Source follower Resistive
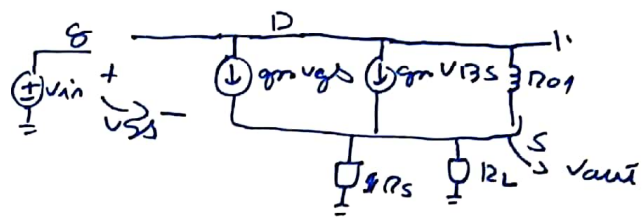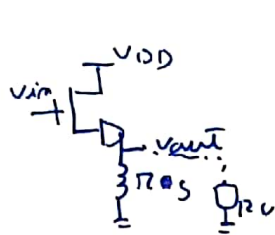
$$R_{eq} = R_S \| R_L \| R_{o1}$$

$$-\frac{V_{out}}{R_S \| R_L \| R_{o1}} + g_m(v_{gs}) + g_{mb}(v_{BS}) = 0$$

$$v_{gs} = v_{in} - v_{out}$$

$$v_{BS} = -v_{out}$$

$$-\frac{V_{out}}{R_S \| R_L \| R_{o1}} + g_m(v_{out}) - g_{mb}(v_{out}) + g_m v_{in}$$
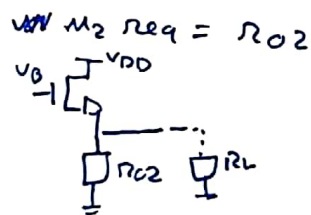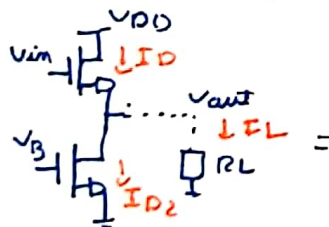
You can Increase
the gain
But The gain
will always Be smaller Then 1
Buffer stage, output Impedance is smaller

$$\frac{V_{out}}{V_{in}} = "A_v" = \frac{g_m}{\frac{1}{R_S} + \frac{1}{R_L} + \frac{1}{R_{o1}} + g_{m_1} + g_{mb_1}}$$

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Source follower with current source

$$M_2 \quad R_{eq} = R_{o2}$$

$$\frac{V_{out}}{V_{in}} = \frac{g_{m_1}}{\frac{1}{R_{o2}} + \frac{1}{R_L} + \frac{1}{R_{o1}} + g_{m_1} + g_{mb_1}}$$