NS MODEL FORMULA & PARAMETERS

$$y(\tau) = \beta_1 + \beta_2 \left[\frac{1 - \exp(-\tau/\lambda)}{\tau/\lambda} \right] + \beta_3 \left[\frac{1 - \exp(-\tau/\lambda)}{\tau/\lambda} - \exp(-\tau/\lambda) \right] .$$

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FORMULA

r(t) = beta0+beta1*part1+beta2*(part1-part2)

part1 = (1-part2)/part3

part2 = math.e**(-part3)

part3 = T/tau

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TERM

- beta0 defines the long term level of zero rates (T->∞, r(t) = beta0)
- beta1*part1 introduces an exponential time decay that becomes slower the bigger tau is
- beta2*(part1-part2) produces either a hump (β2>0) or a trough (β2<0) that occurs at a time governed by tau
- beta0+beta1*part1 equal almost short dated zero rates (T->0, r(t)=beta0+beta1*part1)

r(t) = beta0+beta1*part1+beta2*(part1-part2)

part1 = (1-part2)/part3

part2 = math.e**(-part3)

part3 = T/tau

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PARAMETERS

- beta0: Adjust Level
- beta1: Adjust Scope
- beta2: Adjust Curvature
- tau: Adjust hump/trough position

r(t) = beta0+beta1*part1+beta2*(part1-part2)

part1 = (1-part2)/part3

part2 = math.e**(-part3)

part3 = T/tau