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Nemo: First Glimpse of a New Rule Engine

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Full paper and further details at <https://iccl.inf.tu-dresden.de/web/Inproceedings3354/en>

Introducing Nemo

- Datalog* Engine written in Rust
- Goals: Fast, Scalable and Versatile
- Early in its development



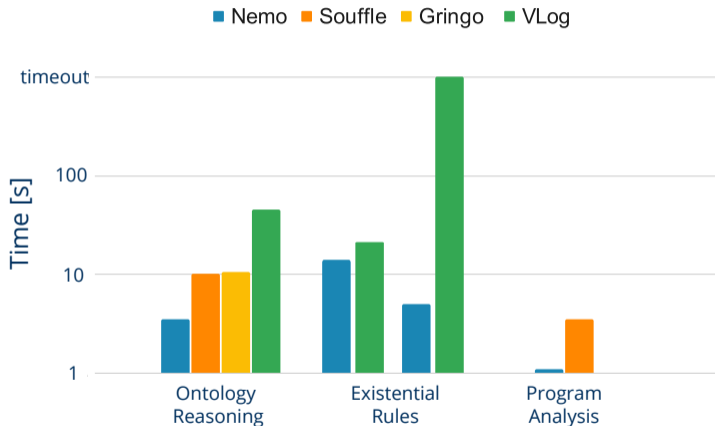
Fast and Scalable Computation

- Process 100s of millions lines of data in memory
- Outperforms competitor systems on synthetic and real-world benchmarks

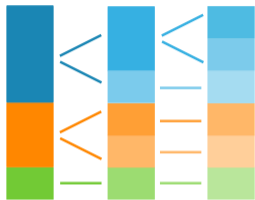
Versatile

- Combine ontological reasoning with data analytics

Benchmarking Reasoners

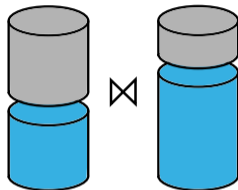


Implementation Techniques



Storage

- Columnar layout
- Accessed as Trie



Evaluation

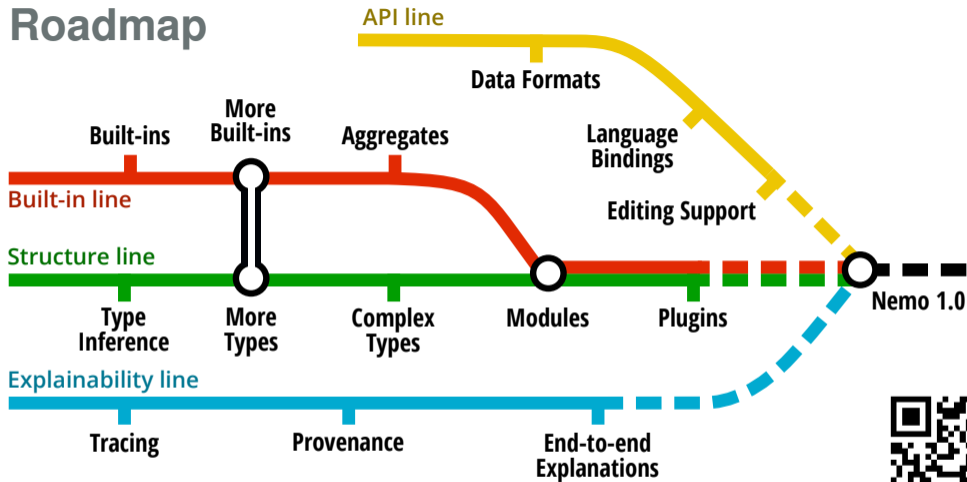
- Seminaive Evaluation
- Extended to Existentials



Planning

- Column Ordering
- Rule Ordering

Roadmap



Try it in the Browser: <https://tud.link/ytig>



Demonstration: Background

The Galen Ontology

- Medical Ontology modeled in OWL EL
- Contains information about anatomy, diseases, viruses, ...

Chemotherapy \sqsubseteq Treatment $\sqcap \exists$ uses.AnticancerDrugs

$$\frac{C \sqsubseteq D1 \sqcap D2}{C \sqsubseteq D1, C \sqsubseteq D2}$$

