

# Delta Behavior

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# Delta

Call

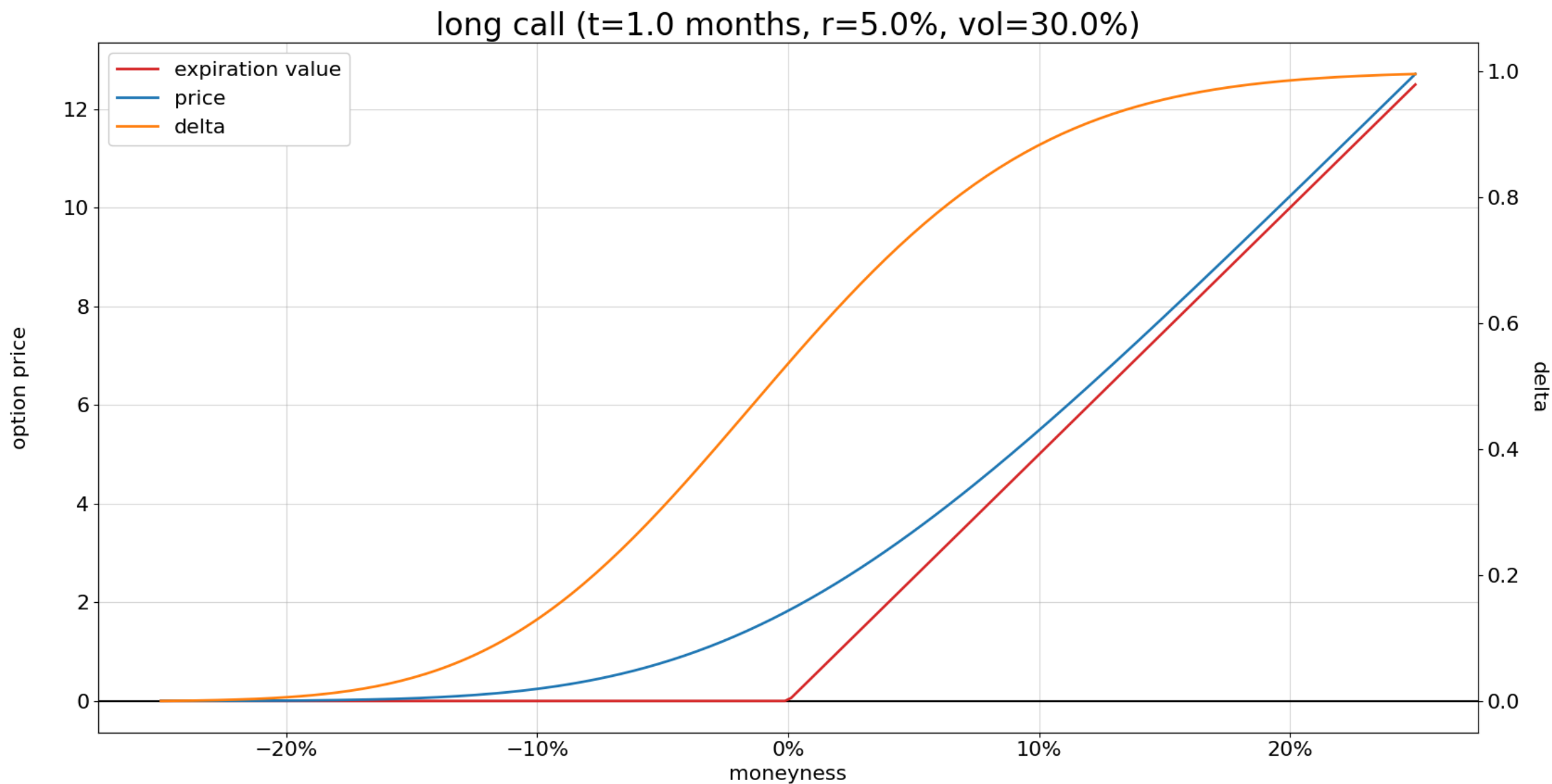
$$\Delta = \frac{dC}{dS} = N(d_1)$$

Put

$$\Delta = \frac{dP}{dS} = N(d_1) - 1 = -N(-d_1)$$

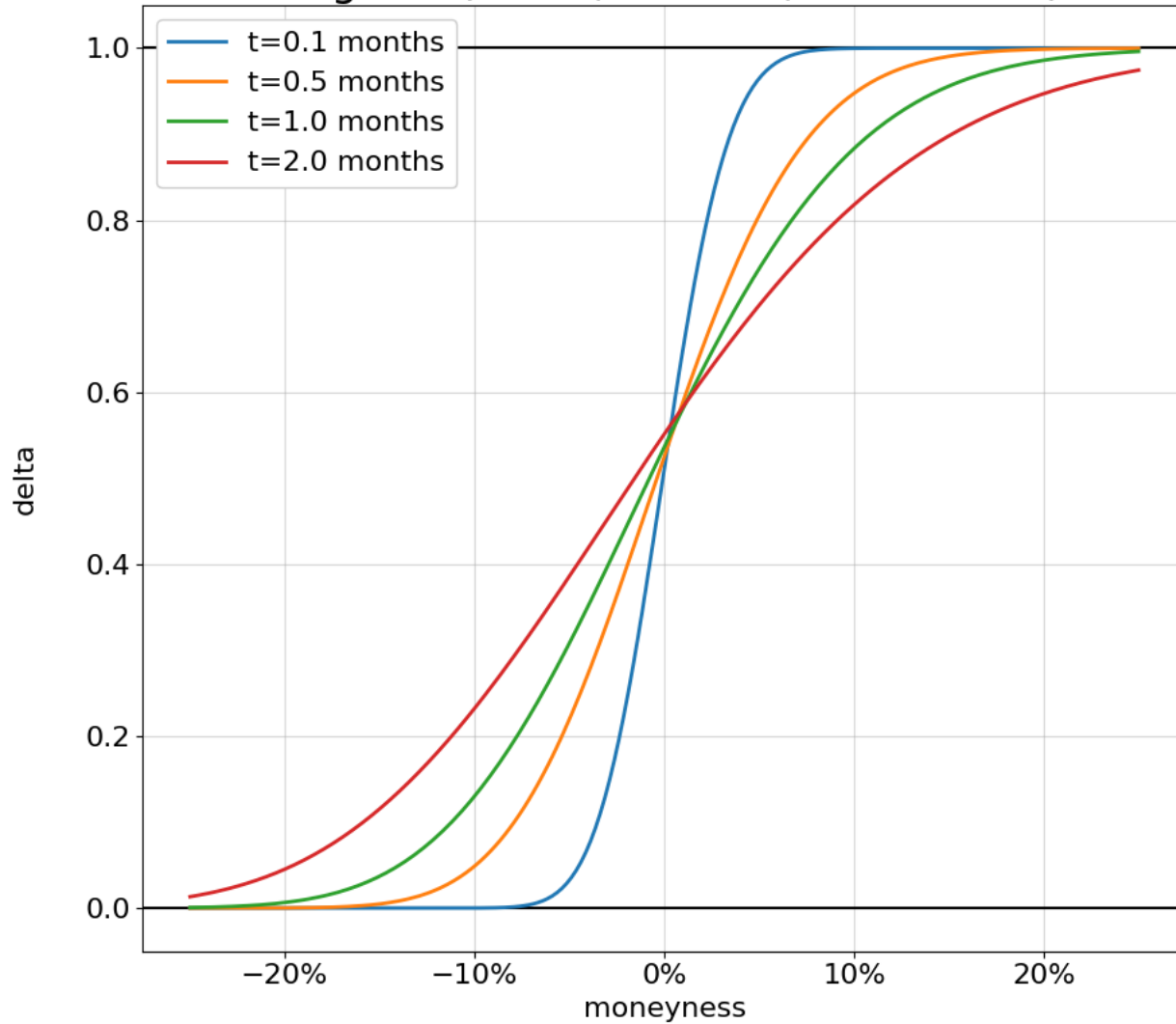
$$d_1 = \frac{\ln\left(\frac{S_0}{K}\right) + \left(r + \frac{\sigma^2}{2}\right)T}{\sigma\sqrt{T}}$$

# Call delta

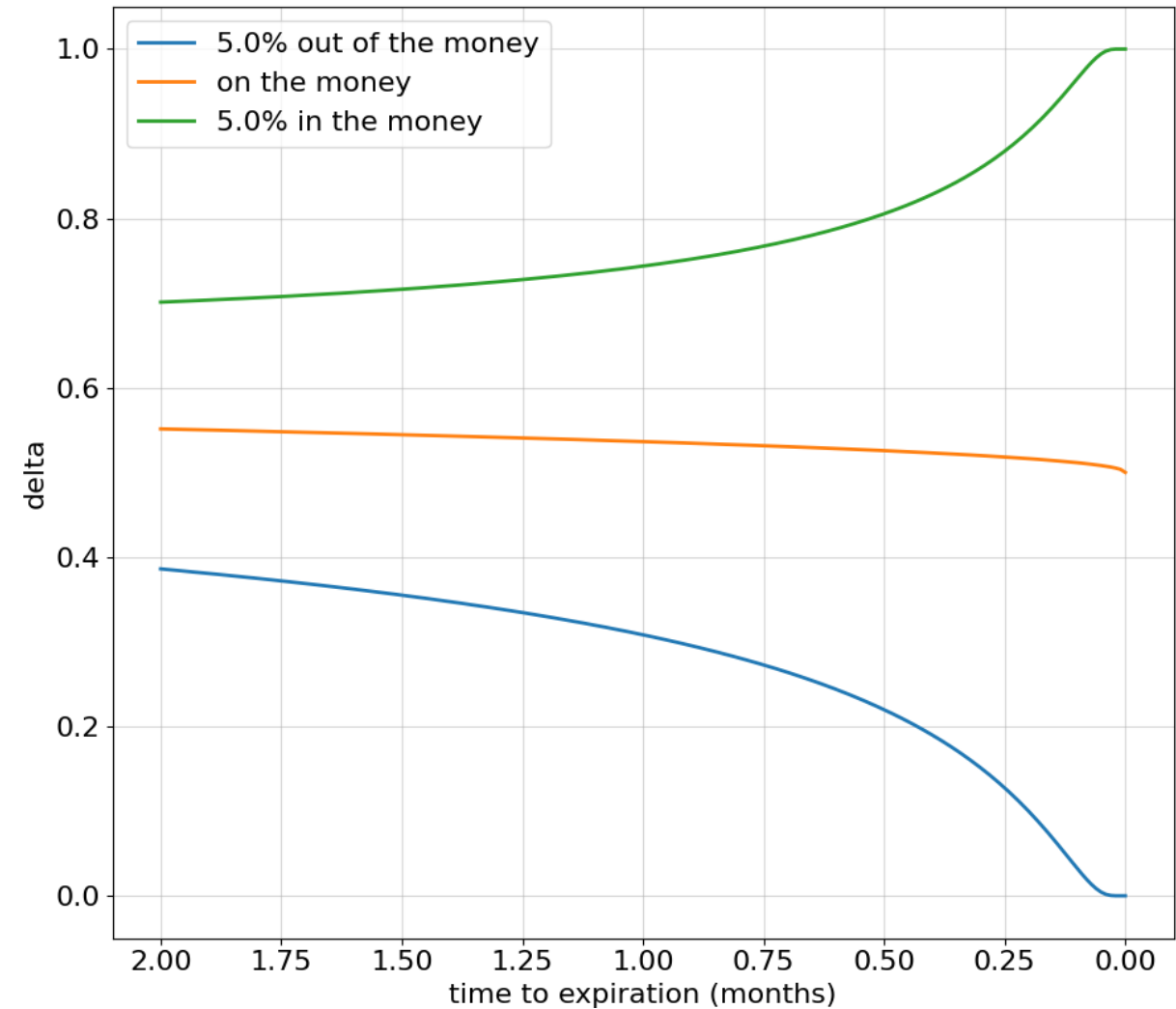


# Change in delta accross time

long call (K=50, r=5.0%, vol=30.0%)

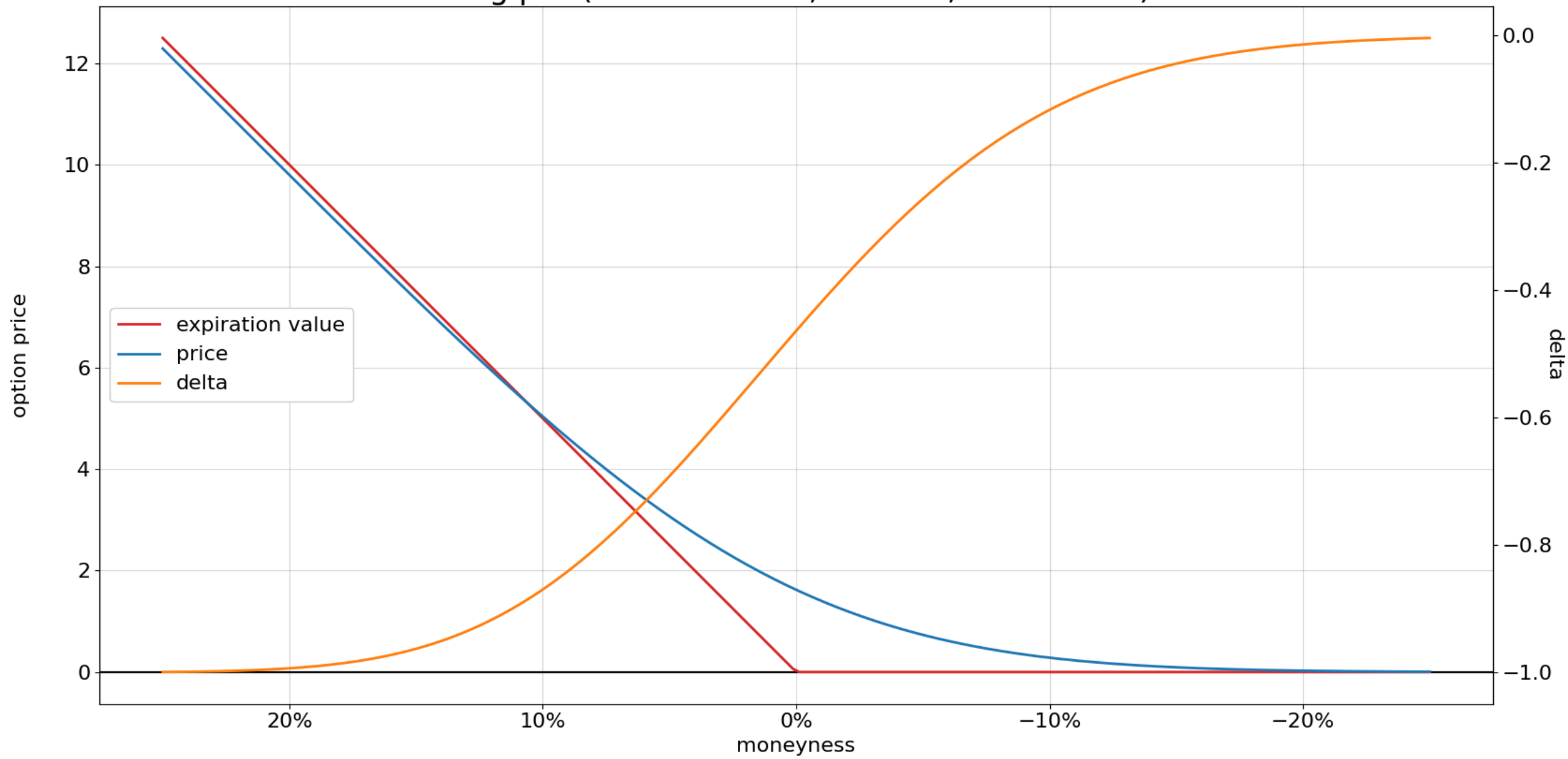


call delta accross time



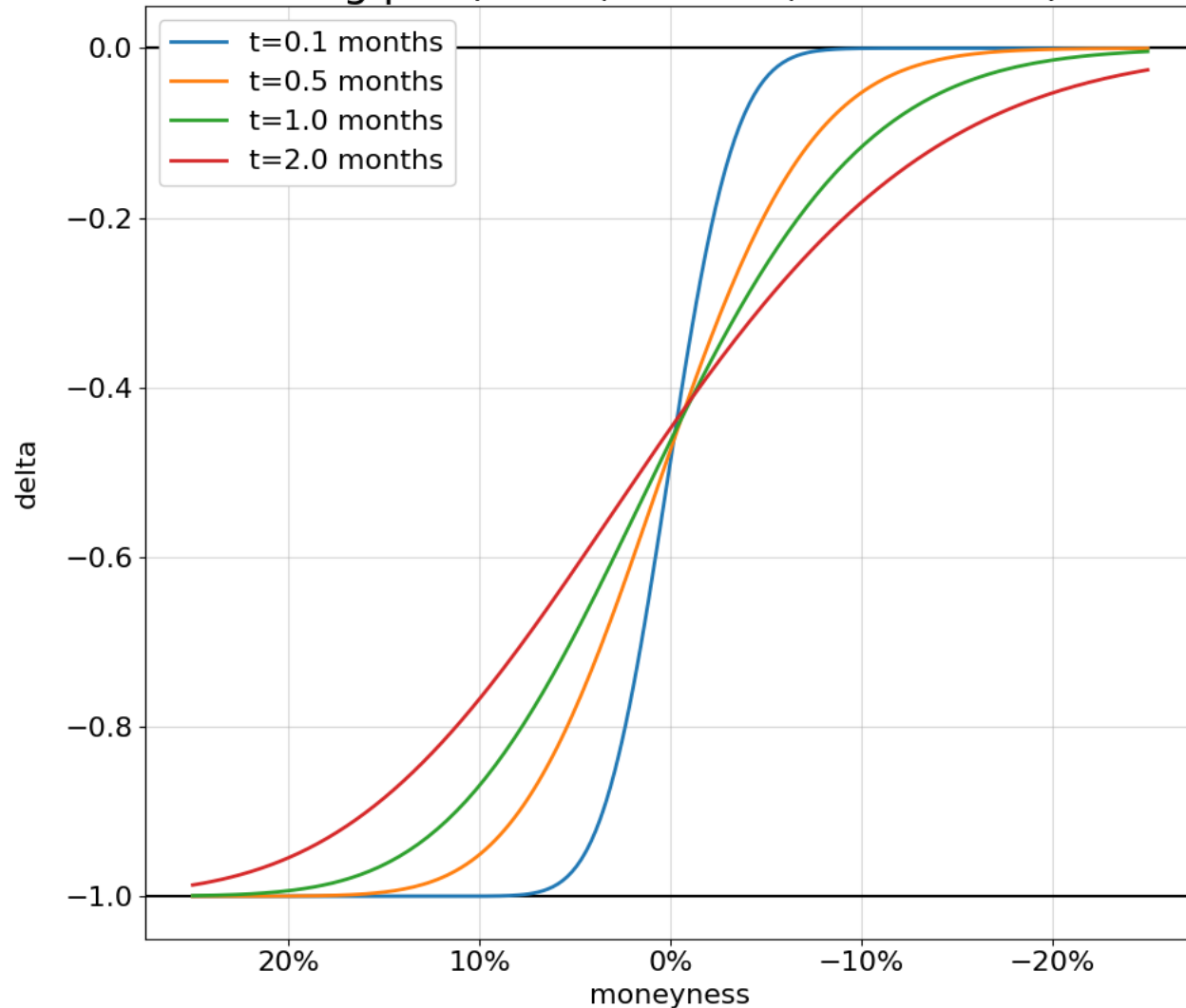
# Put delta

long put (t=1.0 months, r=5.0%, vol=30.0%)

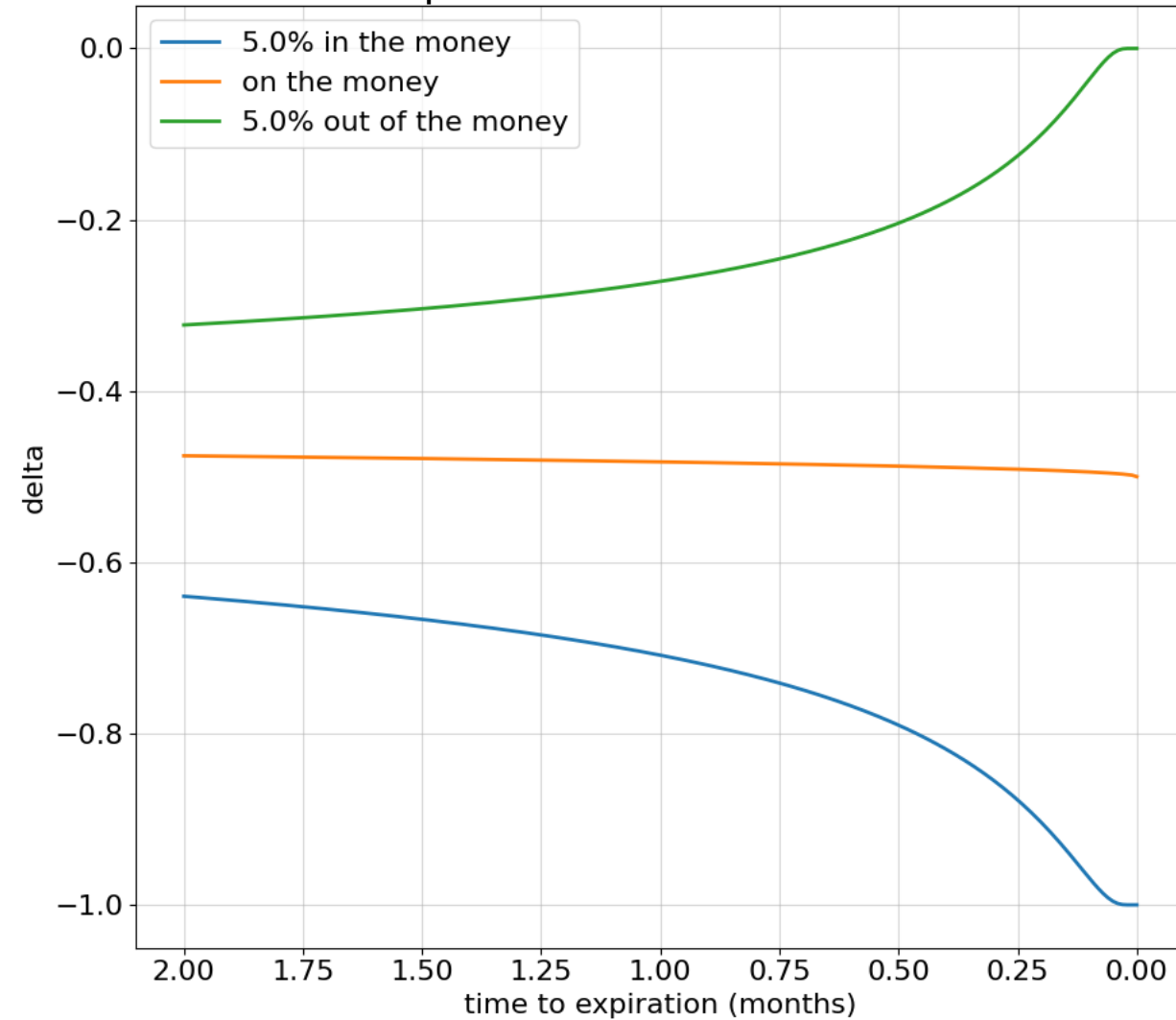


# Change in delta accross time

long put (K=50, r=5.0%, vol=30.0%)

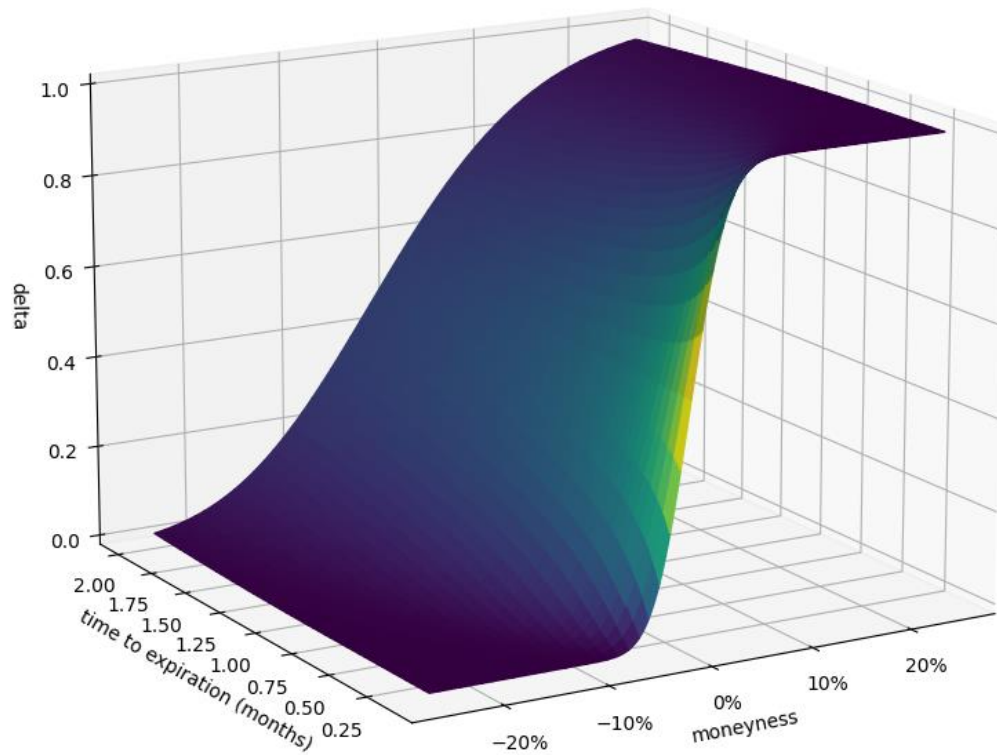


put delta accross time



# Change in delta accross time

call delta for  $r = 5.0\%$ ,  $\text{vol} = 30.0\%$



put delta for  $r = 5.0\%$ ,  $\text{vol} = 30.0\%$

