$i := 0..25 \qquad N_0 := 26$

$$\Delta tt := \begin{pmatrix} 130 \\ 136 \\ 141 \\ 148 \\ 154 \\ 163 \\ 170 \\ 180 \\ 190 \\ 203 \\ 214 \\ 228 \\ 247 \\ 267 \\ 290 \\ 316 \\ 350 \\ 391 \\ 444 \\ 513 \\ 606 \\ 741 \\ 950 \\ 1330 \\ 2222 \\ 6660 \end{pmatrix}$$

$$tx_i := \sum_{i1=0}^{i} \Delta tt_{i1} \qquad f_i := \frac{1}{N_0 \cdot \Delta tt_i}$$

$tx_i =$

130
266
407
555
709
872
$1.042 \cdot 10^3$
$1.222 \cdot 10^3$
$1.412 \cdot 10^3$
$1.615 \cdot 10^3$
$1.829 \cdot 10^3$
$2.057 \cdot 10^3$
$2.304 \cdot 10^3$
$2.571 \cdot 10^3$
$2.861 \cdot 10^3$
...

$f_i =$

$2.959 \cdot 10^{-4}$
$2.828 \cdot 10^{-4}$
$2.728 \cdot 10^{-4}$
$2.599 \cdot 10^{-4}$
$2.498 \cdot 10^{-4}$
$2.36 \cdot 10^{-4}$
$2.262 \cdot 10^{-4}$
$2.137 \cdot 10^{-4}$
$2.024 \cdot 10^{-4}$
$1.895 \cdot 10^{-4}$
$1.797 \cdot 10^{-4}$
$1.687 \cdot 10^{-4}$
$1.557 \cdot 10^{-4}$
$1.441 \cdot 10^{-4}$
$1.326 \cdot 10^{-4}$
...

$$F(tx, \lambda) := \lambda \cdot e^{-\lambda \cdot tx}$$

$$SSE(\lambda) := \sum_i \left(f_i - F\left(tx_i, \lambda\right)\right)^2$$

$$\lambda := 0.0002$$

Given

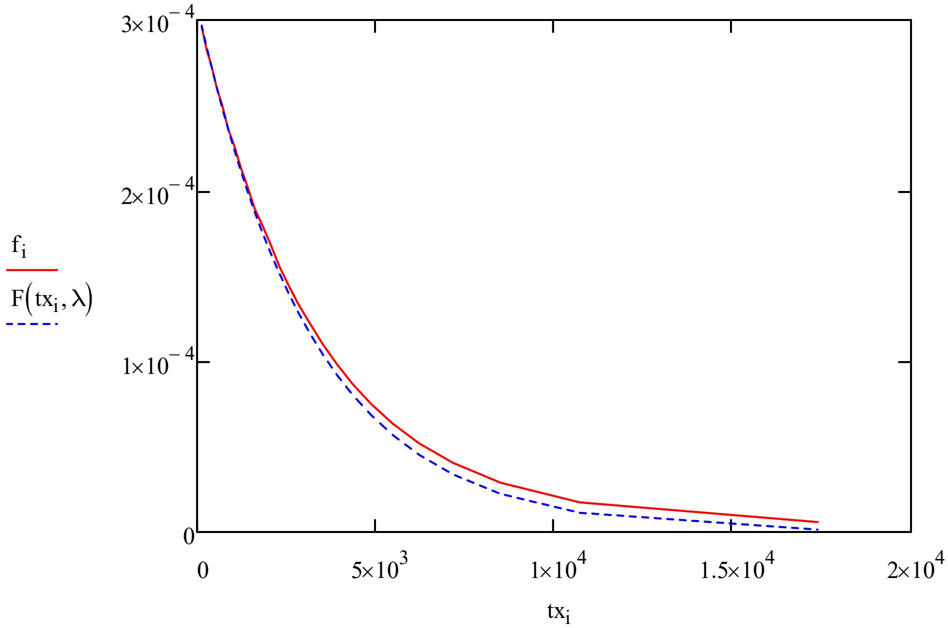
$$1 = 1$$

$$SSE(\lambda) = 0$$

$$\lambda := \text{Minerr}(\lambda)$$

$$\lambda = 3.088 \times 10^{-4}$$

$$\frac{SSE(\lambda)}{N_0 - 1} = 2.229 \times 10^{-11}$$



$\alpha := 0.1$

$\mathrm{qchisq}\left(\frac{\alpha}{2}, 2 \cdot N_0\right) = 36.437$ $\quad \mathrm{qchisq}\left(1 - \frac{\alpha}{2}, 2 \cdot N_0\right) = 69.832$ $\quad \mathrm{pchisq}(0.0605, 1) = 0.194$

$\lambda n := \mathrm{qchisq}\left(\frac{\alpha}{2}, 2 \cdot N_0\right) \cdot \frac{\lambda}{2 \cdot (N_0 - 1)}$ $\quad \lambda в := \frac{\lambda \cdot \mathrm{qchisq}\left(1 - \frac{\alpha}{2}, 2 \cdot N_0\right)}{2 \cdot (N_0 - 1)}$

$Tcp := \frac{1}{\lambda}$ $\quad Tв := \frac{1}{\lambda n}$ $\quad Tn := \frac{1}{\lambda в}$

$\lambda n = 0.0002250564$ $\quad \lambda = 3.088 \times 10^{-4}$ $\quad \lambda в = 4.313 \times 10^{-4}$

$Tn = 2.318 \times 10^{3}$ $\quad Tcp = 3.238 \times 10^{3}$ $\quad Tв = 4.443 \times 10^{3}$

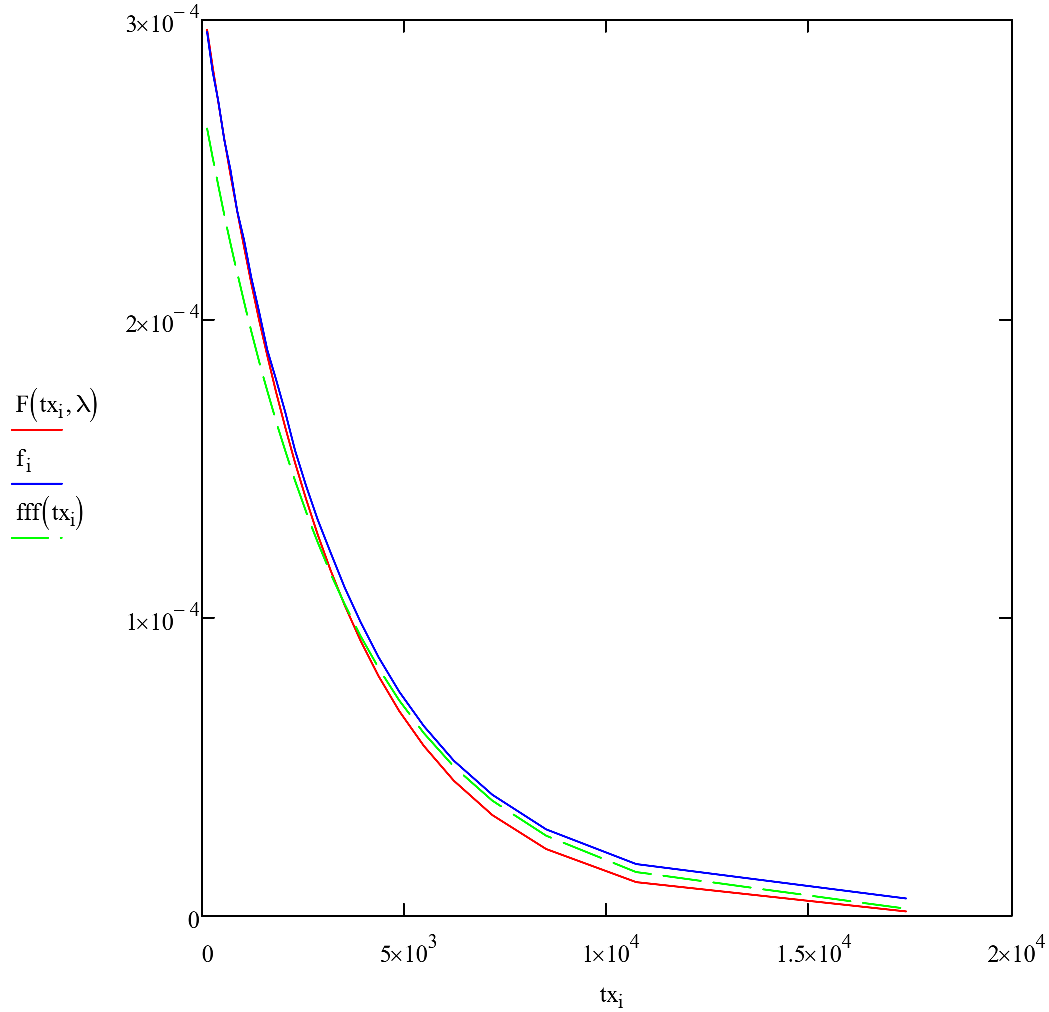
$Tcp1 := \mathrm{mean}(tx)$ $\quad \sigma := \mathrm{stdev}(tx)$ $\quad \frac{\sigma}{Tcp1} = 1.042$

$Tcp1 = 3.661 \times 10^{3}$ $\quad \sigma = 3.815 \times 10^{3}$

$\lambda 1 := \frac{1}{Tcp1}$

$\lambda 1 = 2.731 \times 10^{-4}$

$fff(tx) := \lambda 1 \cdot e^{-\lambda 1 \cdot tx}$



3×10^{-4}
2×10^{-4}
1×10^{-4}
0
$F(tx_i, \lambda)$
f_i
$fff(tx_i)$
0
5×10^{3}
1×10^{4}
1.5×10^{4}
2×10^{4}
tx_i

Проверка сложной гипотезы о принадлежности экспоненциальному закону

$$\mathrm{pexp}(tx, \lambda) =$$

	0
0	0.039
1	0.079
2	0.118
3	0.158
4	0.197
5	0.236
6	0.275
7	0.314
8	0.353
9	0.393
10	0.432
11	0.47
12	0.509
13	0.548
14	0.587
15	0.625
16	0.664
17	0.702
18	0.74
19	0.778
20	0.816
21	0.854
22	0.891
23	0.928
24	0.964
25	0.995

$$\mathrm{pexp}\left(tx_i, \lambda\right) - \frac{i + 1 - 1}{N_0} = \qquad \frac{i + 1}{N_0} - \mathrm{pexp}\left(tx_i, \lambda\right) =$$

0.039	$-8.909 \cdot 10^{-4}$
0.04	$-1.942 \cdot 10^{-3}$
0.041	$-2.73 \cdot 10^{-3}$
0.042	$-3.669 \cdot 10^{-3}$
0.043	$-4.338 \cdot 10^{-3}$
0.044	$-5.316 \cdot 10^{-3}$
0.044	$-5.926 \cdot 10^{-3}$
0.045	$-6.658 \cdot 10^{-3}$
0.046	$-7.271 \cdot 10^{-3}$
0.047	$-8.1 \cdot 10^{-3}$
0.047	$-8.476 \cdot 10^{-3}$
0.047	$-8.664 \cdot 10^{-3}$
0.048	$-9.113 \cdot 10^{-3}$
0.048	$-9.505 \cdot 10^{-3}$
0.048	$-9.768 \cdot 10^{-3}$
0.048	$-9.735 \cdot 10^{-3}$
0.048	$-9.681 \cdot 10^{-3}$
0.048	$-9.492 \cdot 10^{-3}$
0.048	$-9.24 \cdot 10^{-3}$
0.047	$-8.872 \cdot 10^{-3}$
0.047	$-8.284 \cdot 10^{-3}$
0.046	$-7.464 \cdot 10^{-3}$
0.045	$-6.222 \cdot 10^{-3}$
0.043	$-4.531 \cdot 10^{-3}$
0.04	$-2.014 \cdot 10^{-3}$
0.034	$4.66 \cdot 10^{-3}$

$$\sqrt{N_0} \cdot 0.048 = 0.245$$