

## Summary Video

Most people automatically assume that picking first is an advantage, but in life there are often examples where knowing what the other person has chosen is actually an advantage.

We are very conditioned to think of the world in terms of a linear transitive ordering, by which I mean if  $A$  always beats  $B$ , and  $B$  always beats  $C$ , then we automatically assume  $A$  always beats  $C$ . But this is simply not true, in maths or in life. Indeed, you've probably encountered an example before ... specifically, rock, paper, scissors! Let  $A$  be rock,  $B$  be scissors, and  $C$  be paper, then  $A$  beats  $B$ , and  $B$  beats  $C$ , but in fact  $C$  beats  $A$ !

Beyond the dice you've just been playing with, there are plenty of examples from the real world too. For instance, you might have four soccer teams that roughly correspond to our dice.

Team  $A$  has four solid strikers, but two defenders who might as well be on crutches. Team  $B$  is a team of average all-rounders. Team  $C$  has two amazing strikers, and four vaguely competent defenders. Lastly, Team  $D$  has three pretty good strikers, but three pretty hopeless defenders.

So despite our natural inclination to want to order everything around us, some things simply defy ordering!