The knowledge of mass and poison

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Abstract

In this paper, I describe the knowledge of mass and poison.
The paper ends with "The End"

Introduction

There exists a demand for knowledge from me of mass and poison.
In this paper, I describe the knowledge of mass and poison.

The mathematics of mass and poison

The system of differential equations

$$\frac{\partial M(t)}{\partial t} = \mu M(t)$$

$$\frac{\partial P(t)}{\partial t} = -\lambda P(t)$$

with initial conditions

$$M(0) = M$$

$$P(0) = \Pi$$

where
M is the initial mass
P is the initial poison
μ is the exponential growth rate of mass
λ is the exponential decay rate of poison
and
t is time

has the solution

$$M(t) = Me^{\mu t} \ldots [1]$$

$$P(t) = \Pi e^{-\lambda t} \ldots [2]$$

Effectiveness of a quantity of poison

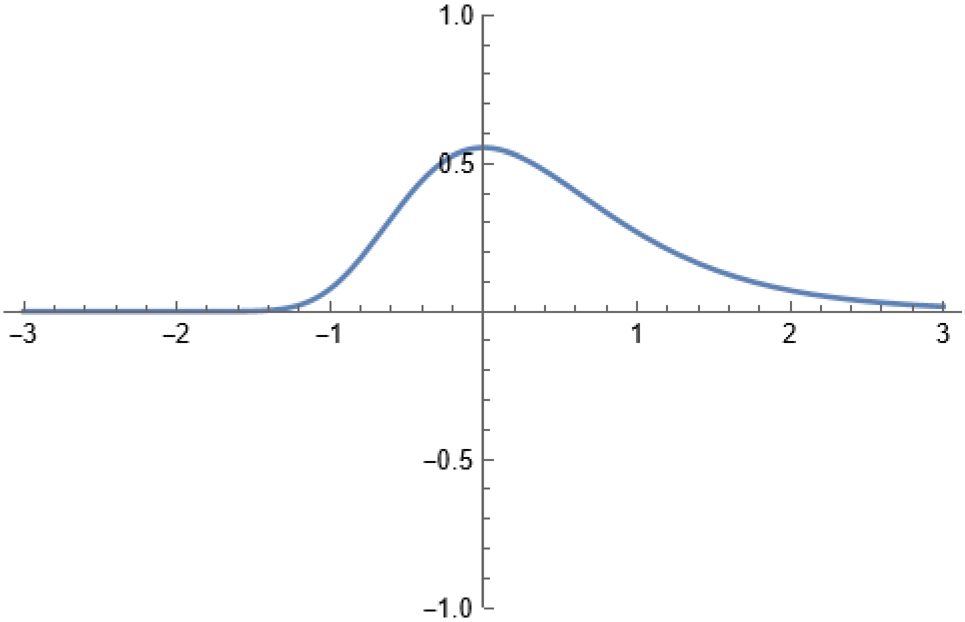
The **effectiveness** of a quantity a poison $P(t)$ **on** a quantity of mass $M(t)$ is $\rho(t)$ where

$$\frac{\partial(\frac{P(t)}{M(t)})}{\partial t} = -\rho(t)e^{\left(\frac{P(t)}{M(t)}\right)}$$

Using equations [1] and [2] to solve for $\rho(t)$, we obtain

$$\rho(t) = \frac{\Pi}{M}(\lambda+\mu)e^{-(\lambda+\mu)t-\frac{\Pi}{M}e^{-(\lambda+\mu)t}}$$

A graph of $\rho(t)$



A graph of $\rho(t)$ where $\Pi = 1$, $M = 1$, $\lambda = \frac{1}{2}$, $\mu = 1$

Properties of $\rho(t)$

1. $\int_{-\infty}^{\infty} \rho(t)dt = 1$
2. For appropriate tuples of (Π, M, λ, μ), $\rho(t)$ is also a probability distribution.

A solution to $\rho(t)$

A solution to the equation

$$\rho(t) = d$$

where $\Pi, M, \lambda, \mu, t, d$ are reals is available upon request.

The End