Chapter 12
Sequential games: Moral hazard Incentives And Hungry Lions

We consider games in which players move sequentially rather than simultaneously, starting with a game involving a borrower and a lender. We analyze the game using "backward induction." The game features moral hazard: the borrower will not repay a large loan. We discuss possible remedies for this kind of problem. One remedy involves incentive design: writing contracts that give the borrower an incentive to repay. Another involves commitment strategies; in this case providing collateral. We consider other commitment strategies such as burning boats. But the key lesson of the day is the idea of backward induction.

Cash in the hat
Player 1 can put $0, $1 or $3 in a hat.
The hat is passed to player 2.
Player 2 can match the value in hat or can take the cash.
Payoffs for player 1
If they put $0 then they get $0.
If they put $1 and it's matched, then they get $2, $-1 if not.
If they put $3 and it's matched, then they get $6, $-3 if not.
Payoffs for player 2
Net $1.5 if match $1.
Net $3 if match $3.
The $ in the hat if takes.

Sequential Move Game
Player 2 knows player 1's choice before 2 chooses.
Player 1 knows that this will be the case.
Anticipate the other player. Look forward to the end of the tree and work back. Backward induction.

Moral hazard
In Cash in the hat game, we kept the size of loan small to reduce the temptation to cheat.
Incentive design: Smaller share of a larger pie can be bigger than a large share of a smaller pie
Examples. Piece rates, Sharecropping.
Collateral lowers your payoff (if you do not repay) but it leads to you being better off. It changes the choices of others in a way that helps you. It is a commitment strategy.