Domain Collection → **Synthesize Multiple Q-A Pairs** → **Trajectory Verification** → **Env Synthesis** → **Env Merging**

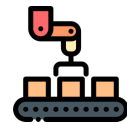Domain Collection: Economics, Sports, Shopping, Movies, Real estate, ...

Synthesize Multiple Q-A Pairs: Q → Q1, Q2 → Q3 → A
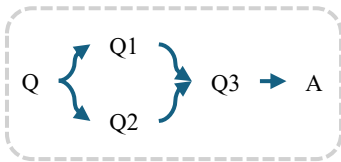
Trajectory Verification: Completeness, Dependency, Atomicity, ...

Multiple Q-A pairs

Q_0 → Q_1 | A_1, Q_2 | A_2
Q_1 | A_1 → Q_3 | A_3, Q_4 | A_4
Q_2 | A_2 → Q_5 | A_5
Q_6 | A_6 → A_0
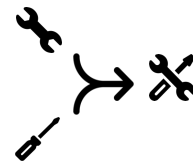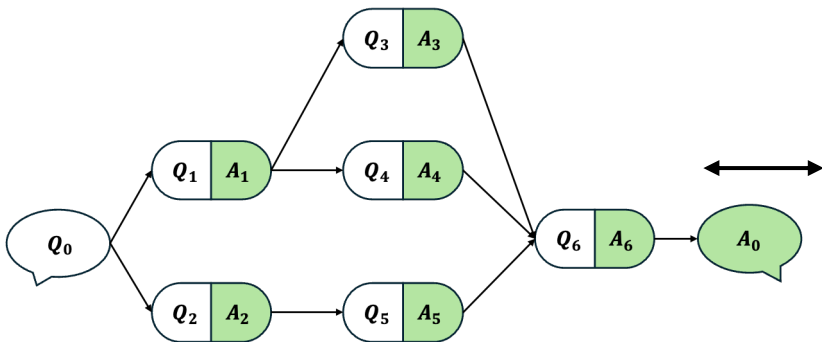
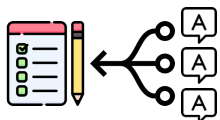**Q-A pairs DS**

- Node 1
  - hop_level: 1
  - dependency: []
  - sub_q: " What is …"
  - …
- Node 2
  - hop_level: 1
  - dependency: []
  - sub_q: " What is …"
  - …
…
- Node 6
  - hop_level: 3
  - dependency: [3, 4, 5]
  - sub_q: " How to …"
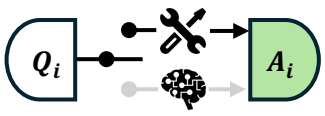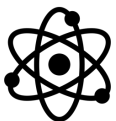 - …

Verification

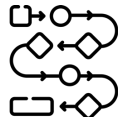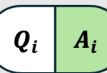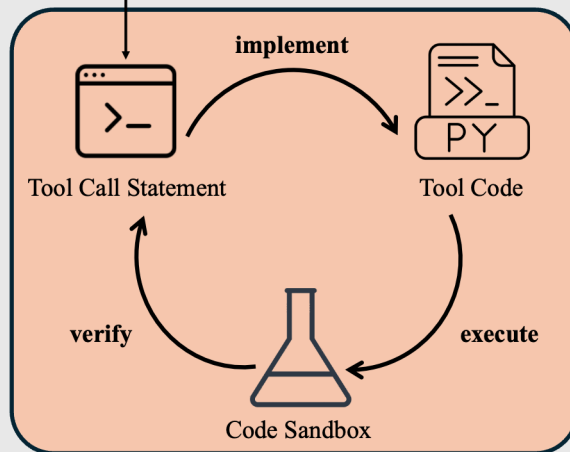completeness | dependency | necessity | atomicity | rationality

Q_i | A_i

Env Synthesis

Q_i | A_i → Tool Document → **Complexity Scaling** → Scaled Tool Document

Tool Call Statement — **implement** → Tool Code

verify — Code Sandbox — execute

Tool Code → Env_i

×N