Betting for the same team

Are you 100% sure?

Alistair Bird
Out Of The Norm Maths . wordpress . com
@OutOfTheNorm2

I’d like to have an argument

- Arguments are fun
- Even more fun if you **do** agree

All your Ram-Man...

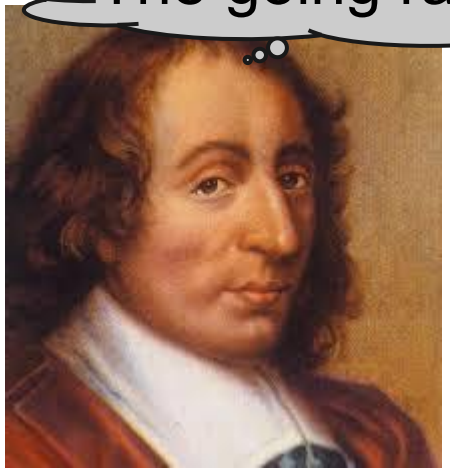
Fair trade

Blaise

Pierre

Fair trade

The going rate's £8



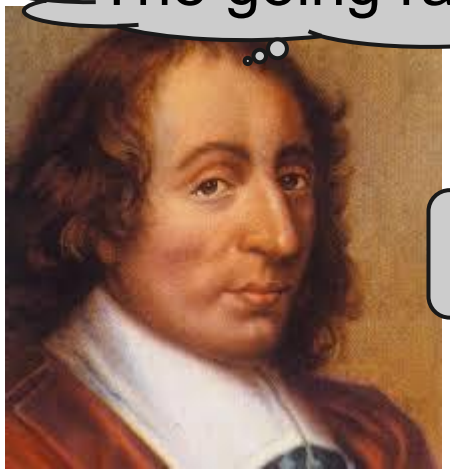
Blaise

I can get £12 elsewhere

Pierre

Fair trade

The going rate's £8



I can get £12 elsewhere

I'll buy your Ram-Man for £10

Deal!

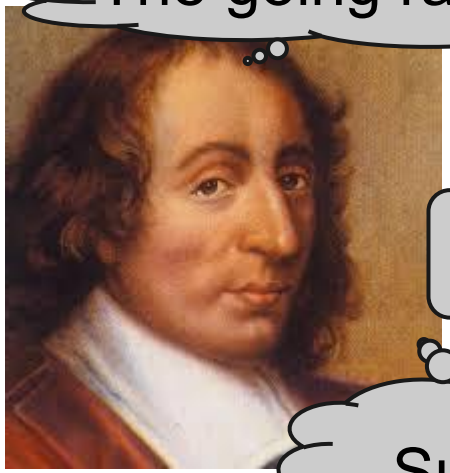
Blaise

Pierre

Fair trade

I can get £12 elsewhere

The going rate's £8



I'll buy your Ram-Man for £10

Deal!

Sucker!

Sucker!

Blaise

Pierre

Stalemate

Bet you a pound that United beats Rovers.

But I think United will win too.

Oh.

Blaise is 95% confident about United winning

85% sure **Pierre**

Against the odds

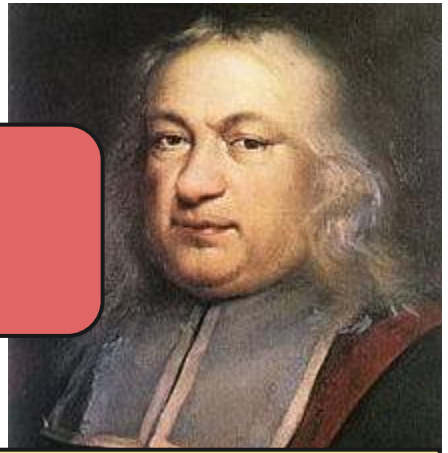
- A:B odds *for* United.
- B:A odds *against* Rovers
- 100A/(A+B)% chance of United winning

1:100 odds *for* Wales making first contact with “alternative life beings from another planet”.

United we fall

I'll bet you £1 that United wins.

I'll raise you: £2 to £1 for United winning.



Blaise has first mover advantage. 50% sure.

Other player can raise the odds. **Pierre** is over 66.6% confident.

Spot on

I'm pretty confident. I'll offer you £5 to £1 for United winning.

Blaise raises the payout by £3.

I think that sounds about right - I'm not raising to 6:1.

Blaise
95%

Pierre
85%

Spot on

I'm pretty confident. I'll offer you £5 to £1 for United winning.

£10 to £2 for United.

Right back at you. £15 to £3 for United.

Pierre can't raise stakes again, otherwise it would get stupid.

Blaise
95%

Pierre
85%

Spot on

I'm pretty confident. I'll offer you £5 to £1 for United winning.

£10 to £2 for United.

Right back at you. £15 to £3 for United.

Ok. £16 to £3.

£18 to £3

Hmm… I accept.

Blaise
95%

Pierre
85%

Betting average

If United wins, Pierre pays Blaise £3.
If United loses, Blaise must part with £18.

Blaise
95%

Pierre
85%

Betting average

If United wins, Pierre pays Blaise £3.
If United loses, Blaise must part with £18.

Blaise expects to make
0.95×£3 - 0.05×£18
= £1.95 on each bet.

Pierre expects to make
-0.85×£3 + 0.15×£18
= £0.15 on each bet.

Blaise
95%

Pierre
85%

Betting average

If United wins, Pierre pays Blaise £3.
If United loses, Blaise must part with £18.

Blaise expects to make
0.95×£3 - 0.05×£18
= £1.95 on each bet.

Pierre expects to make
-0.85×£3 + 0.15×£18
= £0.15 on each bet.

From his bets, now see:
3/(18+3) = 85.7% ≤ **Blaise**

3/(16+3) ≤ **Pierre** < 3/(18+3)
84.2% ≤ **Pierre** < 85.7%

Is that a fact?

Warning: Betting against your team may cause psychological damage.

Note: If you're on the spot, you can bet on objective facts:

- Is 1739 prime?
- Is Florida the closest US state to Africa?
- Is this the last slide?