

Gambler's Ruin

- Take two players: Alice and Bob
 - Flip a coin.
 - If H , Alice gets \$1 from Bob.
 - If T , Bob gets \$1 from Alice.
 - Seems fair...
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- Say Alice starts with $\$x$ and Bob starts with $\$y$;
 - They play until someone runs out of money;
 - What's the probability that Alice wins it all?