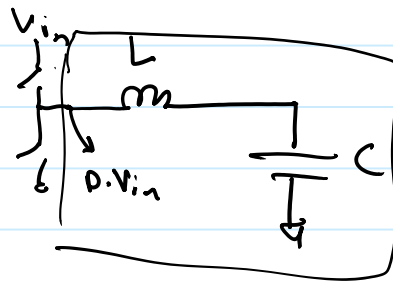
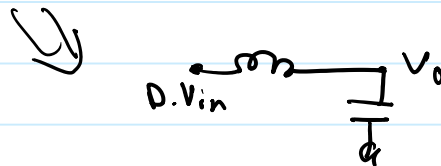


# Boost Converter

Buck  $\rightarrow \hat{V}_o = \hat{D} \cdot V_{in}$  (buck)



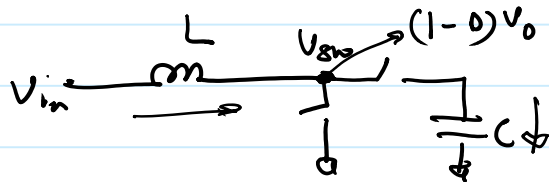
$$\frac{\partial V_o}{\partial D} = V_{in}$$



Boost

$$V_o = \frac{V_{in}}{1-D}$$

$$\frac{\partial V_o}{\partial D} = \frac{V_{in}}{(1-D)^2}$$



$$D \rightarrow D + \hat{D}$$

$$V_o \rightarrow V_o + \hat{V}_o$$

$$\frac{\partial V_o}{\partial D}$$

$$\hat{I}_o = (1-D) \hat{I}_L$$

$$\omega_o^2 = \frac{(1-D)^2}{LC}$$

$$\omega_o = \frac{1-D}{\sqrt{LC}}$$

# Switched Capacitor DC-DC Converter

