

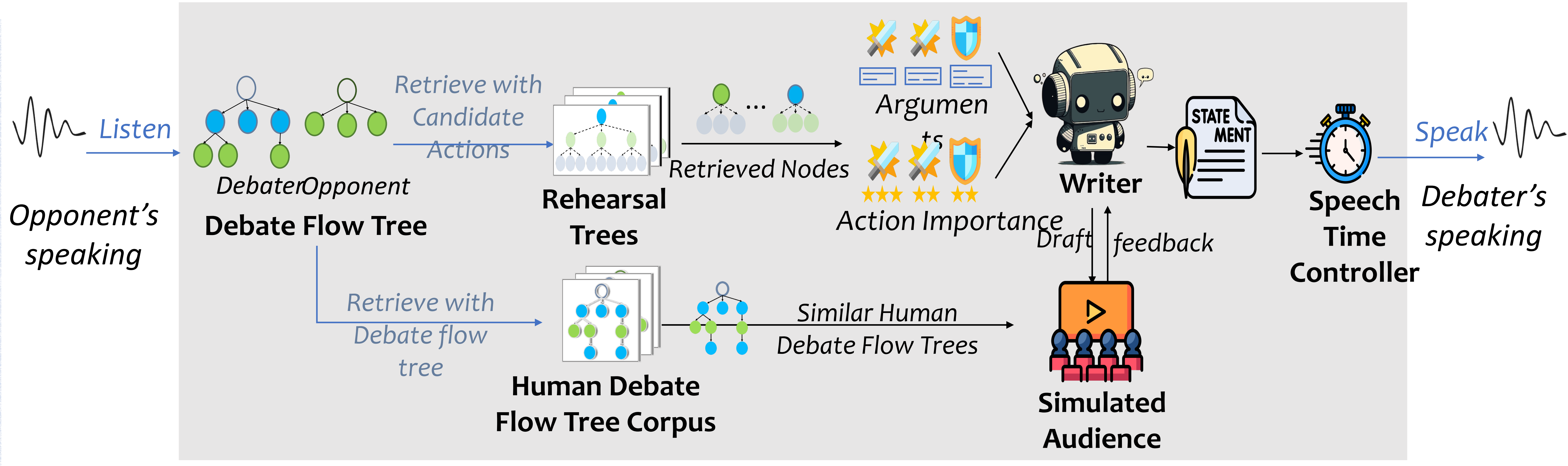
# Strategic Planning and Rationalizing on Trees Make LLMs Better Debaters

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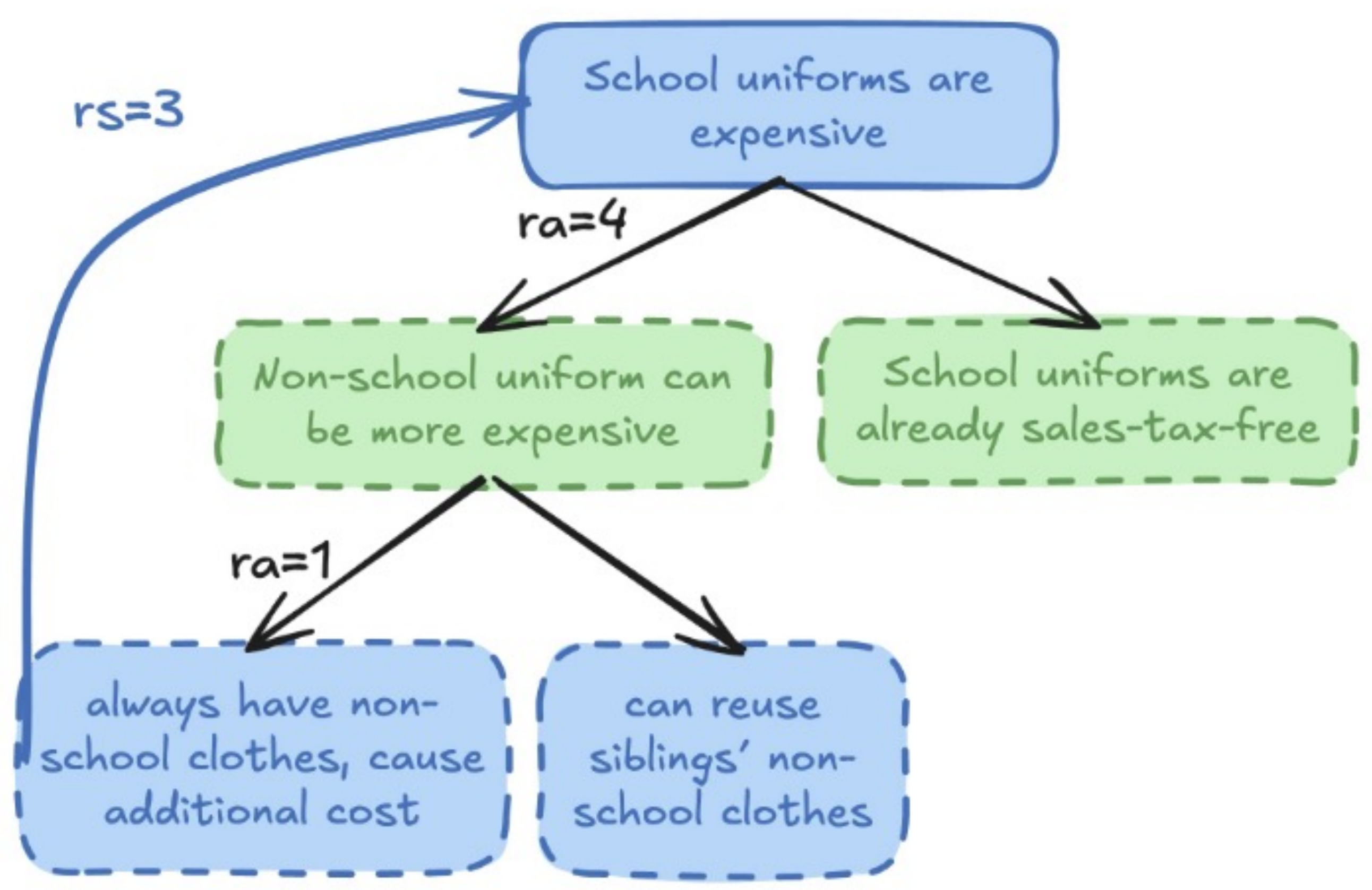
arXiv:2505.14886  
dqwang122.github.io/projects/Debate

## Unique Challenges in Competitive Debate

- ❖ Interactive Nature
  - Unlike reading a prepared speech, debate requires real-time response to challenges
- ❖ Time Constraint
  - Debaters must strategically choose their points and allocate time
- ❖ The winning rely on opponent and audience
  - ✓ How the debater defend themselves and attack the opponent
  - ✓ How the debater persuade the audience

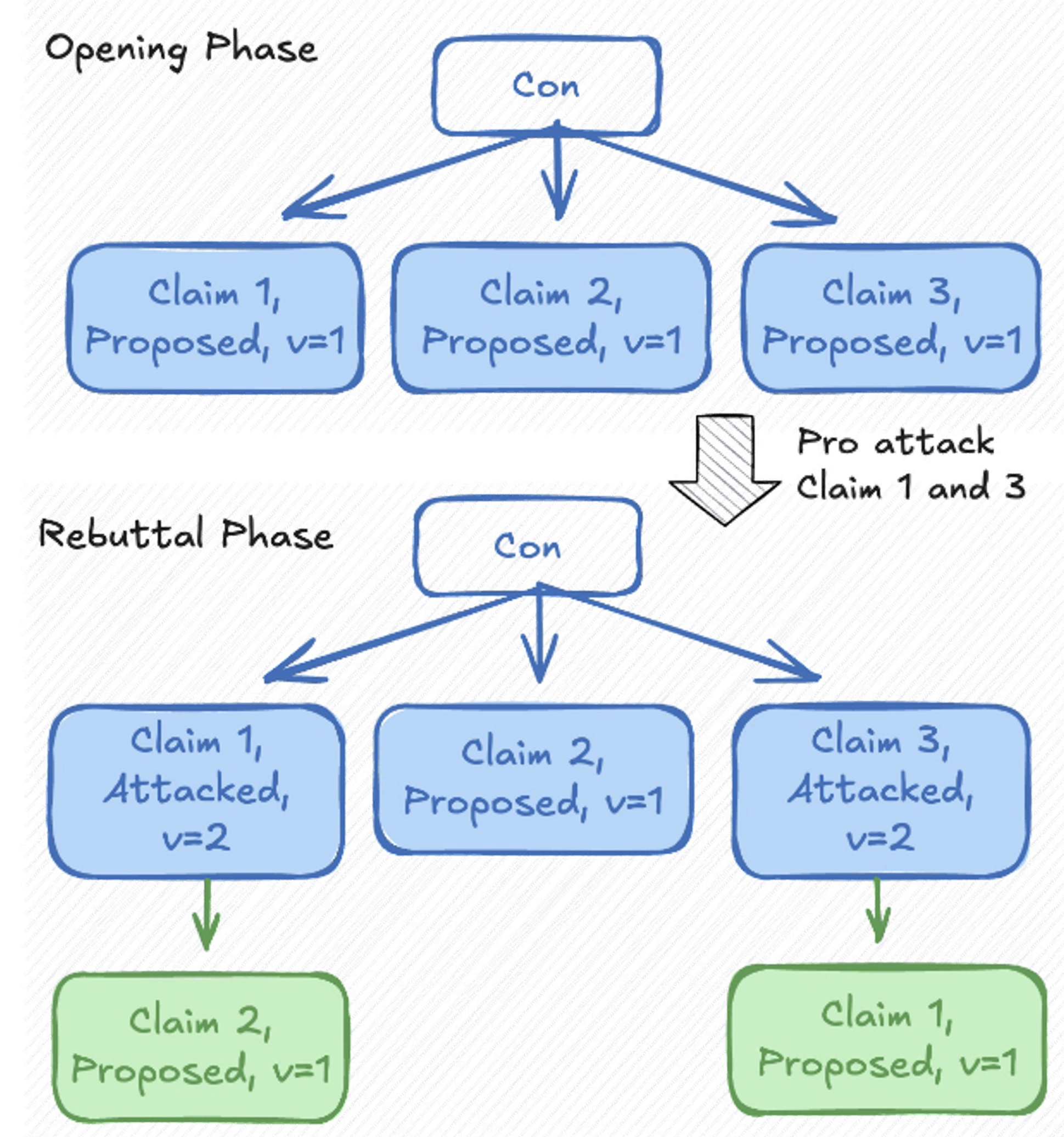


## Rehearsal Tree: $k$ -step Strength Score in a minimax style

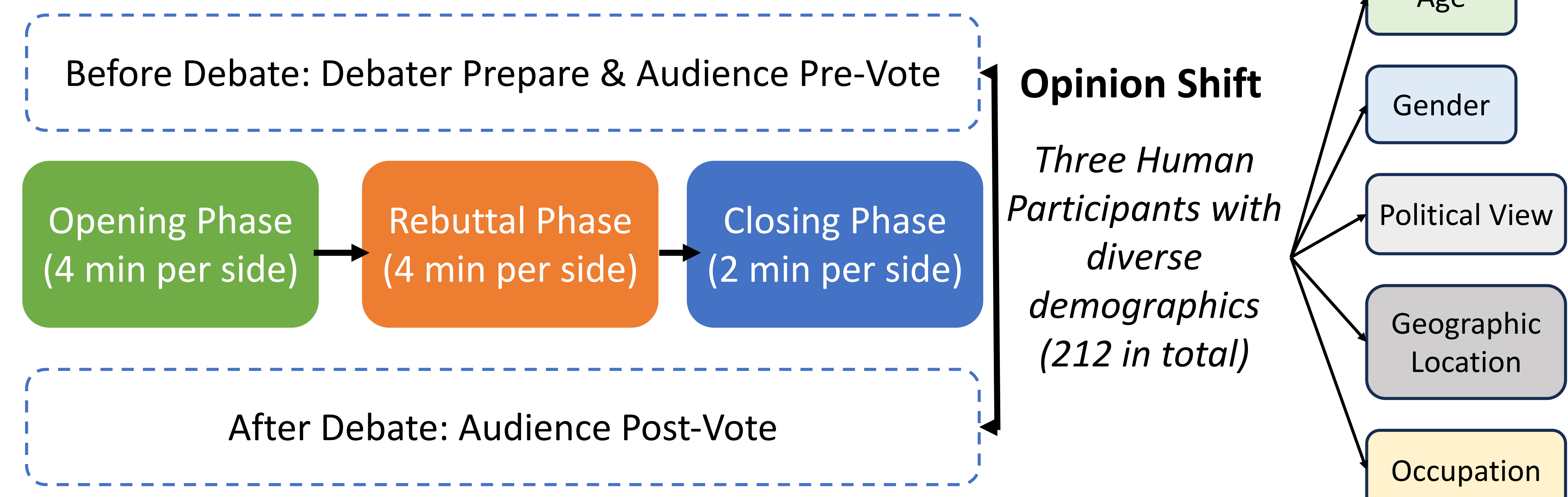


What's the payoff in the worst case  
=> my opponent is strong, but I will try my best

## Debate Flow Tree Update

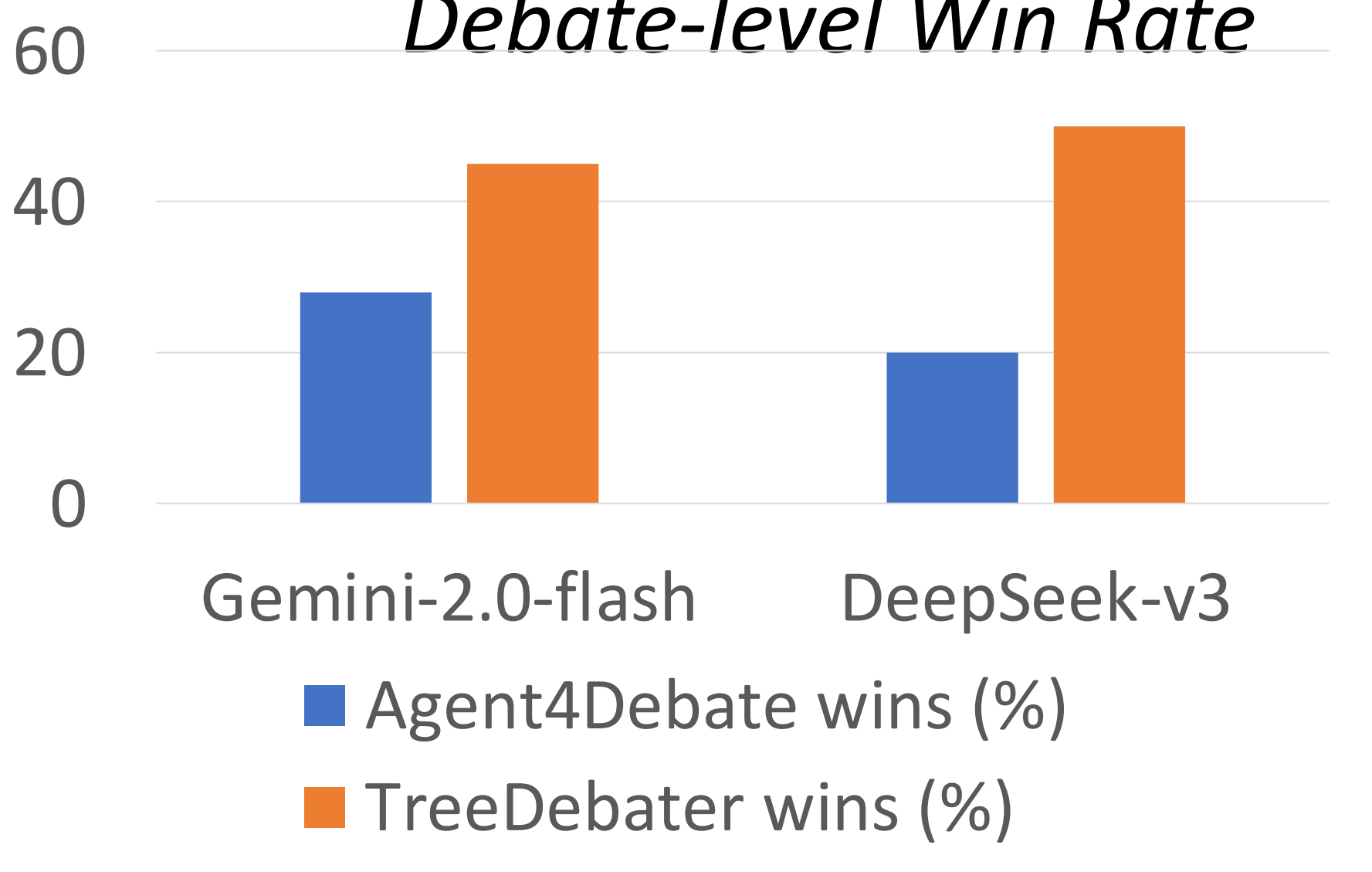


## Simplified Oxford-Style Competitive Debate



- Debate Flow Tree make diverse actions, aligning with humans.
- Rehearsal Tree anticipate the opponent's behaviors.
- Audience feedback shows TreeDebater has better logic flow and more good points and evidence

Human Evaluation: Debate-level Win Rate



Human Evaluation: Stage-level Persuasiveness

