Uncertainty over Structured and Intensional Data

Antoine Amarilli

Télécom ParisTech, Paris, France

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Intensionality, Uncertainty, Structure

- PhD project (supervised by Pierre Senellart)
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- Answer knowledge acquisition needs over Web data
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- Must take into account:
  - **Intensionality.** Cannot access all data, fine-grained cost
  - **Uncertainty.** Results may be *wrong* or *imprecise*
  - **Structure.** Relational *DBs*, XML *trees*, RDF *graphs*, etc.
Zoom: Tractable uncertain data for queries and reasoning

- Relational DB with uncertain facts, independent probabilities
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- CQ evaluation already **#P-hard** in the DB
Relational DB with uncertain facts, independent probabilities
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But what if we restrict the treewidth?
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$\Rightarrow$ CQ evaluation has linear data complexity
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  - Can we have tree-decomposition–compatible correlations?
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- But what if we restrict the treewidth?
  ⇒ CQ evaluation has linear data complexity
  ⇒ Can we have tree-decomposition–compatible correlations?
  ⇒ Tractable reasoning under uncertain guarded TGDs?