

Point processes

definitions, displays, examples, representations,
algebra, linear quantities

Point process data

points along the line

radioactive emissions, nerve cell firings, wildfires, accidents,

...

Describe by: a) $0 \leq \tau_1 < \tau_2 < \dots < \tau_N < T$ in $[0, T)$

b) $N(t) = \#\{j \mid 0 \leq \tau_j < t\}$, a step function

c) counting measure $N(I) = \int dN(t)$

d) $Y_0 = \tau_1, Y_1 = \tau_2 - \tau_1, \dots, Y_{N-1} = \tau_N - \tau_{N-1}$

intervals ≥ 0

e) $Y(t) = \sum_j \delta(t - \tau_j) = dN(t)/dt$

$\delta(\cdot)$: Dirac delta function definition later

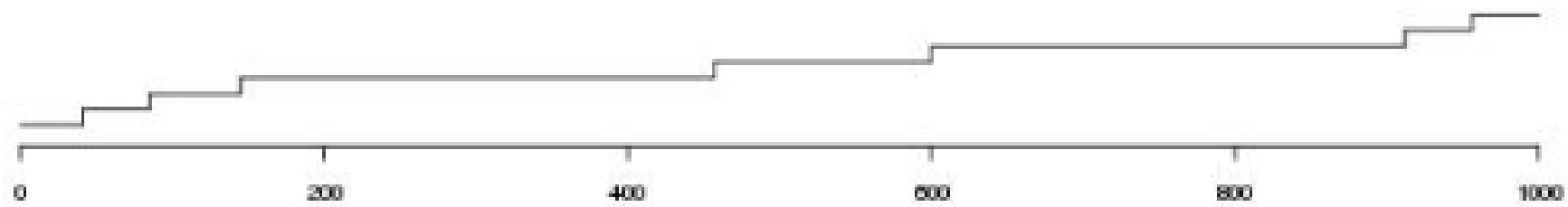
Data displays

cat data

Auditory neuron



$N(t)$



Intervals

