Gamma Behavior

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Gamma

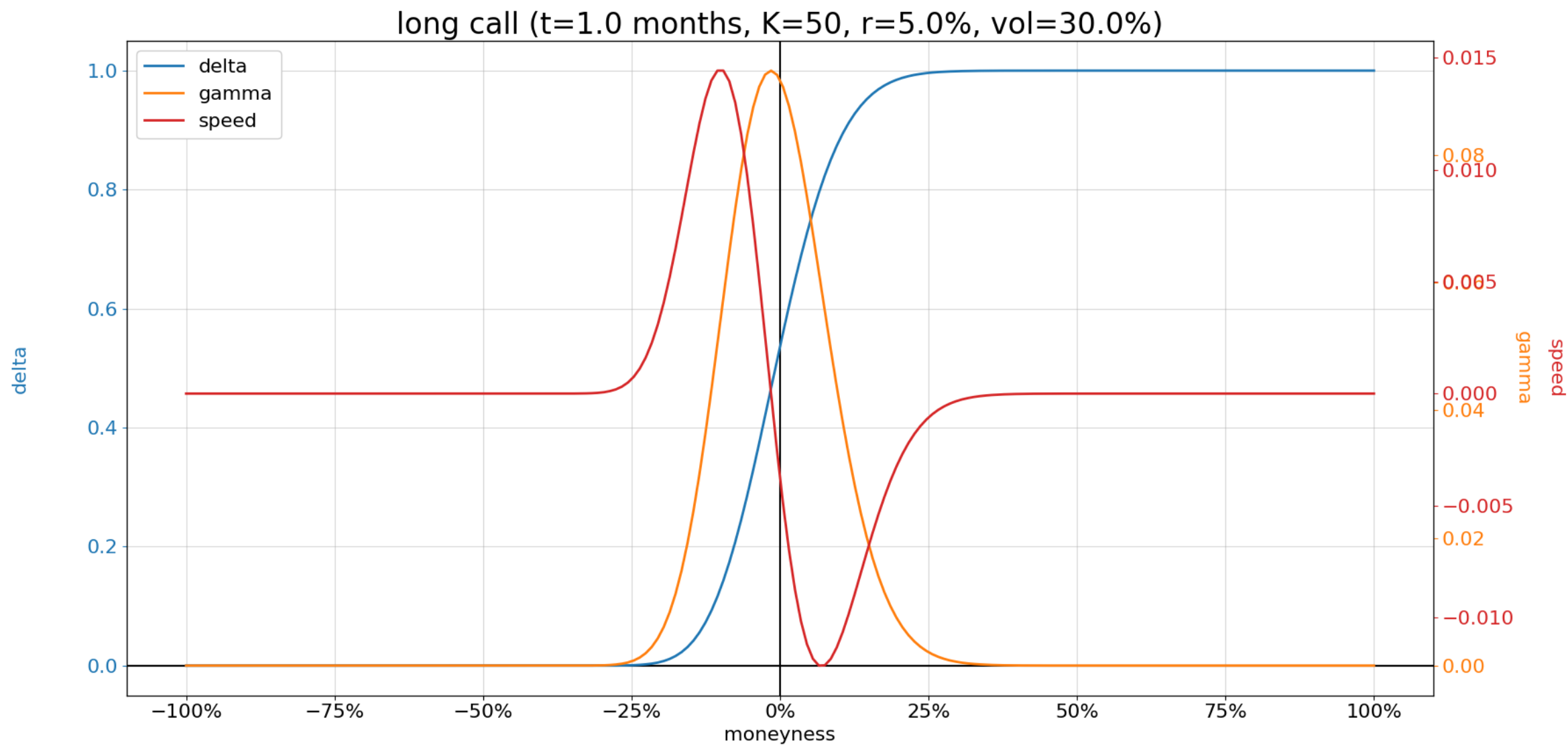Call, Put

$$\Gamma = \frac{d^2 C}{dS_0{}^2} = \frac{d^2 P}{dS_0{}^2} = \frac{d\Delta}{dS_0} = \frac{n(d_1)}{S_0 \sigma \sqrt{T}}$$
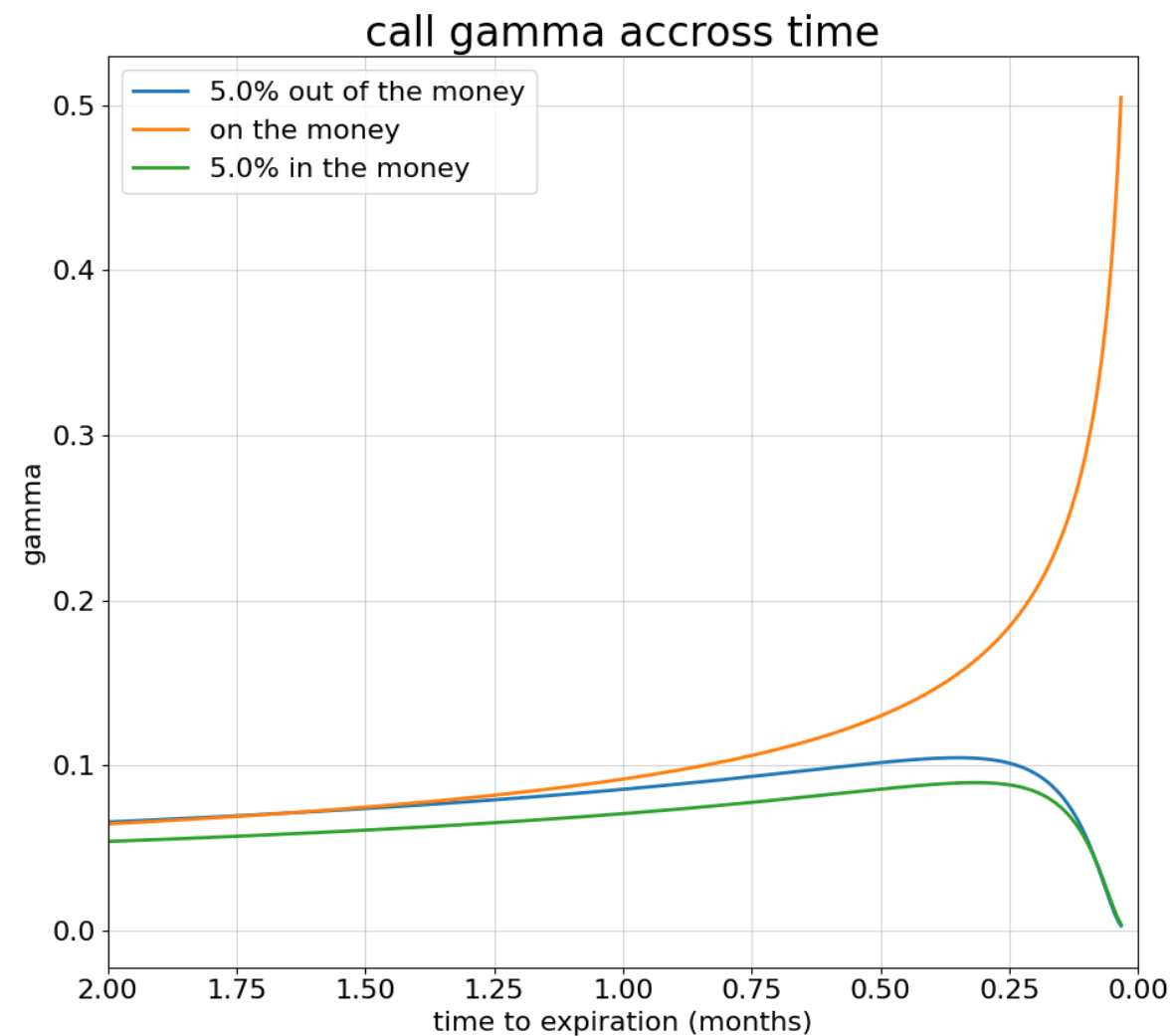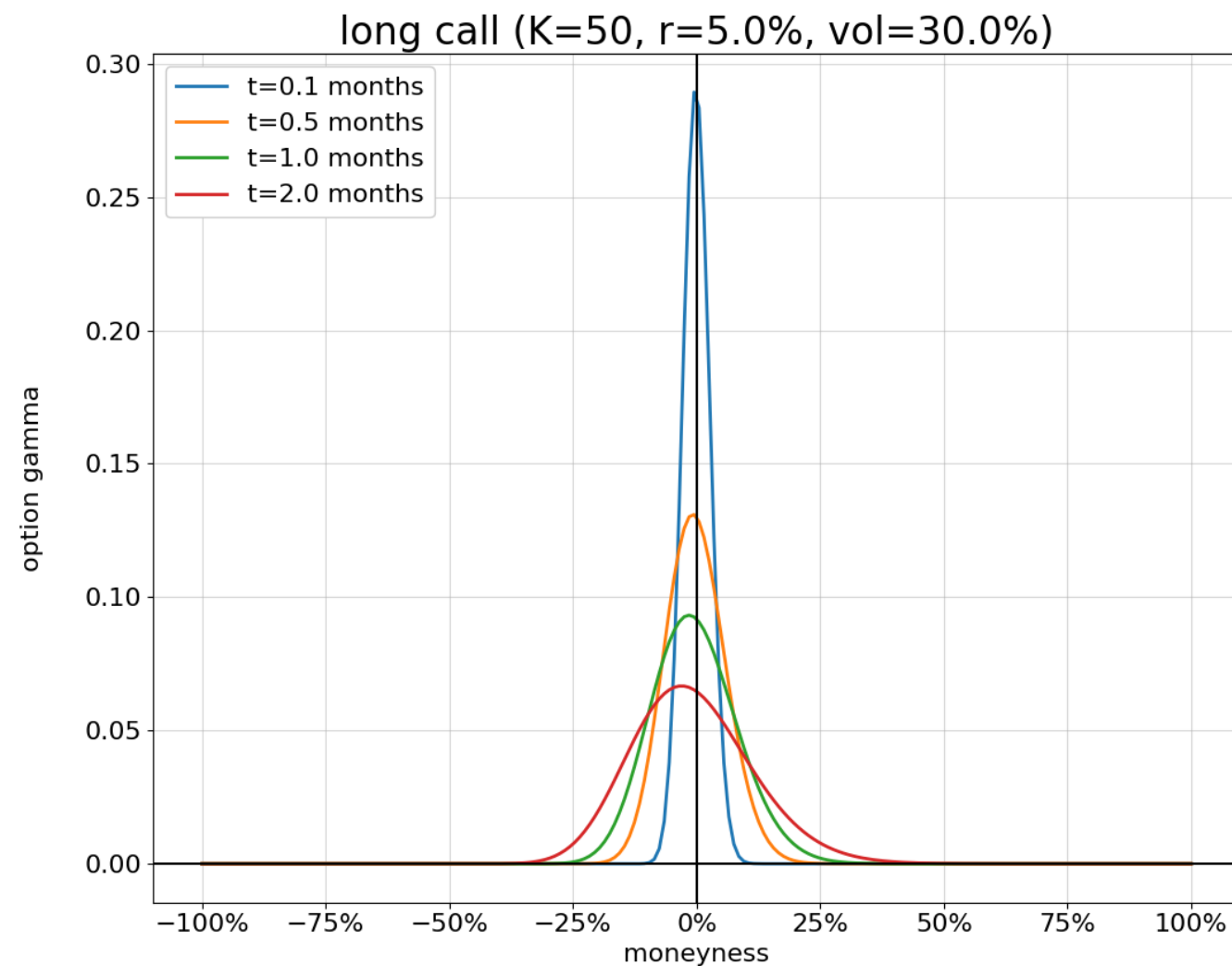
Speed/DgammaDspot

Call, Put

$$Speed_{call,put} = \frac{d\Gamma}{dS_0} = -\frac{\Gamma\left(1 + \frac{d_1}{\sigma\sqrt{T}}\right)}{S_0}$$
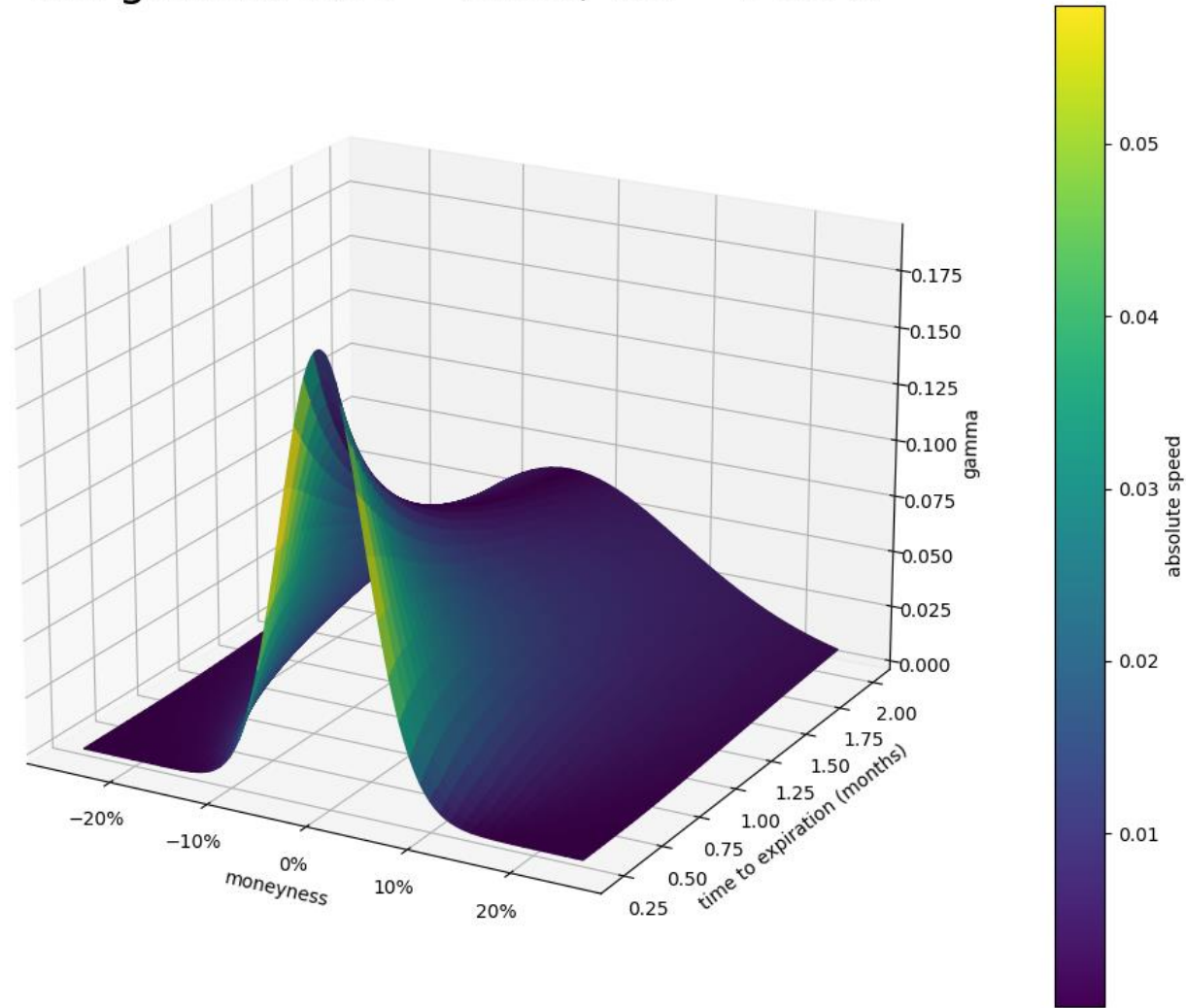
Gamma

long call (t=1.0 months, K=50, r=5.0%, vol=30.0%)

Gamma

Change in gamma accross time and price

call gamma for r = 5.0%, vol = 30.0%

Given low moneyness and high t, gamma has a saddle point

call gamma for r = 5.0%, vol = 30.0%