NOTE: The mathematics of gambling

A book by Ed Thorp.

Here's my note and insights.

Overall review:

- We should find favorable games, and find moment with positive expectation.

Section 1: card games

Chapter 1: Introductory Statement

Most stuff have been covered in the other book "Beat the Dealer".

One of the fundamental reasons why "staking system" doesn't work is because the sum of negative expectation games is still negative.

Some important takeaways

- Total profit or loss have an average deviation from expectation of about $\sqrt{N}$
- $D = T - E$, where T is the actual gain or loss and E is the expected value.
- Misconception of "law of average" and the concept of action A
  - Action refers to the total bet times the amount of money betting
  - WRONG: People think E and T are approximately the same after a long series of bet.
  - It's the ratio that gets the same, "your total losses as a *percent* of your total action will tend to be very close to your total expectation as a *percent* of your action"
  - Fact: $|D|$ gets larger as A gets bigger.

Chapter 2: Blackjack

- Point count system
  - is to assign point values to each card which are proportional to the observed effects of deleting a "small quantity" of that card.

- Normalize by the number of remaining cards/ Ace counts (separated counting/ no counting)

- Cheating
  - Dealer can easily cheat by seeing the first card
    - Most dangerous thing the dealer can do is: just cheat a few times in an hour, ~10% of the time would do the job (since it's hard to detect)
  - Detection method mainly is to see the statistics of good cards sent to the dealer, hence, counting card is a valuable skill to detect cheating
  - Short Shoe. Mean missing card (taking cards out of the deck).

Chapter 3: Baccarat

Section 2: the wheels

Section 3: other games

Section 4: money management 💰