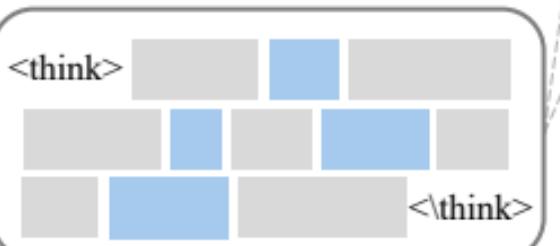
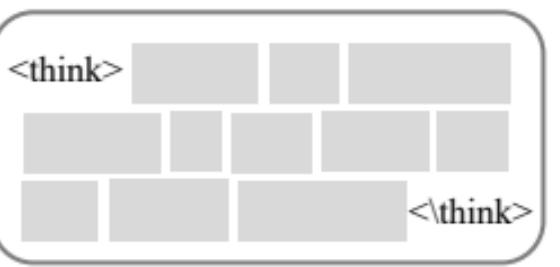


## I. Input

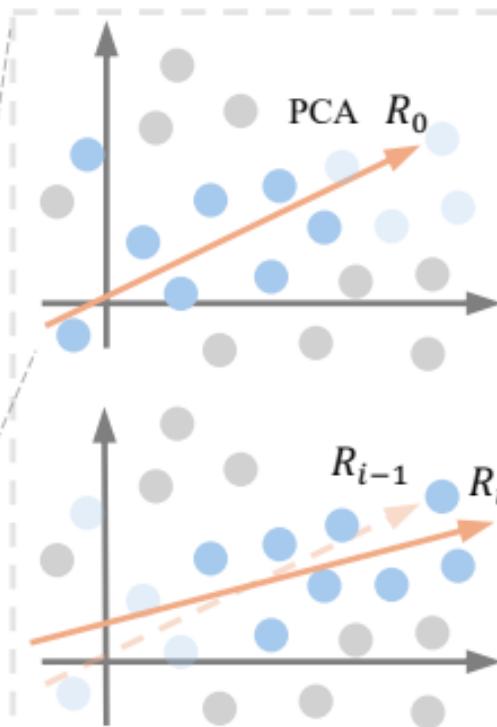
Prompt

RLLM

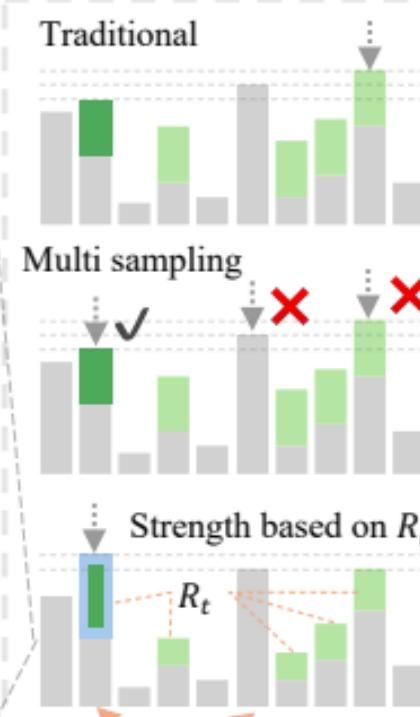
## II. Thinking Phase



## III. PSV

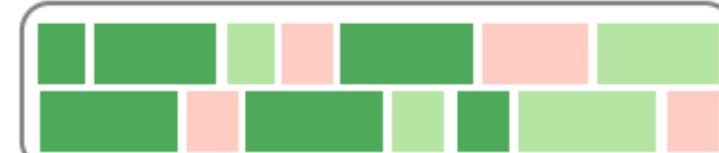


## IV. Watermark



## V. Answering Phase

Token-based



Semantic-based



ReasonMark



Normal Tokens

Critical Tokens

PSV  $R_t$ , where  $R_0$  Initialized with PCA

Semantically aligned

Disruptive Green Tokens

Coherent Green Tokens

Coherent Green Tokens  
Guided by Semantic Direction

Red Tokens

Semantic Guided Strength

Sampling One time

✗ ✓ Reject or Accept Sampling

Model Logits