Joint Committee Rules Update: Open Issues

Solicited Feedback; "Warning Label"

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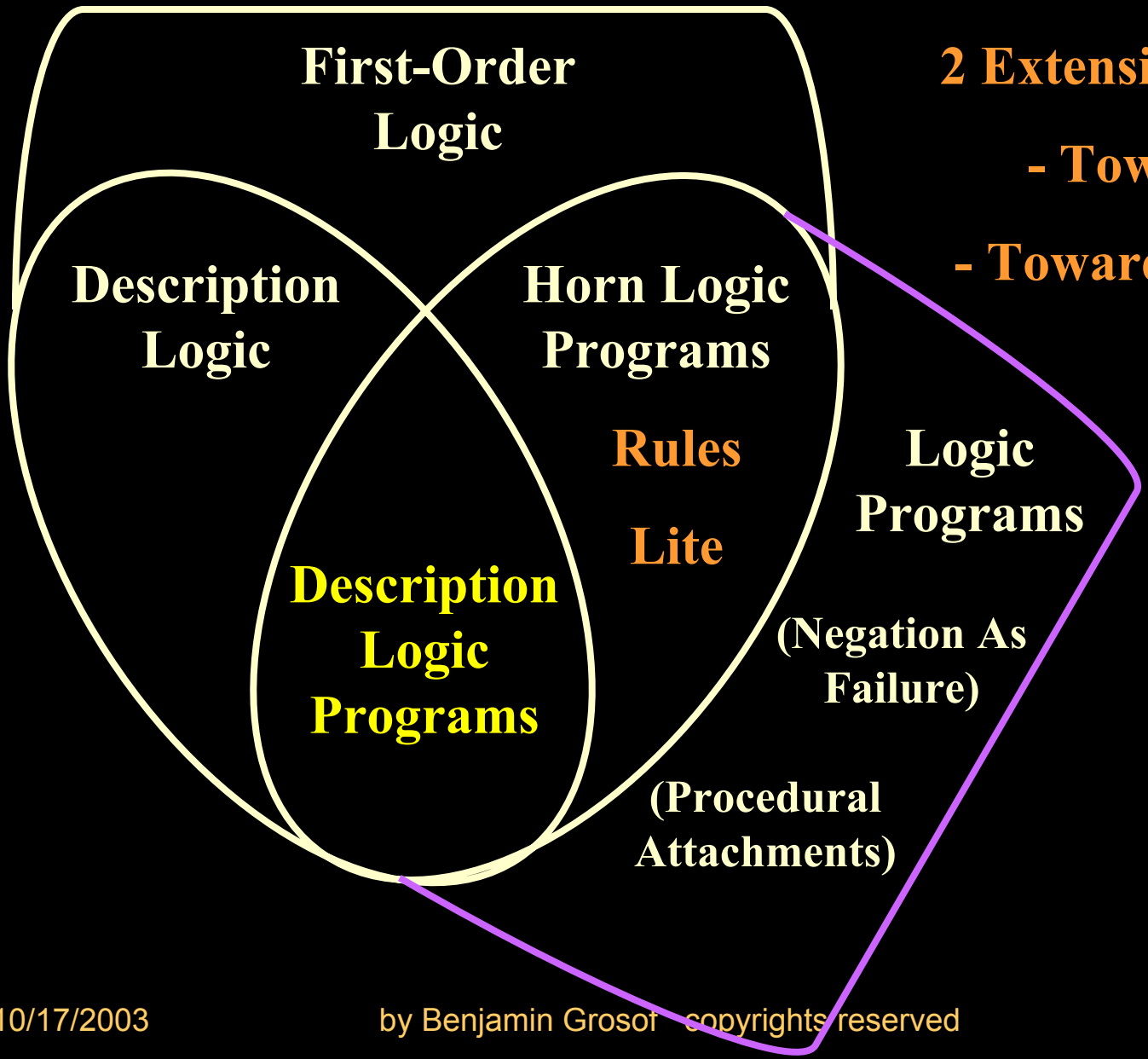
OUTLINE OF SLIDES

- "Warning Label" for OWL Rules
  - Directions for extending expressiveness
- Key Issues for Feedback
- Prioritization of Next Steps
- ****Highlights of Actual Discussion****

Venn Diagram: Expressive Overlaps among KR's



2 Extensibility Paths:

- Towards LP

- Towards DL, FOL

"Warning Label" for OWL Rules:

Usage Suggestions -- Interoperability and Extensibility Cautions

- It may be desirable to restrict expressiveness of rules, for:
  - interoperability, reusability, extensibility, scaleability, implementation

- A useful restriction: named classes only
  - Rules avoid direct complex class descriptions; instead refer to OWL
  - Maximizes interoperability with currently commercially important (CCI) rule systems and RuleML
  - Maximizes interoperability of ontology knowledge with OWL-speaking systems

"Warning Label" for OWL Rules cont.'d

Usage Suggestions -- Interoperability and Extensibility Cautions

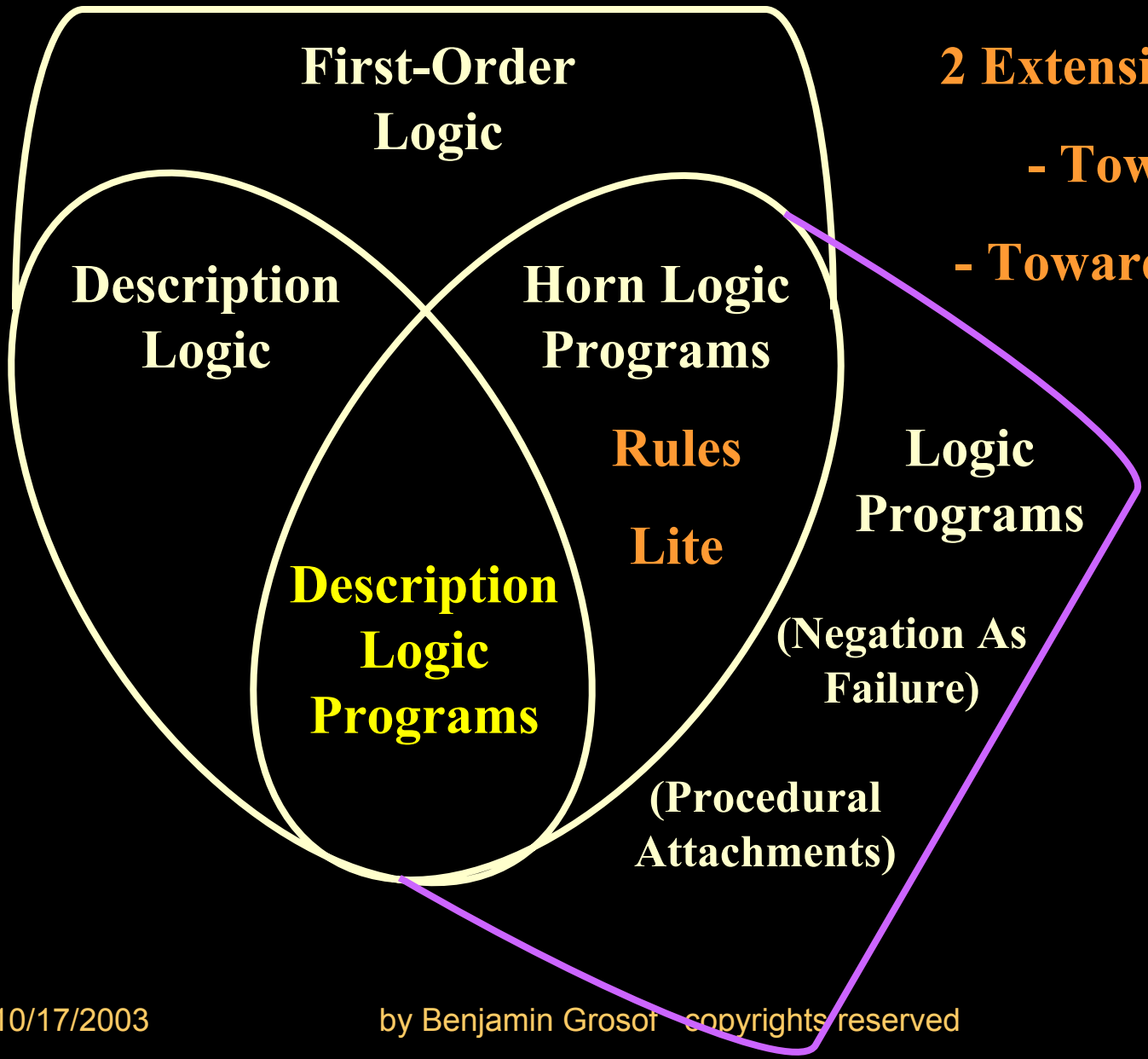
- It may also be desirable to restrict expressiveness of OWL class definitions.

- A useful restriction: Description Logic Programs (DLP)
  - avoids, e.g., existential/disjunction in rule consequent
  - enables extensibility to procedural attachments cf. CCI rules and RuleML
  - enables extensibility to nonmonotonic reasoning (negation-as-failure, prioritized conflict handling) cf. CCI rules and RuleML
  - guarantees computational tractability of complete rule+ontology inferencing
  - enables completeness in combining OWL Rules KB + CCI/RuleML rules KB

- The full KR of OWL Rules draft (= Horn FOL $\cup$ OWL) is not well studied
  - Need to use full FOL theorem-prover, for time being

- For more: Joint Committee archives http://www.daml.org/committee $\rightarrow$ archives

Venn Diagram: Expressive Overlaps among KR's



2 Extensibility Paths:

- Towards LP

- Towards DL, FOL

Key Decisions: Soliciting Feedback

- current "Lite" subset: Horn, Datalog, binary predicates, …
- integration with OWL: syntax, semantics
- semantics: DL vs. LP, "warning label"
- syntax: which are (most) useful:
  - non-RDF XML representation of rules
  - OWL XML Presentation Syntax
  - RuleML subset syntax: in XML, in RDF
- explicit equality: desirable (some hair in LP)
- language naming:
  - "Rules Lite", "DAML Rules", "OWL Rules", ?other

Prioritization of Next Steps: Technical

- human-consumption string syntax
- built-ins, procedural attachments for querying/sensing
- modules
- n-ary predicates: slotted/unordered, ordered
- logical functions
- negation-as-failure
- prioritized conflict handling (default reasoning)
- procedural attachments for actions/effecting
- extensions towards FOL / Simple Common Logic
- ...

Prioritization of Next Steps: Process

- Requirements and feedback from relevant communities/sources:
  - Semantic Web Services: OWL-S; SWSI Lang., Arch., Industrial Partners
  - Rules-related standards efforts and industry/companies:
    - via RuleML, SCL, W3, OMG, Java communities
  - OWL'ers: DAML'ers, …
  - Others: W3 staff, DAML-Security, DB (SQL, Xquery), RDF Query, ...
- Use cases, application scenarios

- *Wanted: volunteers* to implement and use

Discussion Agenda

- What are some requirements you think are important?
- What do you think about the key decision issues?

Highlights of Actual Discussion

- Be ecumenical wrt extending expressiveness
  - Situated Courteous LP & FOL/DL
  - experiment with needs
  - Horn case as strong-consensus, common
- Unified syntax ; that integrates nicely with RDF, OWL
- Use cases use cases use cases test test test
  - Wide variety ; including Semantic Web Services
- Tools tools tools
  - CCI/RuleML engines, FOL engines (Inferencing)
  - Translation; Authoring