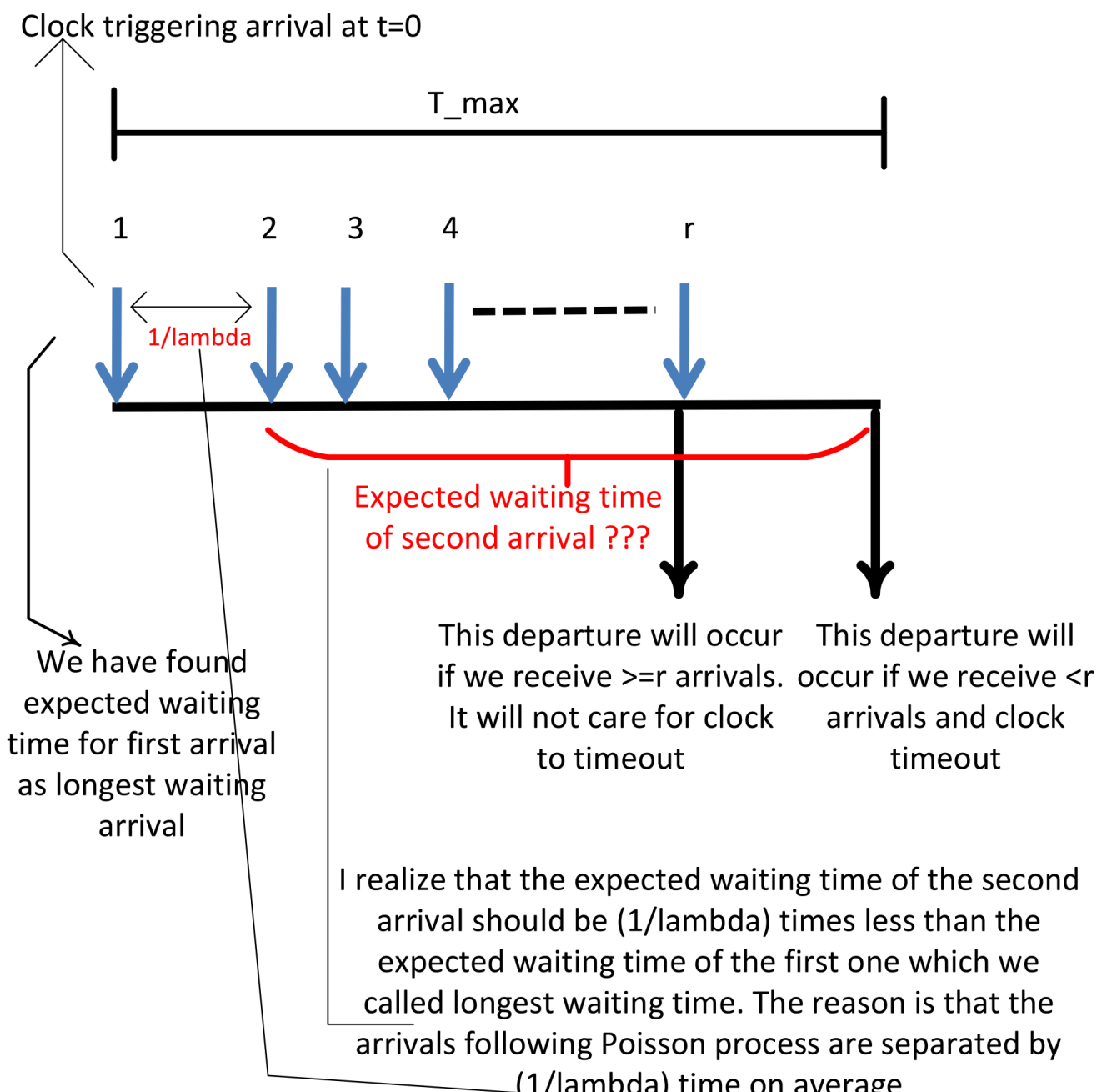
Clock triggering arrival at t=0
T_max
1
2
3
4
r
1/lambda
Expected waiting time of second arrival ???
This departure will occur if we receive >=r arrivals. It will not care for clock to timeout
This departure will occur if we receive <r arrivals and clock timeout
We have found expected waiting time for first arrival as longest waiting arrival
I realize that the expected waiting time of the second arrival should be (1/lambda) times less than the expected waiting time of the first one which we called longest waiting time. The reason is that the arrivals following Poisson process are separated by (1/lambda) time on average