ltccprob3.tex
Week 3 17 November 2014

PROBLEMS 3

Q1. Analyze the 'doubling strategy': when betting on tossing a fair coin, respond to losing by doubling the stakes.

Q2. We bet on independent tosses of a fair coin. Our strategy is to bet until we are first ahead, and then quit. Let T be the time we quit (a stopping time). Show that:
(i) $T < \infty$ a.s.: we are certain of achieving a net gain of +1 eventually;
(ii) $ET = +\infty$: the mean waiting time till this happens is infinite;
(iii) No bound can be imposed on our maximum net loss before we realize our certain eventual net profit.

Recommended Reading: Grimmett & Stirzaker [**GS**], §5.2.

NHB