$p(E) \geq 0$

$p(\bar{E}) \leq 1$

$p(E) = 1$

$p(A \cup B) + p(A \cap B) = p(A) + p(B)$ OR

$p(A \cap B) = p(A/B) \cdot p(B) = p(B/A) \cdot p(A)$ AND

if $p(A \cap B) = 0$ exclusive

$\Rightarrow p(A \cup B) = p(A) + p(B)$ TOTAL

if $p(A/B) = p(A)$ and $p(B/A) = p(B)$

$\Rightarrow p(A \cap B) = p(A) \cdot p(B)$ COMPOUND

$p(A/B) \cdot p(B) = p(B/A) \cdot p(A) = p(A \cap B)$

$\Rightarrow p(A) = p(A/B) \cdot \frac{p(B)}{p(B/A)}$ BAYES 1

$p(A)$ ↑ PRIOR

$p(A/B)$ ↑ EVIDENCE BASED

$\frac{p(B)}{p(B/A)}$ ↖ CORRECTION

$\Rightarrow p(B/A) = \frac{p(A \cap B)}{p(A)} =$

$= \frac{p(A \cap B)}{p(A/B) \cdot p(B) + p(A/\bar{B}) \cdot p(\bar{B})}$

BAYES 2

$$R = f(c, E, t) = f(t)$$

$$N_0 = N_v(t) + N_g(t)$$

~~$R(t)$~~

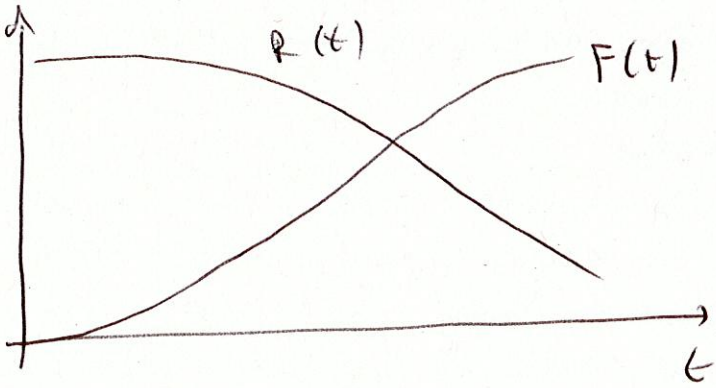
$$R(t) = \frac{N_v(t)}{N_0} \qquad F(t) = \frac{N_g(t)}{N_0}$$

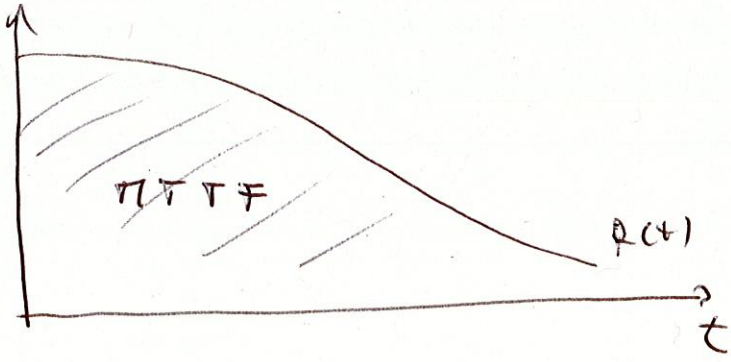
$$\Rightarrow R(t) + F(t) = 1$$

$$f(t) = \frac{dF}{dt} = \frac{d(1-R)}{dt} = -\frac{dR}{dt}$$

$$MTTF = \frac{\int_0^\infty t \cdot f(t)\,dt}{\int_0^\infty f(t)\cdot dt} = \int_0^\infty t \cdot f(t)\,dt = \int_0^\infty t \cdot \frac{dR}{dt}\,dt =$$

$$= -\left[t \cdot R\right]_0^\infty + \int_0^\infty R(t)\,dt = \int_0^\infty R(t)\,dt$$





$$z(t) = \frac{1}{N_v(t)} \cdot \frac{dN_f}{dt} = \frac{1}{N_v} \cdot \frac{N_0}{N_0} \cdot \frac{dN_f}{dt} =$$

$$= \frac{N_0}{N_v} \cdot \frac{d\left(\frac{N_f}{N_0}\right)}{dt} = \frac{1}{R(t)} \cdot \frac{dF(t)}{dt} = \frac{f(t)}{R(t)}$$

$$\Rightarrow f(t) = z(t) \cdot R(t)$$

$$R(t) = e^{-\left(\frac{t}{\lambda}\right)^{\beta}}$$

$\beta \begin{cases} < 1 \\ = 1 \\ >> 1 \end{cases}$

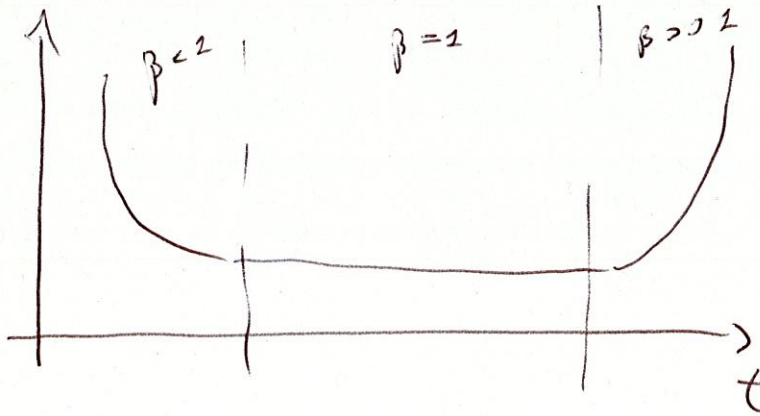
$\lambda \Rightarrow \beta = 0{,}3678$

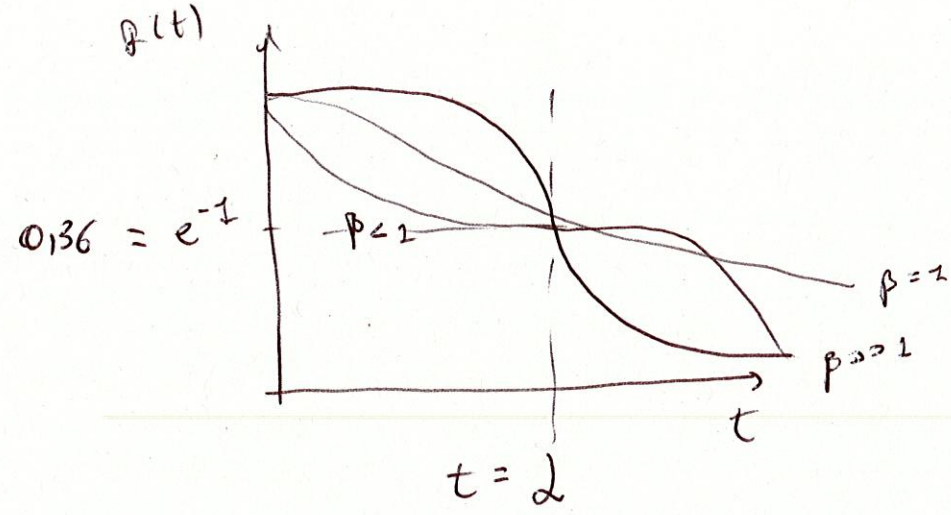
$$f(t) = -\frac{dR}{dt} = -e^{-\left(\frac{t}{\lambda}\right)^{\beta}} \cdot -\beta\left(\frac{t}{\lambda}\right)^{\beta-1} \cdot \frac{1}{\lambda} =$$

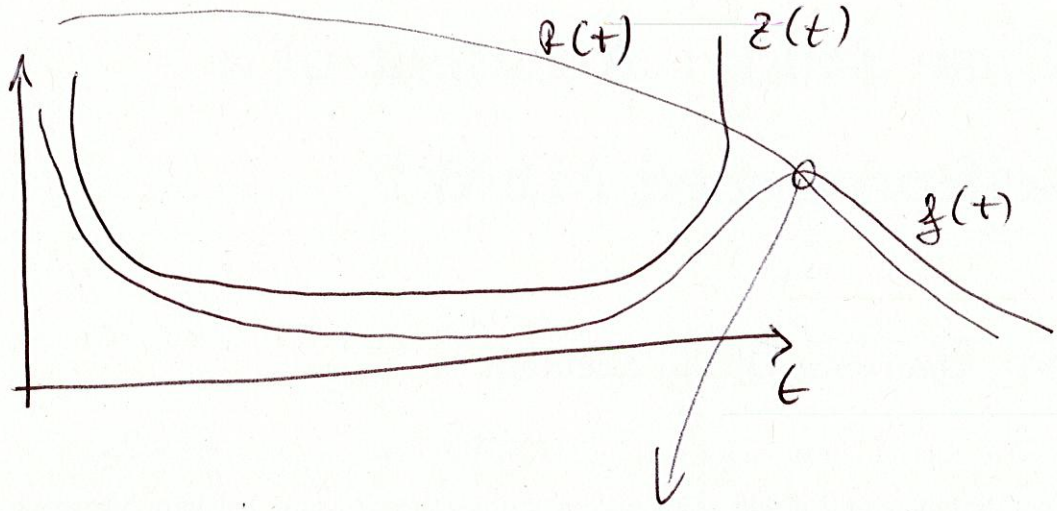
$$= e^{-\left(\frac{t}{\lambda}\right)^{\beta}} \cdot \frac{\beta}{\lambda}\left(\frac{t}{\lambda}\right)^{\beta-1}$$

$$\Rightarrow z(t) = \frac{\beta}{\lambda}\left(\frac{t}{\lambda}\right)^{\beta-1}$$

$z(t) = \text{const.} = \lambda \iff \beta = 1 \Rightarrow \lambda = \frac{1}{\lambda}$







$$\frac{df}{dt} = \frac{d^2F}{dt^2} = 0$$

DUANE PLOT

n	t	CUM MTBF
0	0	0
	↓ $\Delta_1 = 33$	
1	33	$\frac{33+0}{2} = 33$
	↓ $\Delta_2 = 76-33$	
2	76	$\frac{33+43}{2} = --$
—	—	—