W

EE 597 July 13, 2016

About the midterm exam:

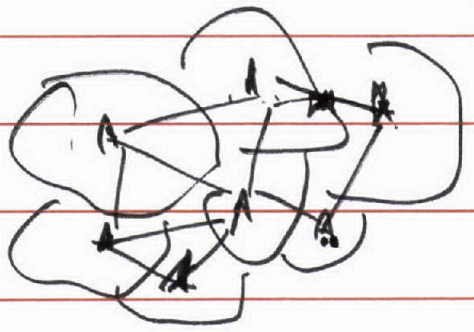
Q2 & Q3

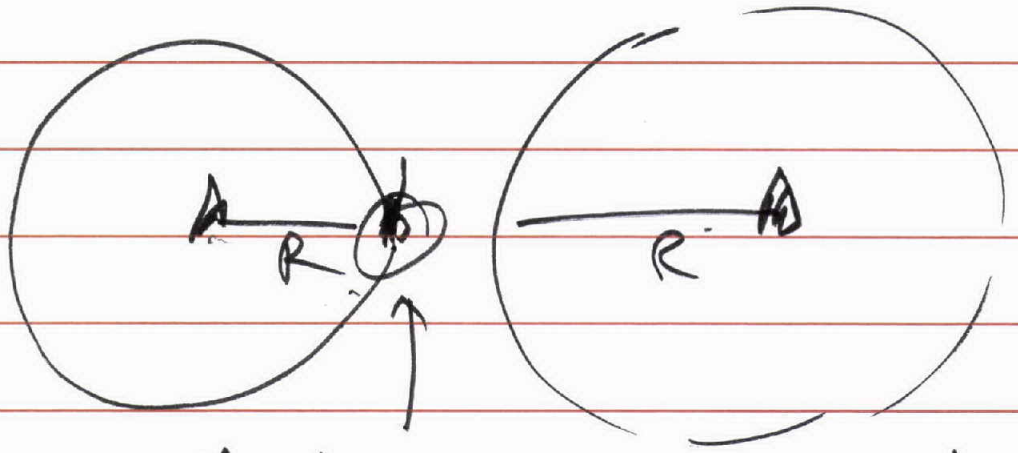
↳ involved modeling of the problem
- identifying relevant expressions or conditions
- formulating the optimization problem
- stochastic channels.

needs the 503 prereq.

Why do we bring in Probability into Wireless Networks?
How much do we really need?

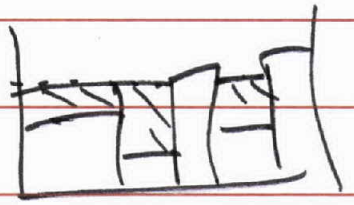
E.g.: (log normal fading) ← channel quality is random





cell-Edge user experiencing the lowest SINR

Waterfilling:



only suitable for slow fading channels.

For fast fading, the (s/n) ratios will be (stochastically varying)

Time constant of change determins whether we can solve the problem as a classical/deterministic optimization problem or as a probabilistic/stochastic optimization problem.

typically: given some variable that has a distribution, & the performance objective depends on 'it'. Goal: max the Expected Performance.

i.e it is unknown/has uncertainty.