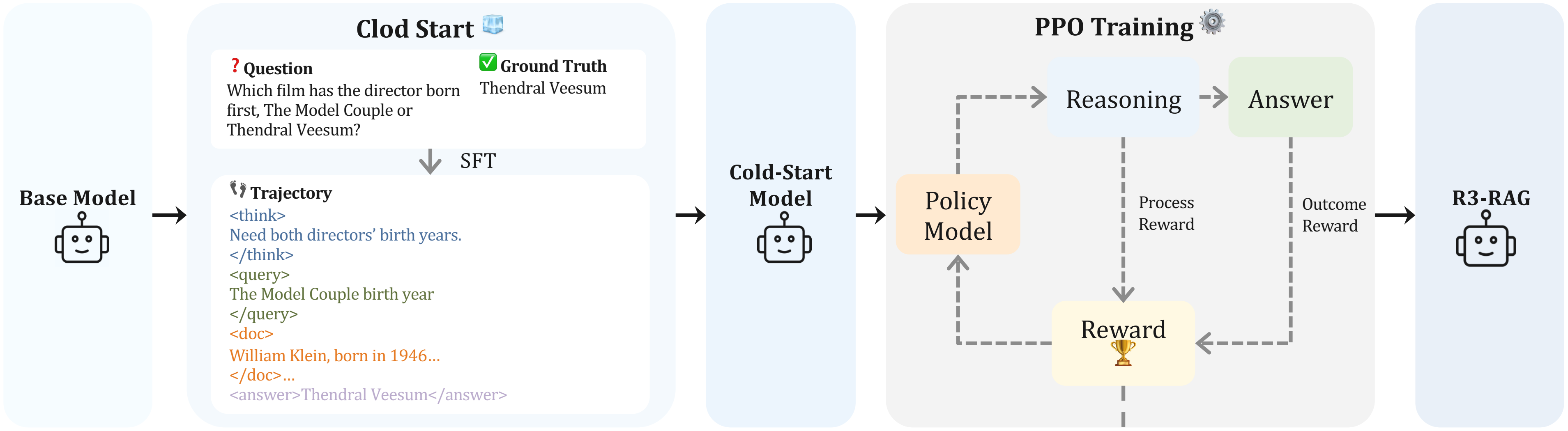
Training Pipeline



Question
Which film has the director born first, The Model Couple or Thendral Veesum?

Ground Truth
Thendral Veesum

Trajectory

```
<think>
Need both directors' birth years.
</think>
<query>
The Model Couple birth year
</query>
<doc>
William Klein, born in 1946...
</doc>...
<answer>Thendral Veesum</answer>
```

Reward Design

Process Rewards				Outcome Rewards	
Format		Retriever Result		Answer	
Trajectory 1	<think>...<query>...</ query > <doc>... </doc> ... ...</answer> Reward: 0	Trajectory 1	**Doc**: The Model Couple is by William Klein... Reward: 0.8	Trajectory 1	Thendral Veesum's director was born earlier. Reward: 2
Trajectory 2	<think>... <query>...</query> ... ...</query> Reward: -1	Trajectory 2	**Doc**: Willem Klein, born in ... Reward: 0.9	Trajectory 2	The Model Couple Reward: 0
Trajectory 3	<think>...<think> <query>...</query> <answer>...</answer> Reward: -1	Trajectory 3	**Doc**: ...a mathematician, was born in 4 December. Reward: 0.1	Trajectory 3	The Model Couple's director is older. Reward: 0
Format Verification	<think>...</think> <query>...</query> <doc>... </doc> <answer>...</answer>	Relevance Verification	🤖 → {Doc}	Answer Verification	Thendral Veesum