

# Query Processing in Data Integration Systems

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# Structure of the course

- 1 Introduction to data integration
  - Basic issues in data integration
  - Logical formalization
- 2 Query answering in the absence of constraints
  - Global-as-view (GAV) setting
  - Local-as-view (LAV) and GLAV setting
- 3 Query answering in the presence of constraints
  - The role of integrity constraints
  - Global-as-view (GAV) setting
  - Local-as-view (LAV) and GLAV setting
- 4 Concluding remarks



# Part I

## Concluding remarks



# Outline

- 1 The role of global integrity constraints
- 2 Query answering in GAV with constraints
  - Incompleteness and inconsistency in GAV systems
  - Query answering in GAV under inclusion dependencies
  - Rewriting CQs under inclusion dependencies in GAV
  - Query answering in GAV under IDs and KDs
  - Query answering in GAV under IDs, KDs, and EDs
- 3 Query answering in LAV with constraints
  - LAV systems and integrity constraints
  - Query answering in (G)LAV under inclusion dependencies
  - Query answering in (G)LAV under IDs and EDs
  - LAV systems and key dependencies





## Further issues and open problems

- Further forms of constraints, e.g.,
  - KDs with restricted forms of key-conflicting IDs
  - ontology languages, description logics, RDF
    - & al. PODS'98, — & al., KR'06
  
- Semistructured data and XML
  - constraints (DTDs, XML Schema, ...)
  - query languages (transitive closure)
  
- Finite models vs. unrestricted models    [Rosati, PODS'06]
  
- Data exchange and materialization













