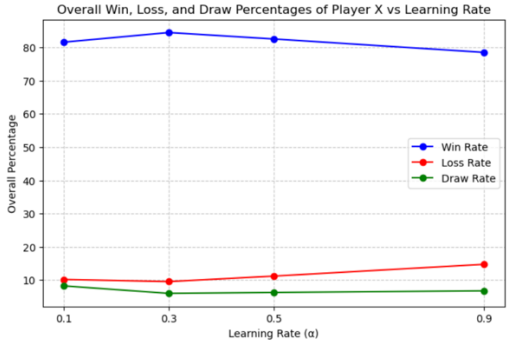
Analysis:

⇒ Draw = 0, Loss = 0, Win = 1 (Draw and losses are treated equally)

The agent does not explicitly try to avoid losses but only focuses on maximizing wins.



Why Does This Happen?

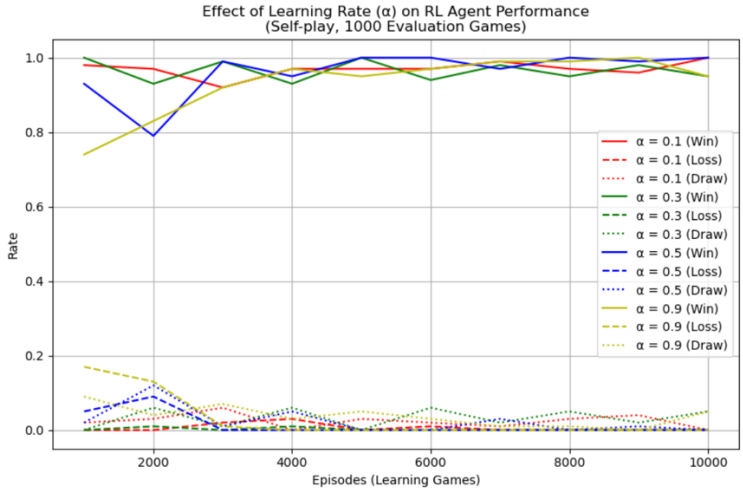
1) **Forgetting Past Learning:**
   - A high α (0.9) makes the agent forget past strategies and only rely on recent experiences.
   - This makes it less consistent, leading to more draws/losses.

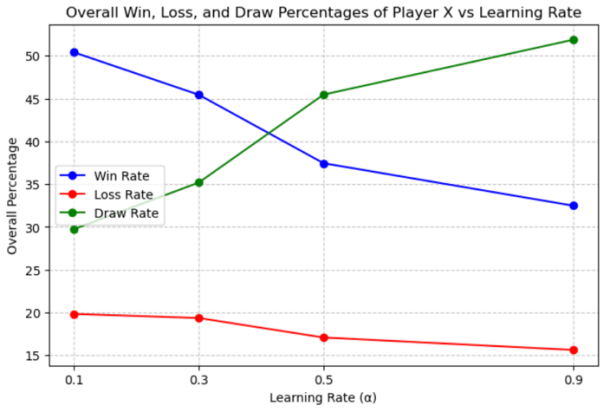
2) **No Difference Between Loss and Draw:**
   - Since Draw = Loss = 0, the agent does not try to avoid losing.
   - It does not learn defensive strategies, leading to more suboptimal moves.

3) **Overreacting to Recent Games:**
   - With lower α (0.1 - 0.3), the agent balances past and new knowledge.
   - With higher α (0.9), it overreacts to the latest games, leading to worse performance over time.

Since the agent treats draws and losses the same, it does not learn to avoid losing, causing more games to end in draws/losses at high learning rates.

⇒ Draw = 0, Loss = -0.5, Win = 1





Why Does This Happen?

1. Low Learning Rate (α = 0.1) → More Wins

- A low learning rate means the agent learns gradually.
- It retains past knowledge effectively, improving its strategy over time.
- Since it learns well, draws and losses remain low.

2. High Learning Rate (α = 0.9) → More Draws, Fewer Wins

- A high learning rate makes the agent adapt very quickly but also forget good strategies.
- At high learning rates, the agent forgets winning patterns and settles into safe moves that lead to draws.

3. Why is the Loss Rate Relatively Stable?

- The RL agent avoids losses by learning defensive moves.
- When Loss = -0.5, the agent prioritizes avoiding losses (penalty discouraging losing moves).
- If it cannot win, it prefers a draw over a loss.
- This explains why the loss rate does not rise sharply, while the draw rate does.