Stage 3 - What is measured in each part?

network_analysis_advanced file

1. Temporal Network Evolution

What:
You split all games into different time periods (like years), and for each period, build a network of who beat whom.
Why:
This shows how the structure of the chess community and player connections **change over time**—maybe some players/groups become more central, or new groups appear/disappear.

2. Edge Weights: Rivalries & Intensity

What:
You build a network where each edge's thickness shows **how often one player loses to another** ("rivalry intensity").
Why:
This highlights the **biggest rivalries**—which players compete most frequently, and who dominates those matchups.

3. Win Streaks & Influence Chains

What:
You try to find the **longest possible sequence** of "A beats B, B beats C, …", or (if impossible because of cycles), you find the **largest group of players where everyone can reach everyone else through wins/losses**.
Why:
This looks for **chains of influence** in the network, or close-knit competitive groups where wins/losses circulate among a set of players.

4. Network Metrics vs. Rating

What:
You measure how "influential" or "well-connected" each player is (using network centrality measures), and see if that connects to their **chess rating**.
Why:
To answer: Are top-rated players also the most "central" or influential in the player network, or do less central players sometimes have high ratings?

5. Player–Opening Bipartite Network

What:
You build a **two-layer network**: one layer is players, the other is openings (types of chess openings played). You link a player to each opening they play.
Why:
To find **clusters of players who like the same openings**, and to see if there are "communities" around certain styles or preferences in opening moves.

6. Opening-to-Opening Transition Network

What:
You look at **how players transition between openings** from one game to the next (e.g., "after playing Opening A, player often switches to Opening B next time").
Why:
This shows patterns in **opening preferences over time**—are there common sequences, or do players stick with the same opening, or frequently switch between a few?

network_analysis_basic file

1. A Network Graph Image

- **What:**
  An image (`top_player_network_communities.png`) that shows a graph (network) of the top chess players and how they're connected by wins/losses, with each player colored by their community.

- **How:**
  This is a visual diagram you can look at, not just text or numbers.
  It helps you see clusters/groups and which players are most connected.

2. A CSV Table of Centrality Rankings

- **What:**
  A CSV file (`player_centrality_ranking.csv`) listing every player with their calculated influence/importance in the network (centrality scores), and their assigned community.

- **How:**
  This is a text/table file you can open in Excel or Google Sheets to see the most influential and well-connected players, and which group each belongs to.