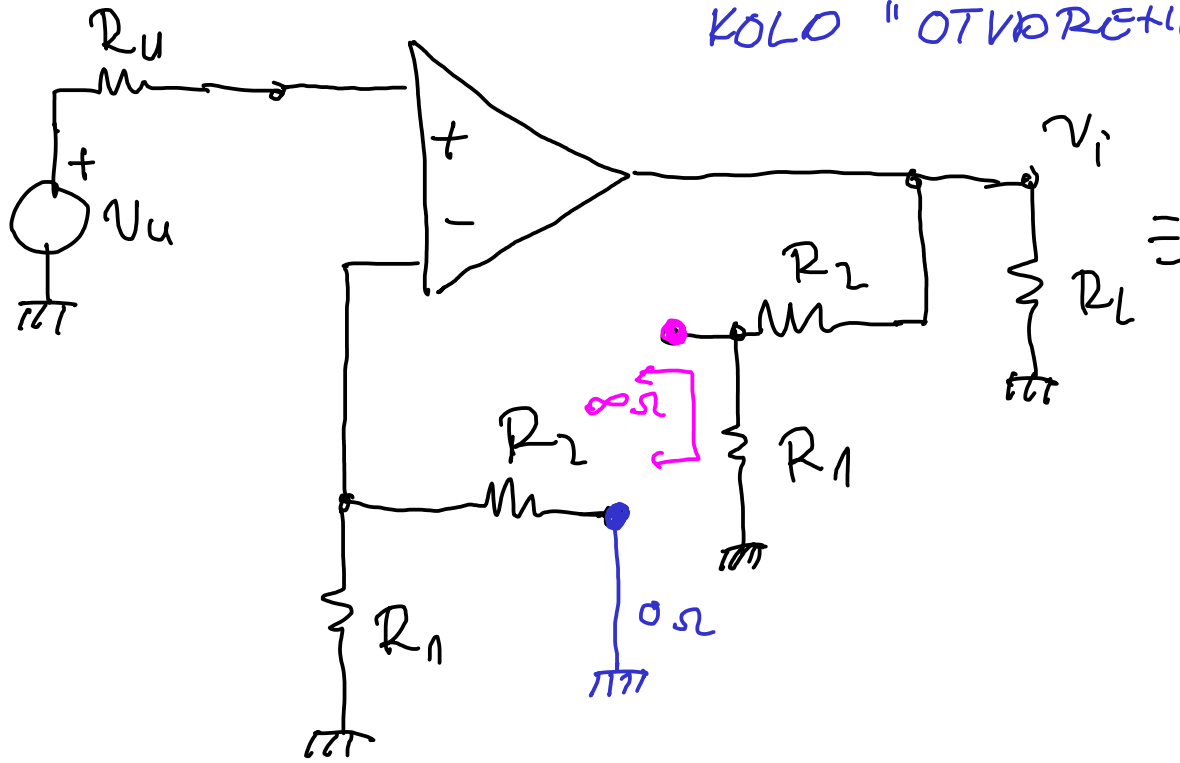
IZLAZ POJACAVACA



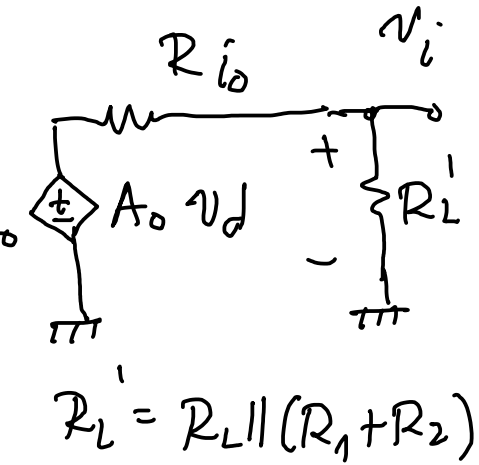
$$F = \frac{V_v}{V_f} = \frac{R_1}{R_1 + R_2}$$

KOEFICIJENT POUZATKIE SPREGJE

KOLO "OTVORENIE" PETLJE



$$R'_u = R_1 \parallel R_2$$



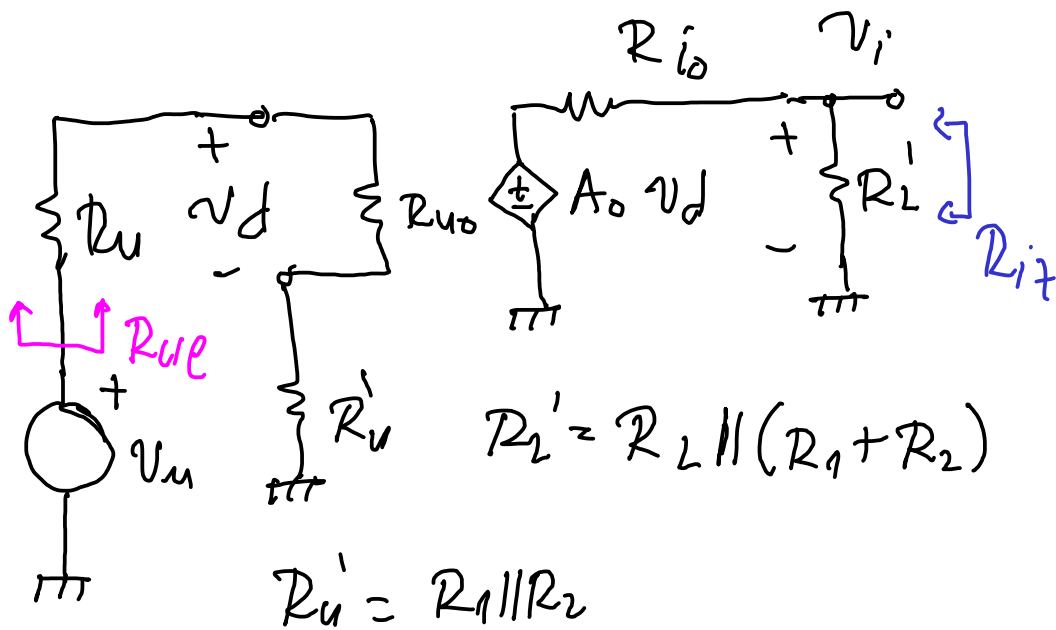
$$R'_L = R_L \parallel (R_1 + R_2)$$

$$A = \frac{v_i}{v_u} \cdot \frac{v_d}{v_u} = A_0 \frac{R'_L}{R'_L + R_{i0}} \cdot \frac{R_{u0}}{R_{u0} + R_u + R'_u}$$

POJAČANIJE OTVORENIE
PETLJE

$$A_f = \frac{A}{1 + F \cdot A}$$

POJAČANIJE ZATVORENIE PETLJE
(POJAČANIJE SA REAKCIJOM)



• УЛАЗНА ОТПОРНОСТ ОТВОРЕНЕ ПЕТЛИЕ:

$$R_{ul} = R_u + R_{u0} + R_u'$$

• ИЗЛАЗНА ОТПОРНОСТ ОТВОРЕНЕ ПЕТЛИЕ:

$$R_{iz} = R_L' \parallel R_{i0} \Big|_{U_u = 0V}$$

• УЛАЗНА ОТПОРНОСТ СА РЕАКЦИЈОМ:
(УЛАЗНА ОТПОРНОСТ ЗАТВОРЕНЕ ПЕТЛИЕ)

$$R_{ulr} = R_{ul} \cdot (1 + AF)$$

• ИЗЛАЗНА ОТПОРНОСТ СА РЕАКЦИЈОМ:
(ИЗЛАЗНА ОТПОРНОСТ ЗАТВОРЕНЕ ПЕТЛИЕ)

$$R_{izr} = \frac{R_{iz}}{1 + AF}$$

◦ ULAZNA OTPORNOST POJAČAVAČA SA REAKCIJOM:

$$R_{ulr,amp} = R_{ulr} - R_u$$

◦ IZLAZNA OTPORNOST POJAČAVAČA SA REAKCIJOM:

$$R_{izr,amp} = \frac{1}{G_{izr,amp}}$$

$$G_{izr,amp} = G_{izr} - G_L$$

$$G_{izr} = \frac{1}{R_{izr}}$$

$$G_L = \frac{1}{R_L}$$