# Common Sense Knowledge Collection

Effectiveness of automatic and semi-automatic methods to collect common sense knowledge

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## 1. Background

- "Set of knowledge that the average human is assumed to have" [2]
  - Implicit [1] & natural to humans [3]
- Provides context for understanding, helps disambiguate [4]
- Could help machines behave closer to human expectations
- Uses: Question answering, machine translation, computer vision [4
  - No recent work surveying this field

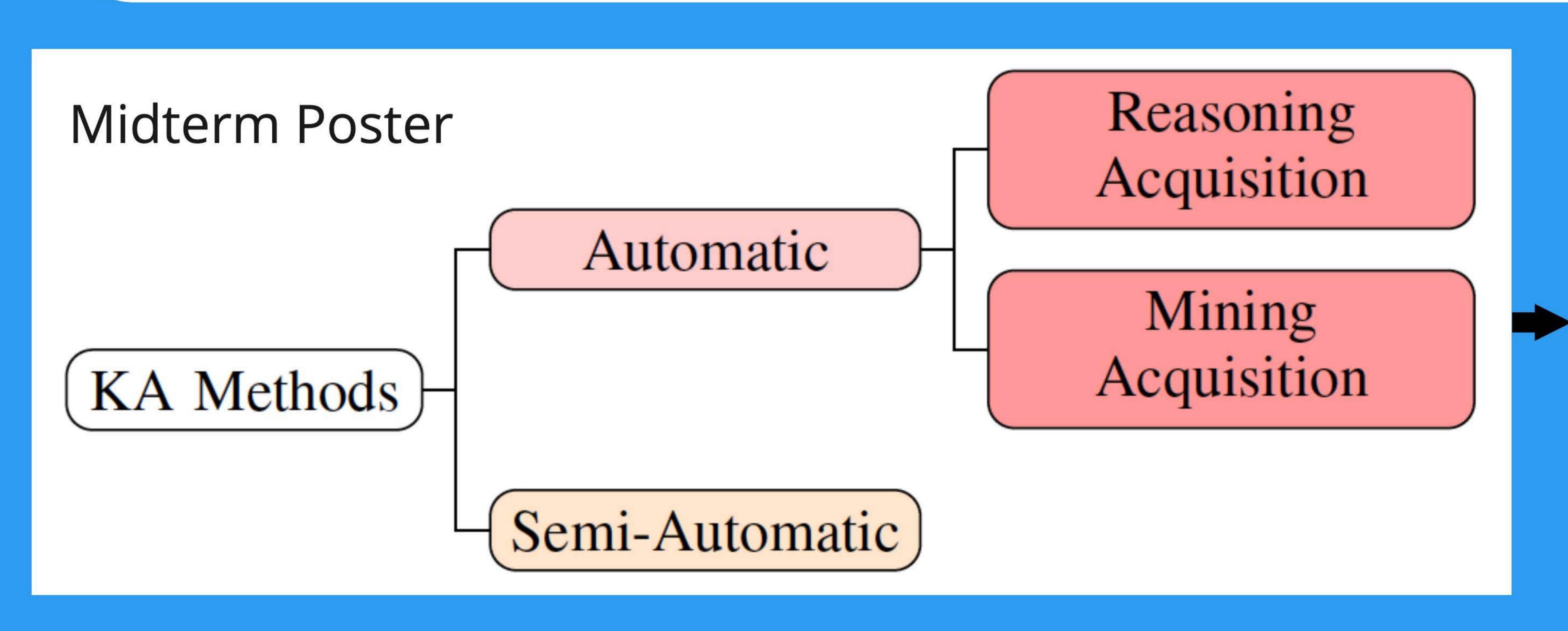
## 2. Research Question

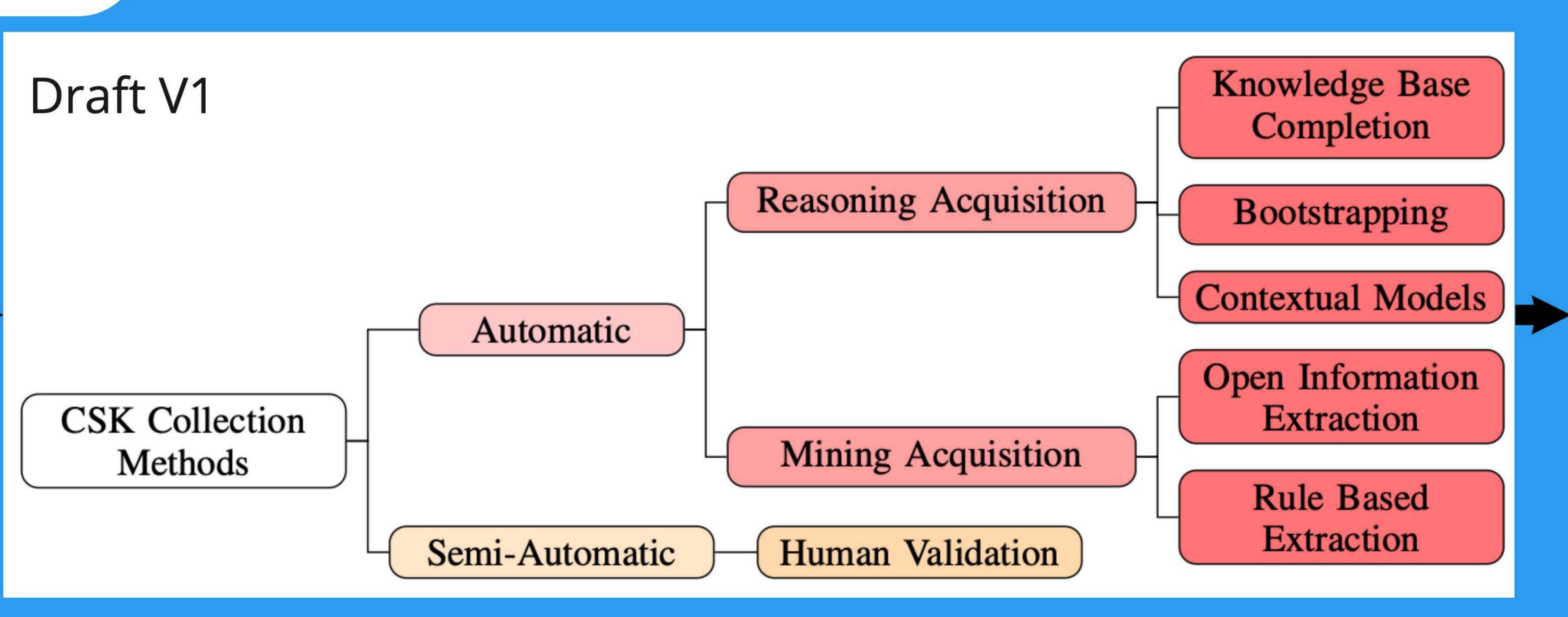
## How effective are automatic and semiautomatic methods to collect CSK?

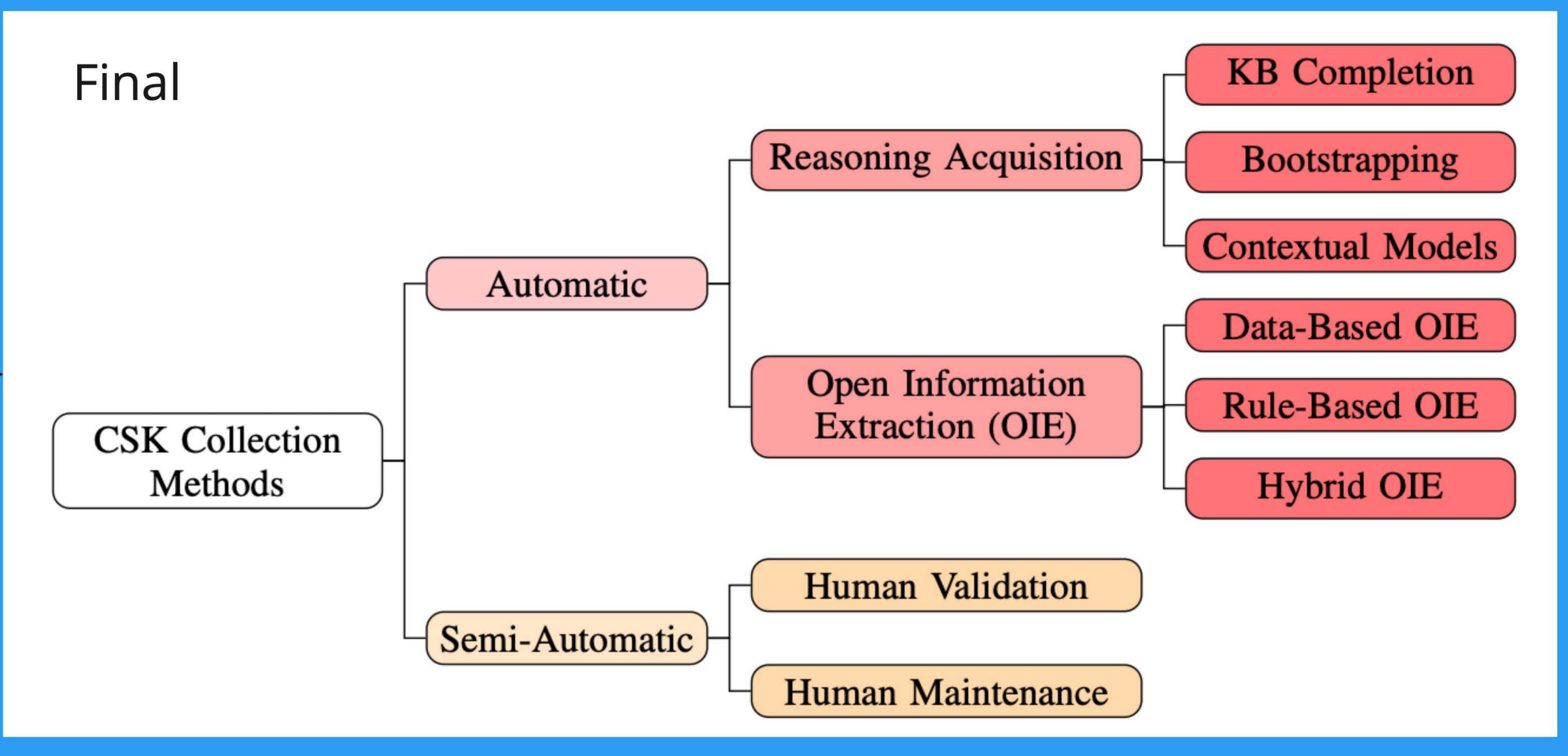
- Originally asked about 'efficiency'
- What does 'effectiveness' entail?
- How is this relevant to computer science?
- What is the difference between automatic & semiautomatic methods?

## 3. Taxonomy

- Categorize methods based on their approach. Enables further analysis
  - Continuous process
  - Used open coding approach
  - Reasoning: Uses pre-existing CSK
    - OIE: Takes text as input







#### 4. Discussion

- More automatic methods published, which is why the automatic branch has more depth
- State of the art methods haven't reached human levels of performance yet
- They are robust enough to start deploying
- Reasoning Acquisition methods tend to have better precision, but can struggle with novelty
- OIE methods are more scalable but lack precision and recall. Make up for it in speed

#### 5. Conclusions

- Very new field moving rapidly
- Getting to a point where CSK acquisition is becoming less of a bottleneck
- Approaches have changed over time and will continue to do so
- Getting to the point where Al can make use of CSK
- This remains a prevalent field of research, which promises an exciting future

#### 6. Future Work

- Perform own evaluation
- Using that, give an indication of what approaches work best given a context
- Survey in a few years again as new approaches keep getting released

### 7. References

[1] Christian Andrich, Leo Novosel and Bojan Hrnkas. Common Sense Knowledge. 2009. URL: www.uvm.nrw.de/opencontent.

[2] Simon Razniewski, Niket Tandon and Aparna S. Varde. "Information to Wisdom: Commonsense Knowledge Extraction and Compilation". inAssociation for Computing Machinery, Inc: august 2021, pages 1143–1146. ISBN: 9781450382977.

[3] Jonathan Gordon and Benjamin Van Durme. "Reporting bias and knowledge acquisition". in Proceedings of the 2013 workshop on Automated knowledge base construction: (2013), pages 25–30 [4] Ernest Davis, Gary Marcus. "Commonsense Reasoning and Commonsense Knowledge in Artificial Intelligence." ACM, 1 Sept. 2015, https://cacm.acm.org/magazines/2015/9/191169-

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