Enhancing Datalog with Epistemic Operators to Reason about Knowledge in Distributed Systems

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- Why use Datalog to program distributed systems?
  - Conciseness
  - Executable programs generated directly from specifications
  - Database techniques can be used to optimize execution of programs
  - ...

- Is it possible to use Datalog to program distributed systems?
  - Ndlog, Overlog, Dedalus, Meld, ...

- BUT
  - Still something is missing: the capability to express what a node **knows**
    - we are able to think about what a node **knows** and not about low level communication details
    - Programs are more intuitive
    - Nodes can reason about the state of knowledge of other nodes
    - …

- **Knowlog**: Datalog leveraged with epistemic modal operators