

# Towards a Pattern-Based Ontology for Chemical Laboratory Procedures

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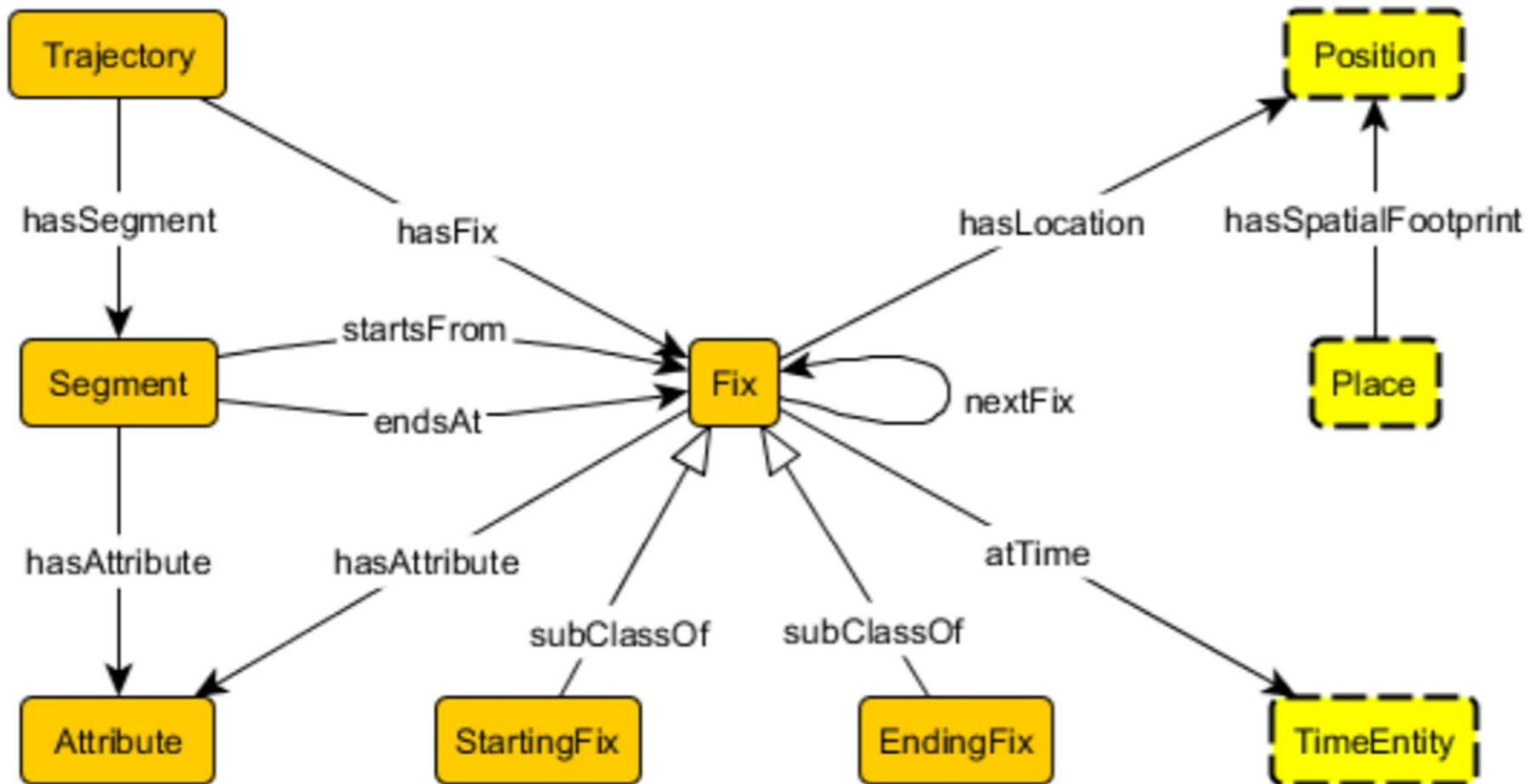
(1) Wright State University

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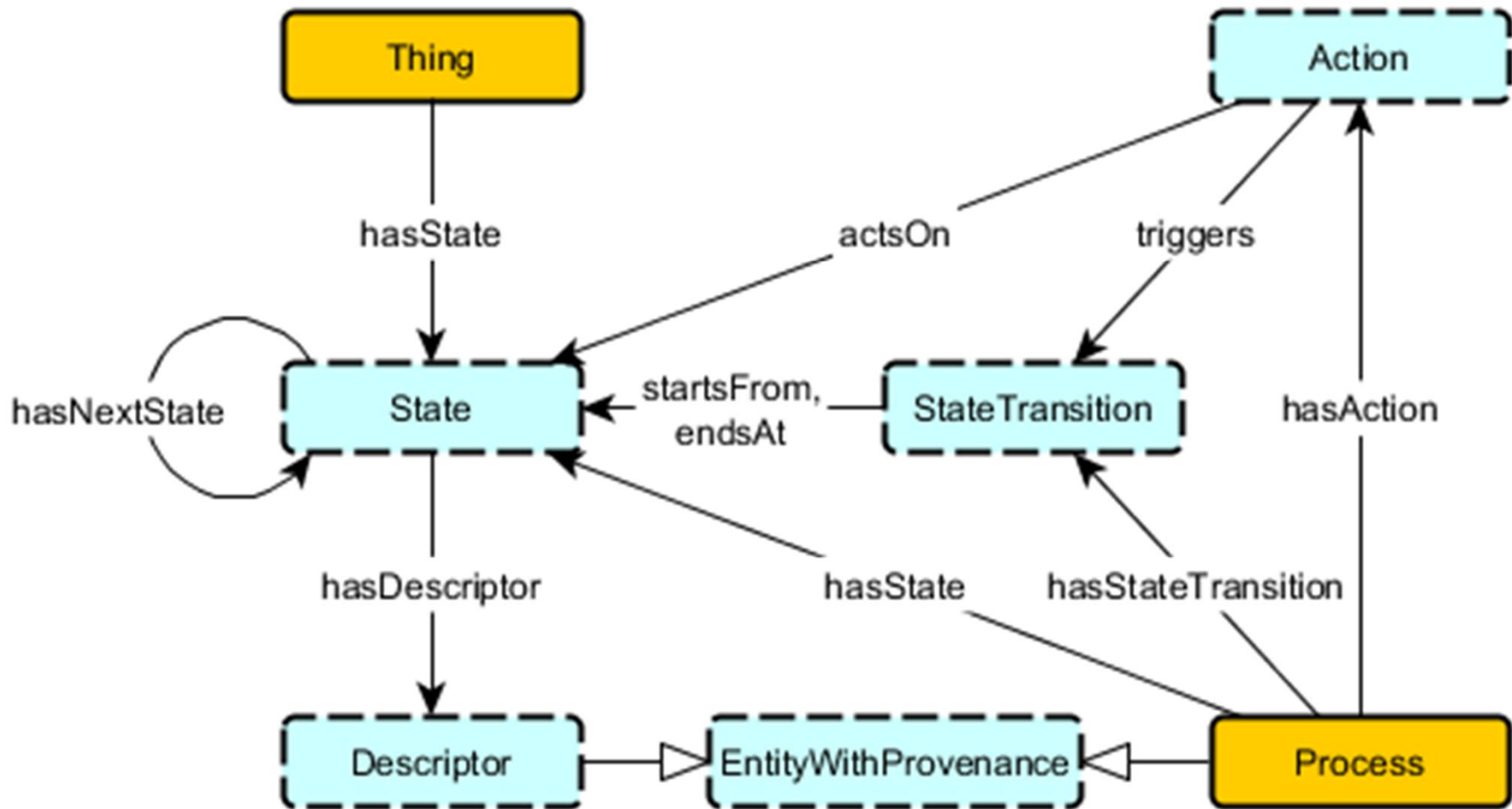
- Motivation
- The Ontology's Patterns
- A Worked Example
- Reflections & Future

- Risk Assessment
  - Data Fusion - Heterogeneous sources
- Post-Mortems
  - Incentivize and facilitate entering post-mortems into a system
- Student Use
  - Evaluate changes in procedure “on the fly.”

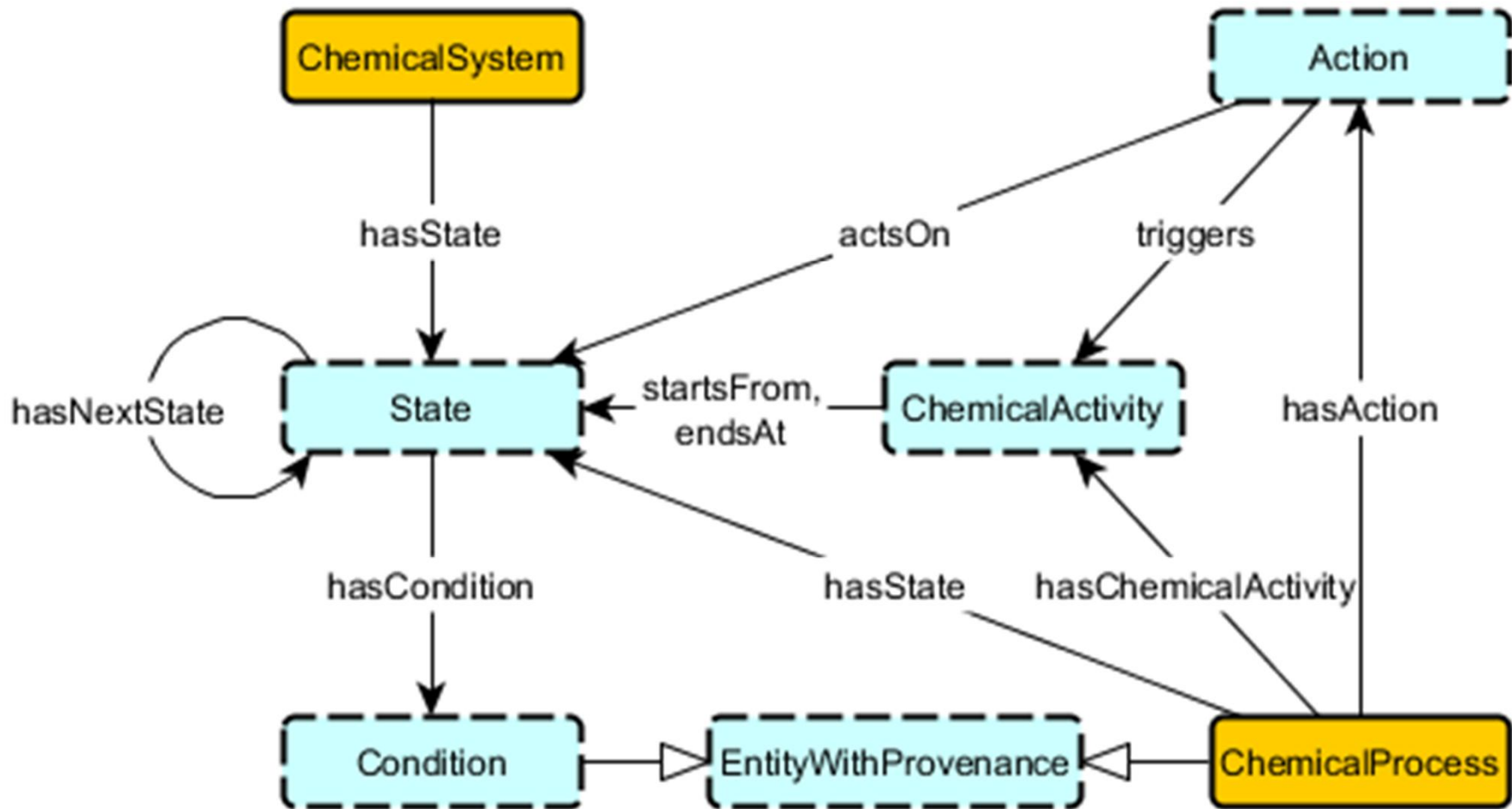
# Pattern Overview: Semantic Trajectory



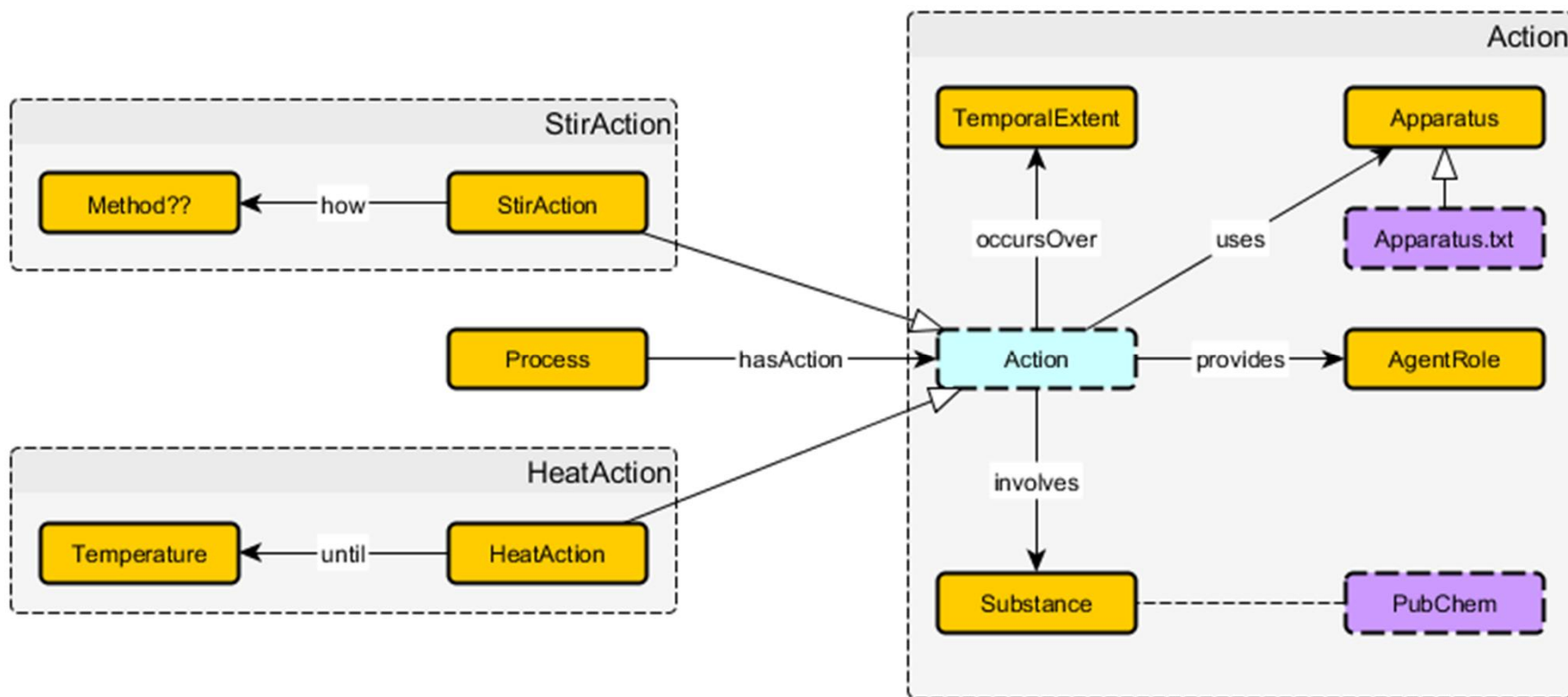
# Pattern Overview: State Transition



# Pattern Overview: Chemical Process



# Pattern Overview: Action Patterns



# Worked Example

The Incident Report.

5-ethyl-2-methyl-pyridine and 70% nitric acid were placed in a small auto-clave.

They were heated and stirred for 40 minutes.

The emergency vent was opened due to a sudden pressure rise.

A violent explosion occurred 90 seconds later.



- There is still so much to do!
- Many actions haven't been well-described.
- Extraction/Ingestion workflow
- Accessibility

# Thanks!

# Questions?