1. Description of the game

2. Policy:

$$\text{logits}_{\text{noop1}} = 1.10 - 0.54 y_{\text{agent},1} - 0.073 y_{\text{agent},2} + 0.55 y_{\text{agent},4} - 0.20 y_{\text{opponent},1}$$
$$- 0.50 y_{\text{opponent},2} - 0.32 y_{\text{opponent},3} - 0.19 y_{\text{opponent},4} + 0.27 y_{\text{agent},4}^2 + \text{squared terms}$$

$$\text{logits}_{\text{up1}} = 1.1 + 0.59 y_{\text{agent},1} y_{\text{agent},2} - 1.5 y_{\text{agent},4}^2 - 3.6 y_{\text{agent},4} + 0.068 y_{\text{opponent},3} + \text{squared terms}$$

$$\text{logits}_{\text{down1}} = -2.30 + 0.09 x_{\text{ball},3} + 0.12 x_{\text{ball},4} + 0.13 y_{\text{agent},2} + 0.43 y_{\text{agent},4} + 0.087 y_{\text{ball},3} + 0.15 y_{\text{ball},4}$$
$$+ 0.61 y_{\text{opponent},1} + 1.10 y_{\text{opponent},2} - 2.80 y_{\text{opponent},3} - 0.14 y_{\text{opponent},4} + \text{squared terms}$$

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- **When Chosen**: The 'noop' action is more likely when the agent's position is at certain points, especially in the most recent frame (frame 4), as indicated by positive coefficients like $0.27 y_{agent,4}^2$ and $0.55 y_{agent,4}$.
- **Influence of Opponent**: Negative coefficients involving the opponent's position across various frames suggest that the agent is less likely to choose 'noop' in response to specific movements of the opponent.

- **Interpretation**: This action seems to be favored when the agent is already in a position that does not require movement to hit or intercept the ball.

- **When Chosen**: The 'up' action is influenced by both the agent's and the opponent's historical positions. Positive coefficients like $0.59 y_{agent,1} y_{agent,2}$ indicate a higher likelihood of choosing 'up' based on past positions.
- **Agent's Current Position**: Strong negative coefficients for the agent's current position (frame 4), such as $-1.5 y_{agent,4}^2$ and $-3.6 y_{agent,4}$, suggest a lower likelihood of moving up if the agent is already lower down the screen.

- **Interpretation**: 'Up' is likely chosen as a corrective action when the agent is positioned lower, potentially to intercept or hit the ball.

- **When Chosen**: Similar to 'up', the 'down' action is contingent on both the agent's and opponent's positions. Positive coefficients like $0.43 y_{agent,4}$ and $1.1 y_{opponent,2}$ indicate a higher probability of choosing 'down'.
- **Ball's Position**: The ball's horizontal position also plays a role, although its impact is less pronounced.

- **Interpretation**: The 'down' action seems to be selected as a strategic move when the agent is higher up or when the opponent is in a position that necessitates moving down.