Regular Versus Random Schedules [nln40]

Consider a bus company serving a given bus stop. There are good days and bad days, mostly related to weather.

Buses arrive at the bus stop

- regularly at intervals $t_n - t_{n-1} = \tau$ on a good day,
- randomly at average intervals $\langle t_n - t_{n-1} \rangle = \tau$ on a bad day.

How does this affect passengers A who know the schedule and passengers B who do not know the schedule?

- On a good day, passengers A do not have to wait if they plan well. Passengers B wait half the interval, on average.

$$T_A = 0, \qquad T_B = \frac{\tau}{2}.$$

- On a bad day, the schedule is useless. Passengers A and B wait the same time on average. The average waiting time is

$$T_A = T_B = \tau.$$

The analysis is postponed to

▷ [nln10] Exponential distribution
▷ [nln11] Waiting time problem
▷ [nex18] Random bus schedule