

Equations

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<https://www.mhnederlof.nl/bayesnormalupdate.html>

μ : sample mean, μ' : prior mean, μ'' : posterior mean

σ^2 : sample variance, σ'^2 : prior variance, σ''^2 : posterior variance

1 Posterior Mean

$$\mu'' = \frac{\sigma^2 \mu' + n \sigma'^2 \mu}{n \sigma'^2 + \sigma^2}$$

2 Posterior Variance

$$\sigma''^2 = \frac{\sigma^2 \sigma'^2}{n \sigma'^2 + \sigma^2}$$