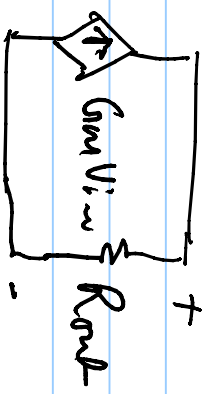
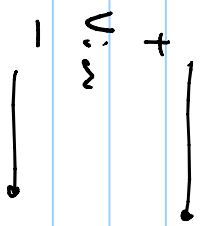


$$P_{out} < P_{in} + P_{dc}$$

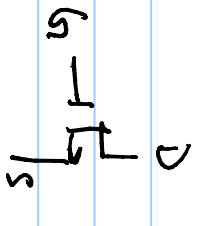
does not hold superposition theorem

there is for power amplification, we need non-linear system.

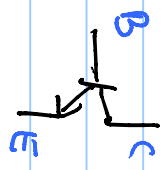


$$V_{out} = g_m \cdot R_{out} \cdot V_{in}$$

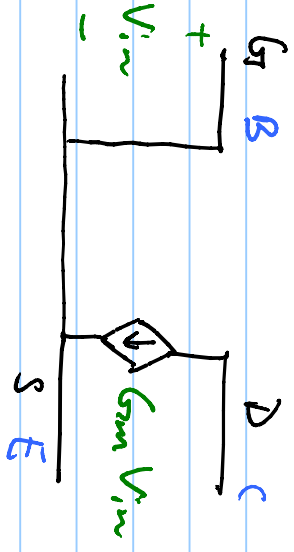
$$R_{out} = \frac{V_{out}}{I_{out}}$$



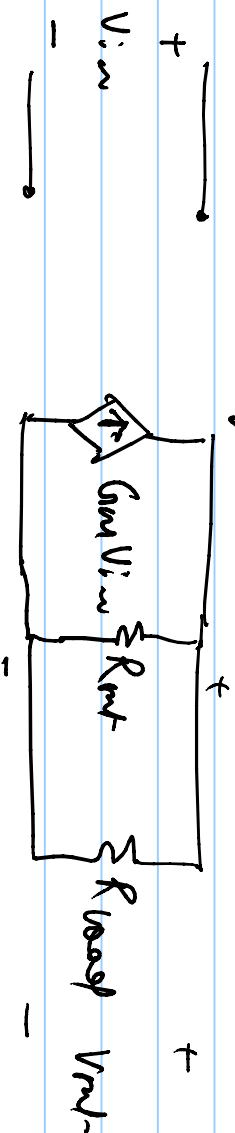
MOSFET



BJT



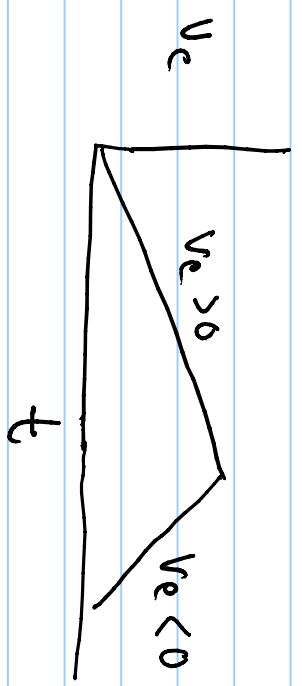
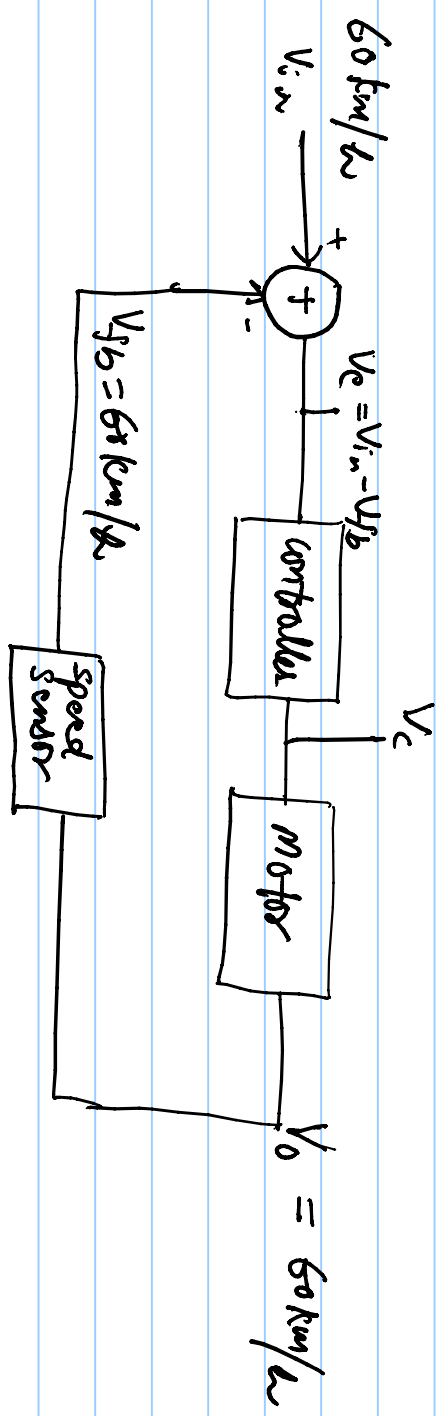
VCVS using VCCS



Vout doesn't remain constant across R_{load}
It doesn't behave like an ideal VCVS.

G_m doesn't remain constant across process & temperature
Output to input gain doesn't remain constant

Negative Feedback System



Integrator

$$= \int V_e dt$$