AR(1) Variance as Function of ϕ (with $\sigma^2 = 1$)

Variance increases as $|\phi| \to 1$

$\phi = 0.9$
$\gamma(0) = 5.26$

$\phi = 0.8$
$\gamma(0) = 2.78$

$\phi = 0.5$
$\gamma(0) = 1.33$

$\gamma(0) = \sigma^2/(1 - \phi^2)$

ϕ