Graunt, Halley, and US 1993 Life Table : Summary

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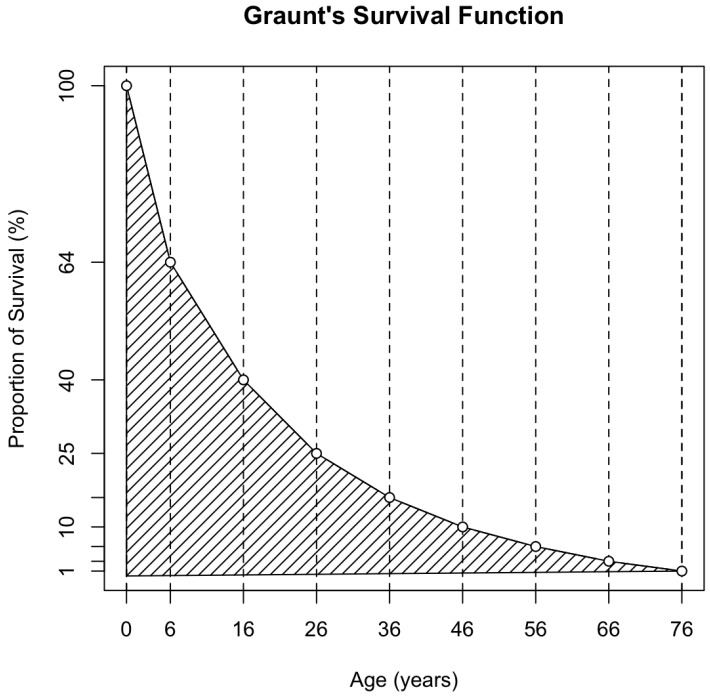
Source of Data

Age	*Graunt*	*1993*
0	100	100
6	64	99
16	40	99
26	25	98
36	16	97
46	10	95
56	6	92
66	3	84
76	1	70

R base graphics

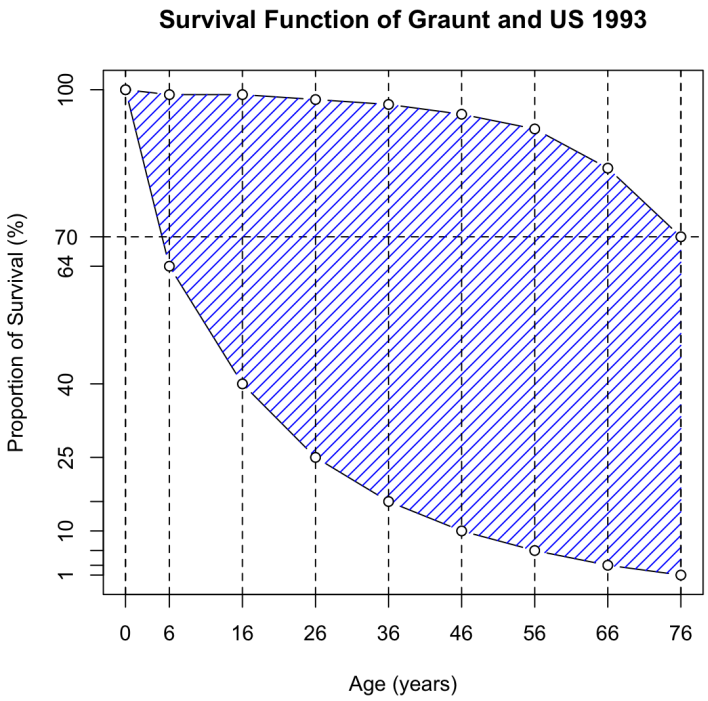
Graunt



The area under the curve can be approximated by the sum of the areas of trapezoids, therefore the area is $\sum_{i=1}^{n-1}(x_{i+1}-x_i)\times\frac{1}{2}(y_i+y_{i+1})$. Therefore, the life expectancy of Graunt's life table is 18.17(years).

Graunt and US 1993

The shaded area between the survival function of Graunt and that of US 1993 represents the difference of life expectancies.



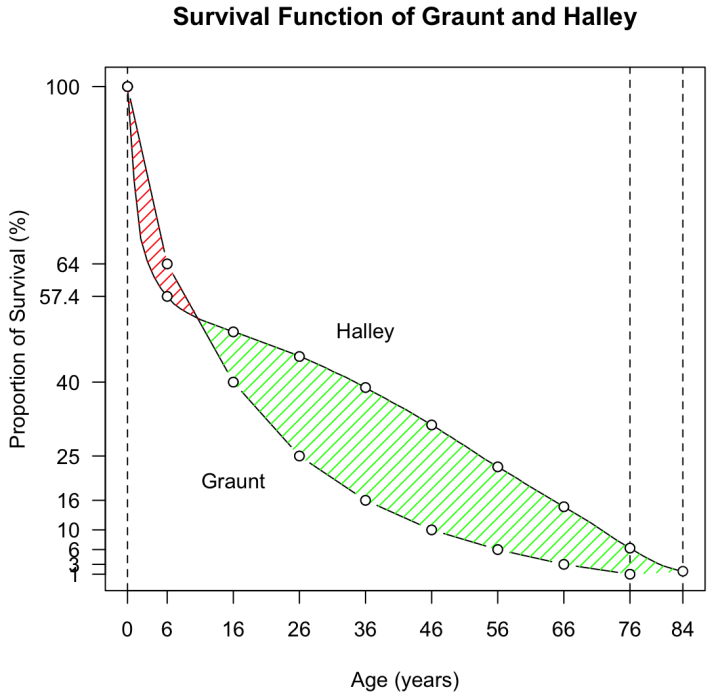
The area under the US 1993 survival function is 70.92, so, the area of shaded region, that is the difference of life expectancy, is 52.75 (years).

Part of Halley's life table

Halley's Lifetable

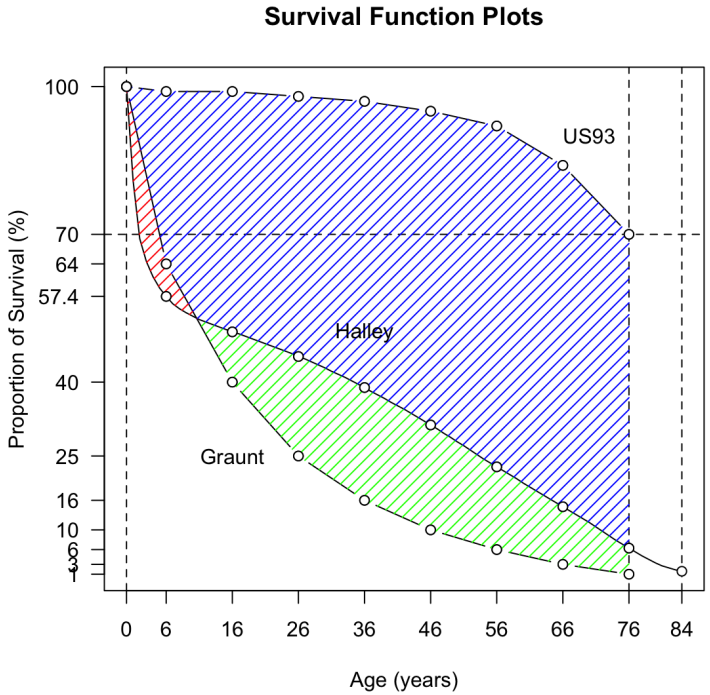
age	lx	xPo	age	lx	xPo
0	1238	100.0	75	88	7.1
1	1000	80.8	76	78	6.3
2	855	69.1	77	68	5.5
3	798	64.5	78	58	4.7
4	760	61.4	79	50	4.0
5	732	59.1	80	41	3.3
6	710	57.4	81	34	2.7
7	692	55.9	82	28	2.3
8	680	54.9	83	23	1.9
9	670	54.1	84	20	1.6

Graunt and Halley



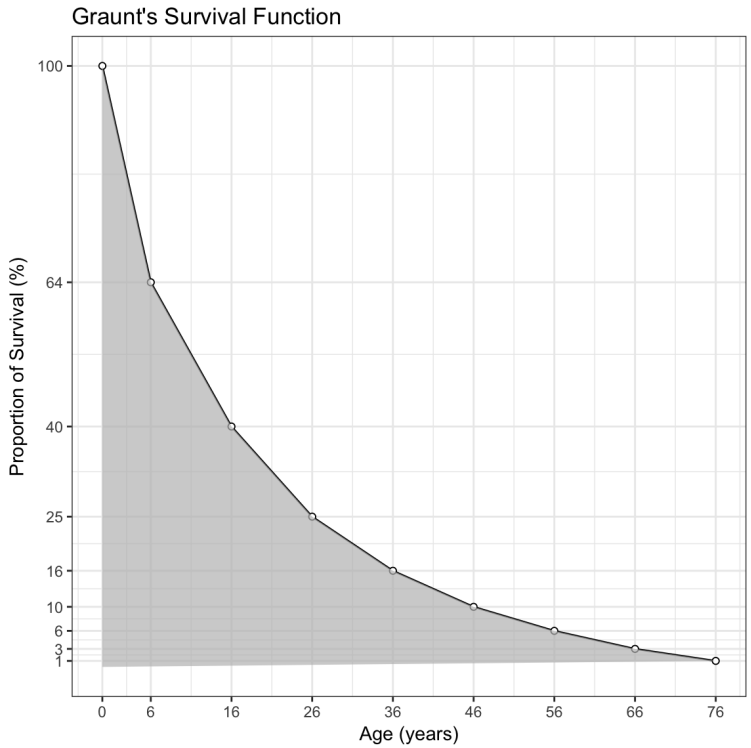
Compute the difference of life expectancies, Halley's is 27.872 (years), and Graunt's is 18.17 (years).

Graunt, Halley, and US 1993

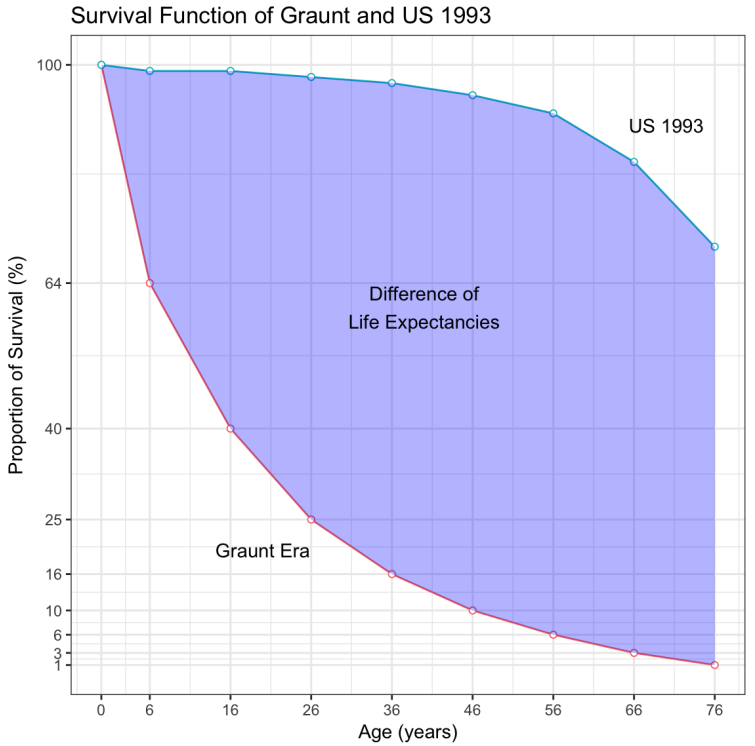


ggplot

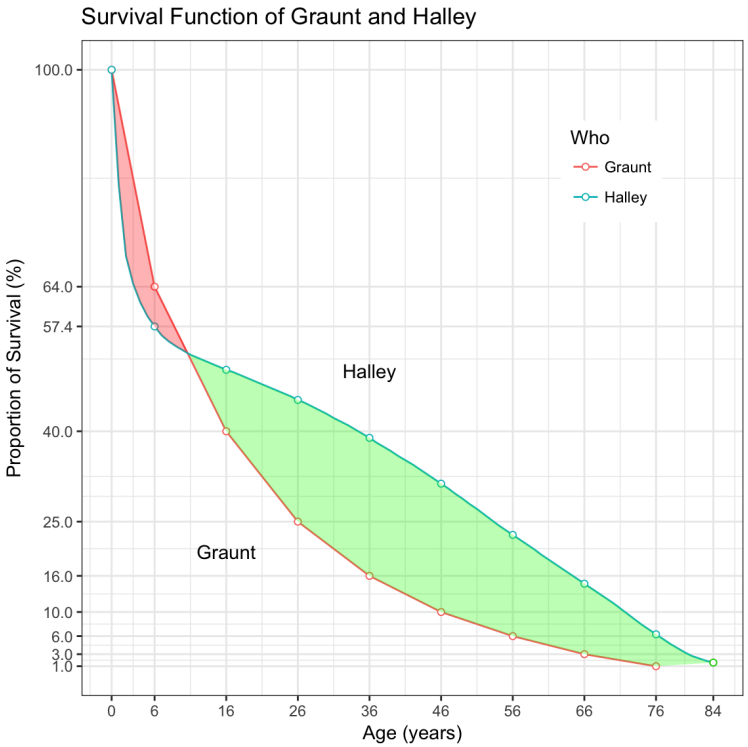
Graunt



Graunt and US 1993



Graunt and Halley



Graunt, Halley, and US93