Why do peacocks have tails?

Private information = something one side knows and the other cannot see · **signal** = a costly action that shows it · believable **only if** it costs the weaker type more · extra pay between the two costs → **separating** · above both → **pooling**, says nothing.

1 Private information

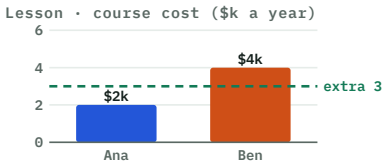
who knows what

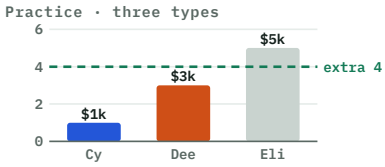
- **Your move**: same grades and work experience, one did a hard course unrelated to the job → who do you hire? (never graded or stored)
- **Private information**: "something one side knows and the other cannot see" · Ana learns fast, Ben takes longer · each knows · the firm does **not**
- Hard course → costs Ana **$2k** · Ben **$4k** (a year, in effort and time) · firm pays **$3k extra** to anyone with it
- **Rule**: take it only if extra pay > own cost · **gain** = extra pay – cost · Ana `3 – 2 = +$1k`

2 A signal that sorts

separating equilibrium

- **Signal**: "a costly action that shows something the other side cannot see"
- Extra $3k → Ana +1 takes it · Ben `3 – 4 = –1` skips it ⇒ only fast learners have it → firm's guess right · nobody wants to change choice → **equilibrium** (Lesson 2)
- **Separating equilibrium**: "the two types of person (here fast and slow learners) choose differently, so the choice reveals the type" · works for extra pay **above Ana's cost, below Ben's** ($2k–$4k)
- **Michael Spence**: American economist · "Job Market Signaling" **1973** · a degree can signal ability even if it teaches nothing · Nobel **2001** (with Akerlof, Stiglitz, US economists: markets where one side knows more)
- Practice · certificate Cy $1k · Dee $3k · extra $2k → only Cy (+1 / –1) · sorts for $1k–$3k · at $4k both → pooling
- Practice · three types Cy 1 · Dee 3 · Eli 5 · extra **$4k** → Cy +3, Dee +1, Eli –1 → "Cy or Dee, **not** Eli" (sorts into groups)

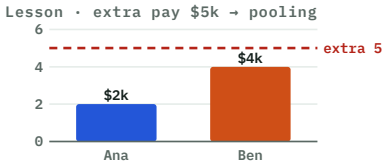




3 When it says nothing

pooling equilibrium

- Extra **$5k** → Ana +3 · Ben +1 → **both** take it → the course tells the firm nothing
- **Pooling equilibrium**: "both types choose the same, so the choice reveals nothing"
- Chain: extra pay above both costs → slower learners take it too → everyone has it → tells nothing
- Practice · **diploma race**: Ana and Ben equally able, one job worth $4k, firm hires the one with the course (tie → coin, half on average), course costs $1k, teaches nothing → course **dominant** = best whatever the other does (3 > 2, 1 > 0) → **1 / 1** though 2 / 2 better for both (Lesson 1's trap: prisoner's dilemma) · firm learns nothing



PRACTICE · DIPLOMA RACE · GAIN $K

	Ben Skip	Ben Course
Ana Skip	2 / 2	0 / 3
Ana Course	3 / 0	1 / 1

4 Signals everywhere

tail · warranty · savings

- **Handicap principle**: **Amotz Zahavi**, Israeli biologist (1928–2017), **1975** · a costly trait = believable sign of quality · only a strong peacock survives with a heavy, bright tail · biologists still debate how much it explains
- **Warranty** (free repairs) → poor maker pays for many repairs → only a good maker can afford it · practice: per 100 phones, repairs 10 vs 50 × $40 → **$400** vs **$2,000** · buyers pay $10 more a phone = $1,000 → good **+$600**, poor –$1,000 → only good offers it · per phone $4 vs $20 → at $25 more both offer it → says nothing
- Also: a very costly ad ("we plan to be here") · a founder's own savings in the startup · money back, pay after inspection
- **Cheap talk**: words that cost the same to anyone → prove nothing ("I am extremely hardworking", "Like new!")

5 Both sides

the cost of sorting

- Signal = a **cost** · if the course teaches nothing → society pays for the sorting
- Other side: without it, firms could not find the fast learners at all
- Finance Lesson 4 → what a degree pays on average · here → why it can pay even for what it does not teach · no verdict on what anyone should study

Watch out: a signal works because it is **costly for the weak type**, not because it is costly · cheap for everyone (words) → no signal · extra pay too high → everyone sends it → pooling · at exactly the cost a person only breaks even (gain $0)