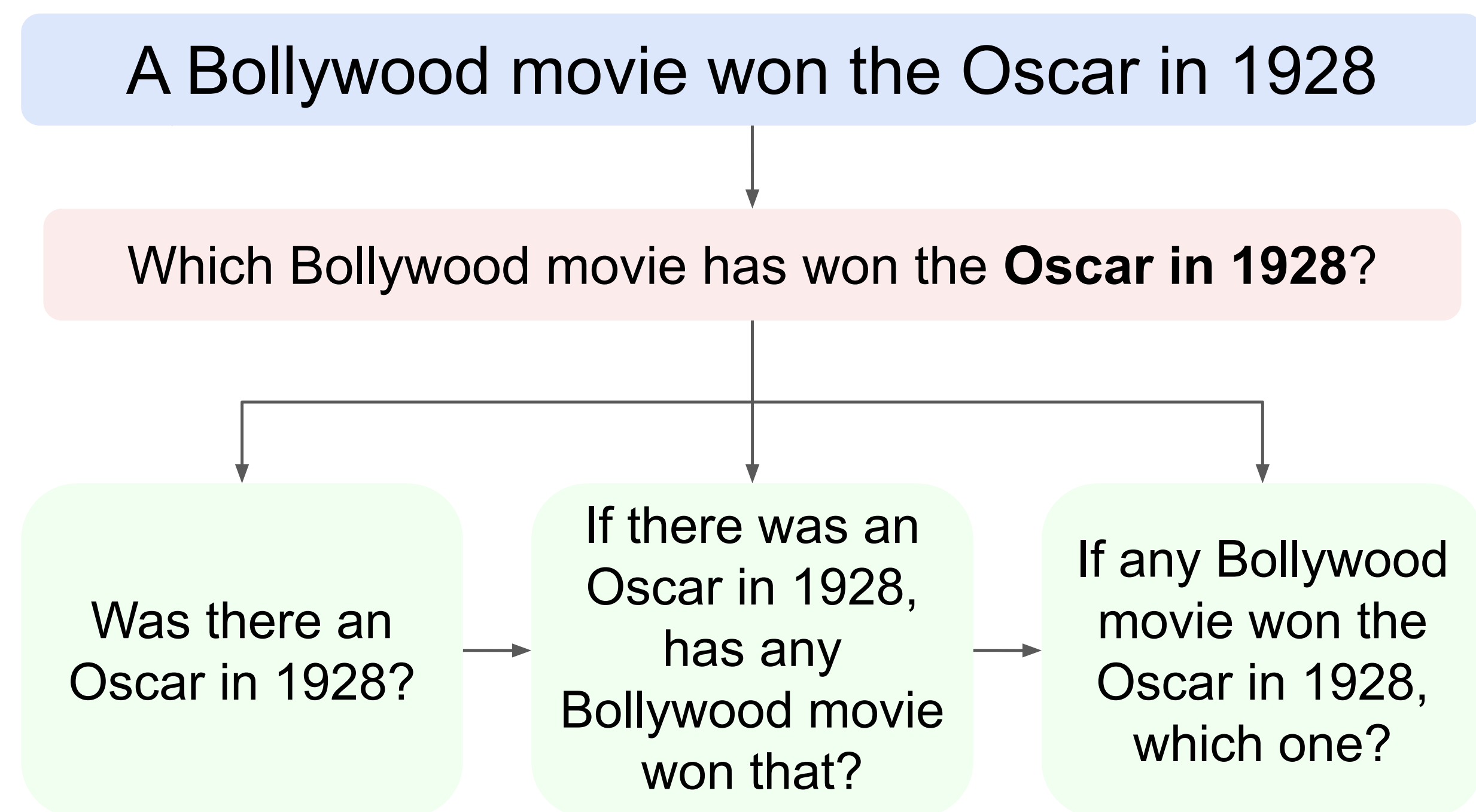




🤔🤔 Which Bollywood movie has won the Oscar in 1928? 🤔🤔

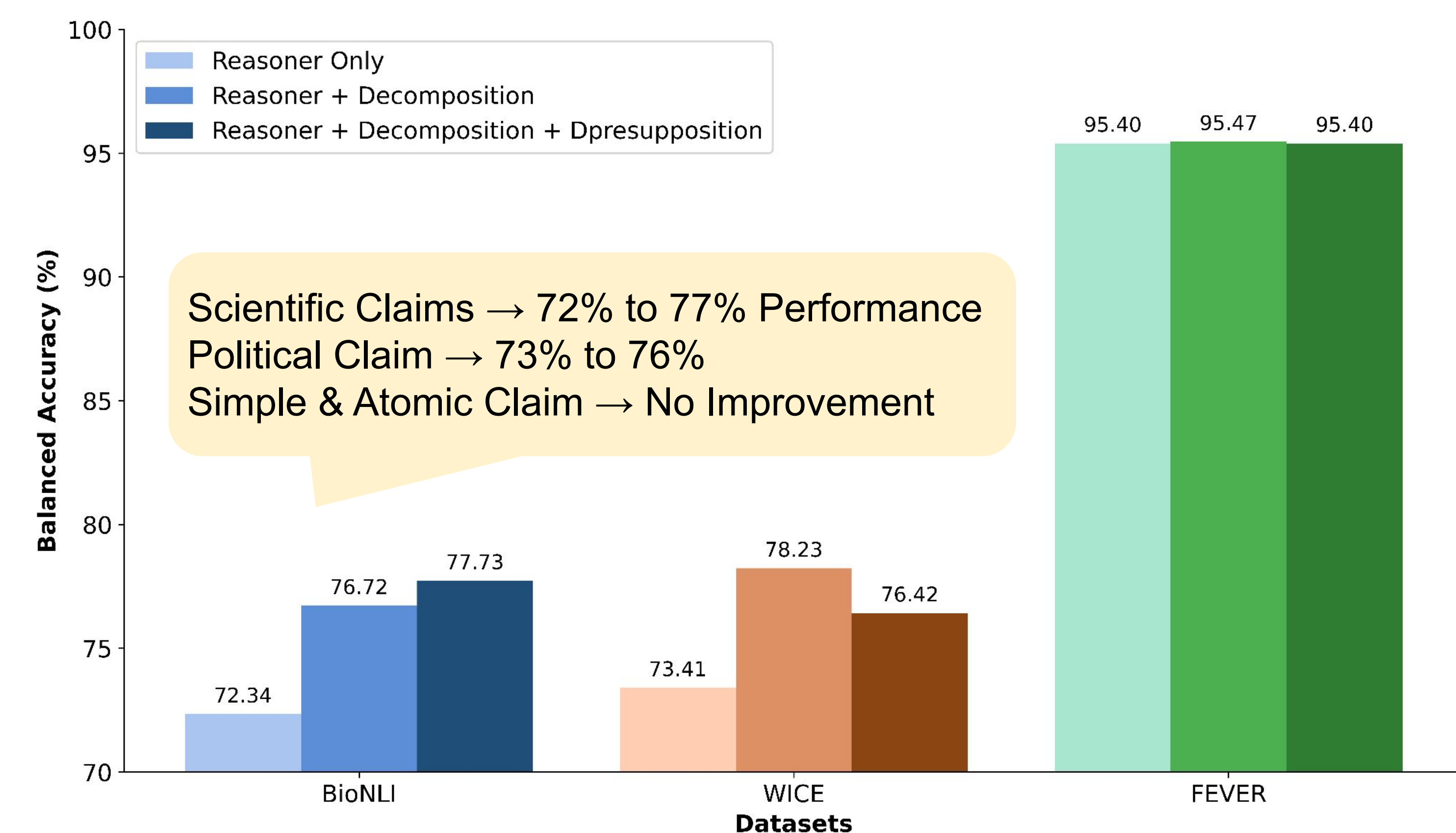
Claim → De-Presupposed Questions

First, We use LLM to decompose the claim into multiple salient questions.
Next, We broke those questions into supposition-free atomic questions.
Finally, we use those pre-supposition-free questions to guide the verifier.



Results

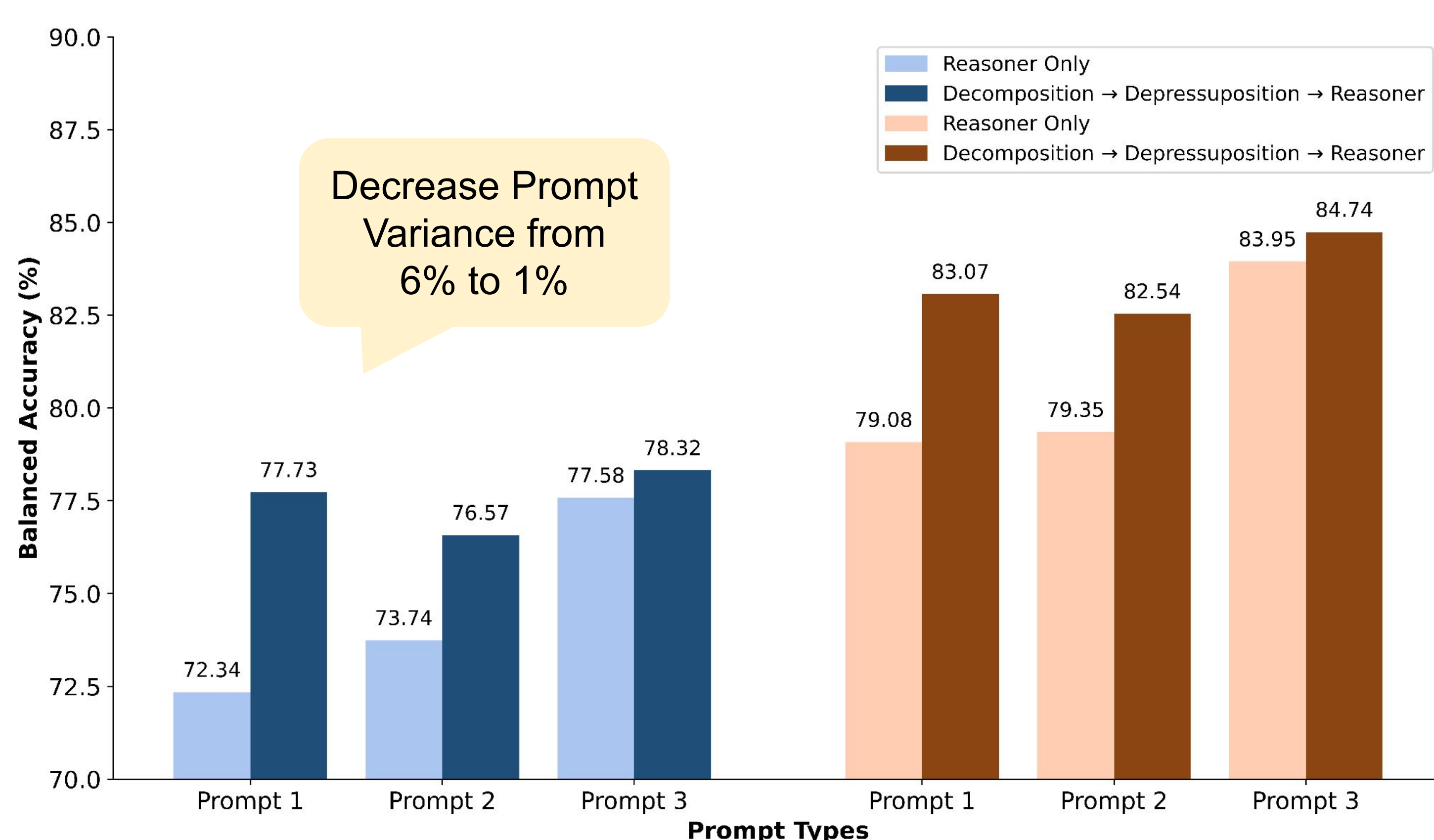
Takeaway 1: Gains Are Greatest on Complex, Multi-Hop Claims



Takeaway 2: Questions Don't Need Direct Answers

Method	Balanced Accuracy
Question → Answer → Reasoning	69
Question → De-Presupposition → Answer → Reasoning	71
Question → De-Presupposition → Reasoning	75

Takeaway 3: De-Presupposition Mitigates Prompt Variance



Motivation:

- LLMs are powerful but can be misled in two key ways during claim verification:
 - Presupposition of unverified facts (**Oscar in 1928**)
 - Prompt Sensitivity (up to **6% variance** across prompts)
- How can we tackle both of the issues?

Contribution:

- Presupposition-free atomic question decomposition pipeline
- Force reasoning to verify implicit assumptions first
- Mitigates prompt-variance
- Simple and Training-free, adoptable across models

Takeaway 4: De-Presupposition Helps to Cover Atomicity

Composer Model	Question Coverage
o4-mini	89.16
QwQ-32B	87.41

Error Analysis

