

# Conflict Management - Viewpoints

Inconsistency Management

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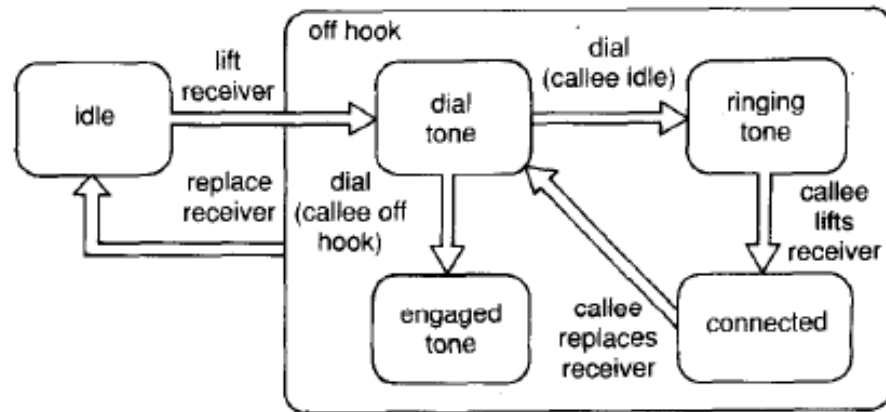
# Starting Situation

- Multiple stakeholders
- Individual views on the system to be developed
- Each view is modeled independently
- Views are partially
  - Redundant
  - Inconsistent
  - Incomplete



# Views

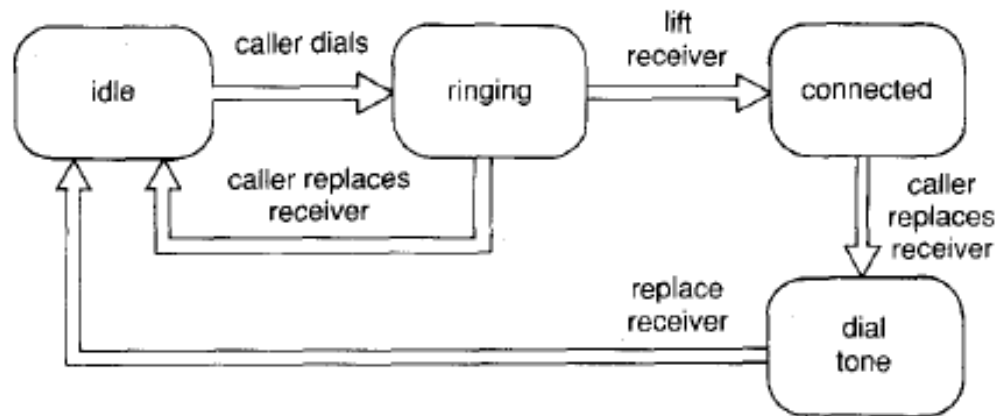
A (owner=Anne; domain=telephone/calling)



Caller (Anne)

B (owner=Bob; domain=telephone/incoming call)

Callee (Bob)



# Inconsistency

- Mistakes
- Misunderstandings
- Lack of information
- Result of unfeasible or impractical requirements
- Conflict between knowledge sources

# Traditional Approach

- Inconsistencies are bad
- Detect inconsistencies
- Fix them as soon as possible
- Disadvantages:
  - Maintaining consistency is expensive
  - Not documenting an inconsistent change

# ViewPoints Approach

- Iterative view merging
- Inconsistencies are tolerated
- Uses graph based models
- Rules
- Documentation of merging and its condition

# Approach Advantages

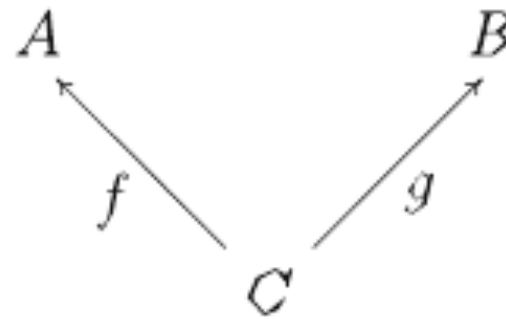
- Maximizes design freedom
- Prevents premature commitment to design decisions
- Ensures that all views are taken into account

# Inconsistency Management

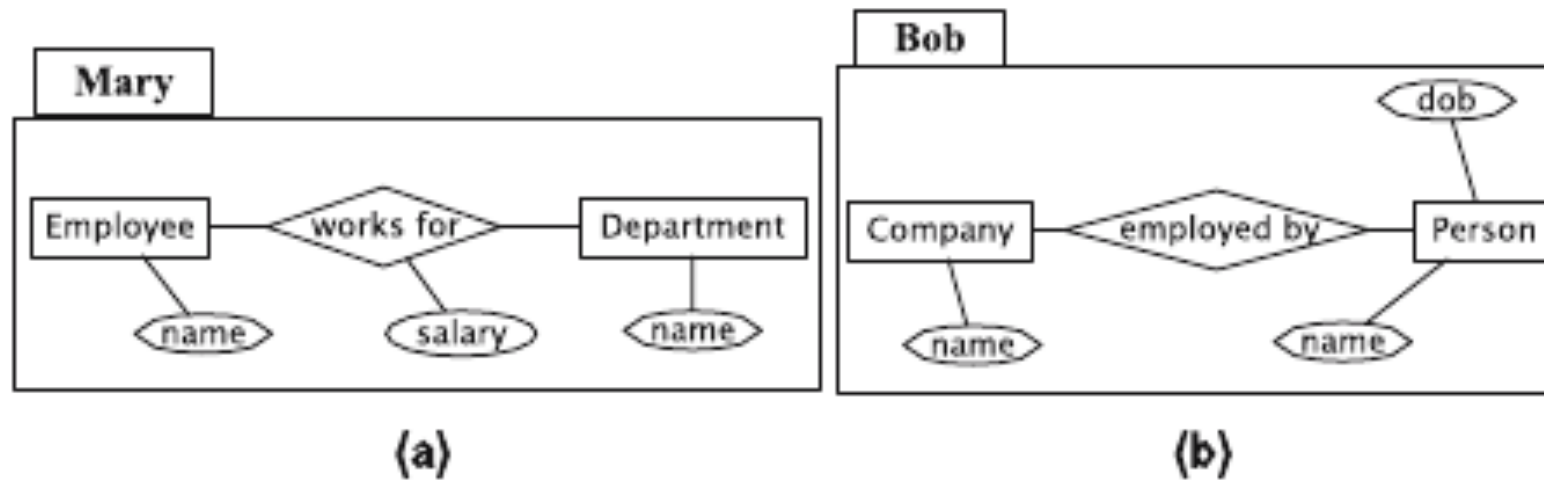
- Detection
- Classification
- Handling
  - Ignore
  - Delay
  - Circumvent
  - Ameliorate
  - Resolve

# Approach Steps

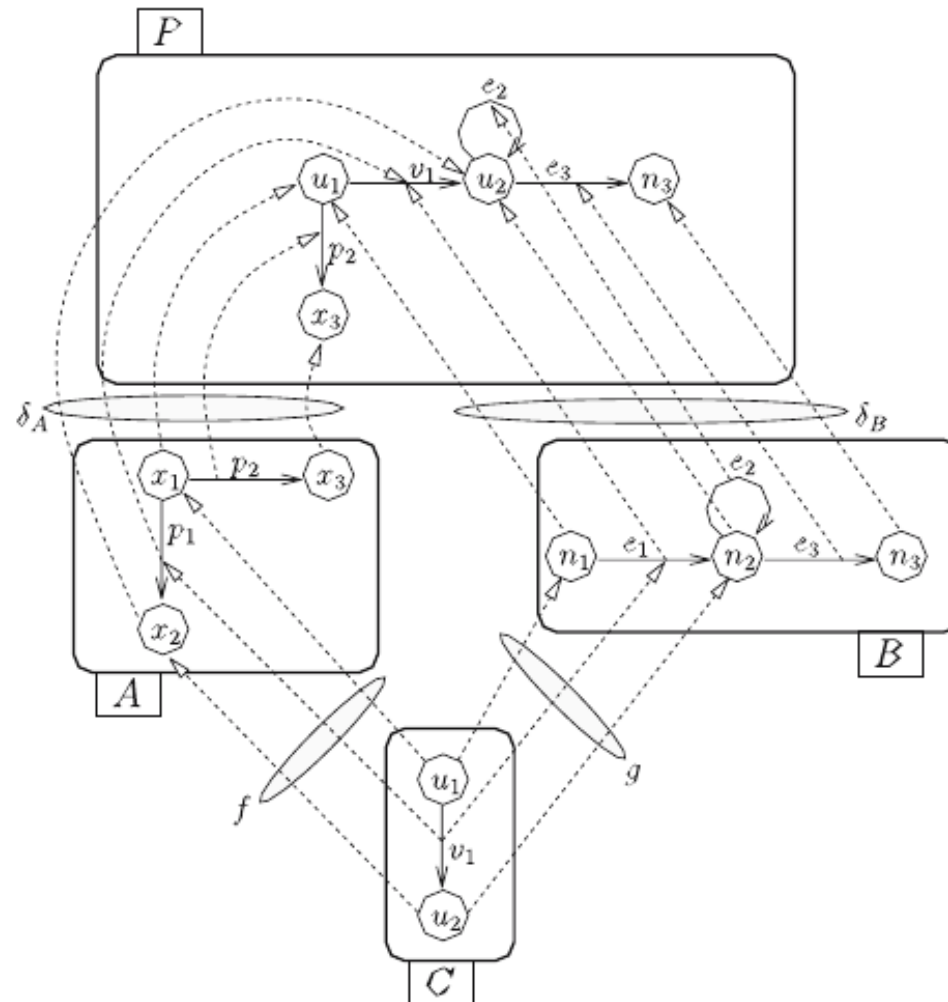
- Given views of two stakeholders
- Analyst creates interconnection diagram (3rd view) that contains
  - Common nodes and edges
  - Mapping functions
- Results in merged view



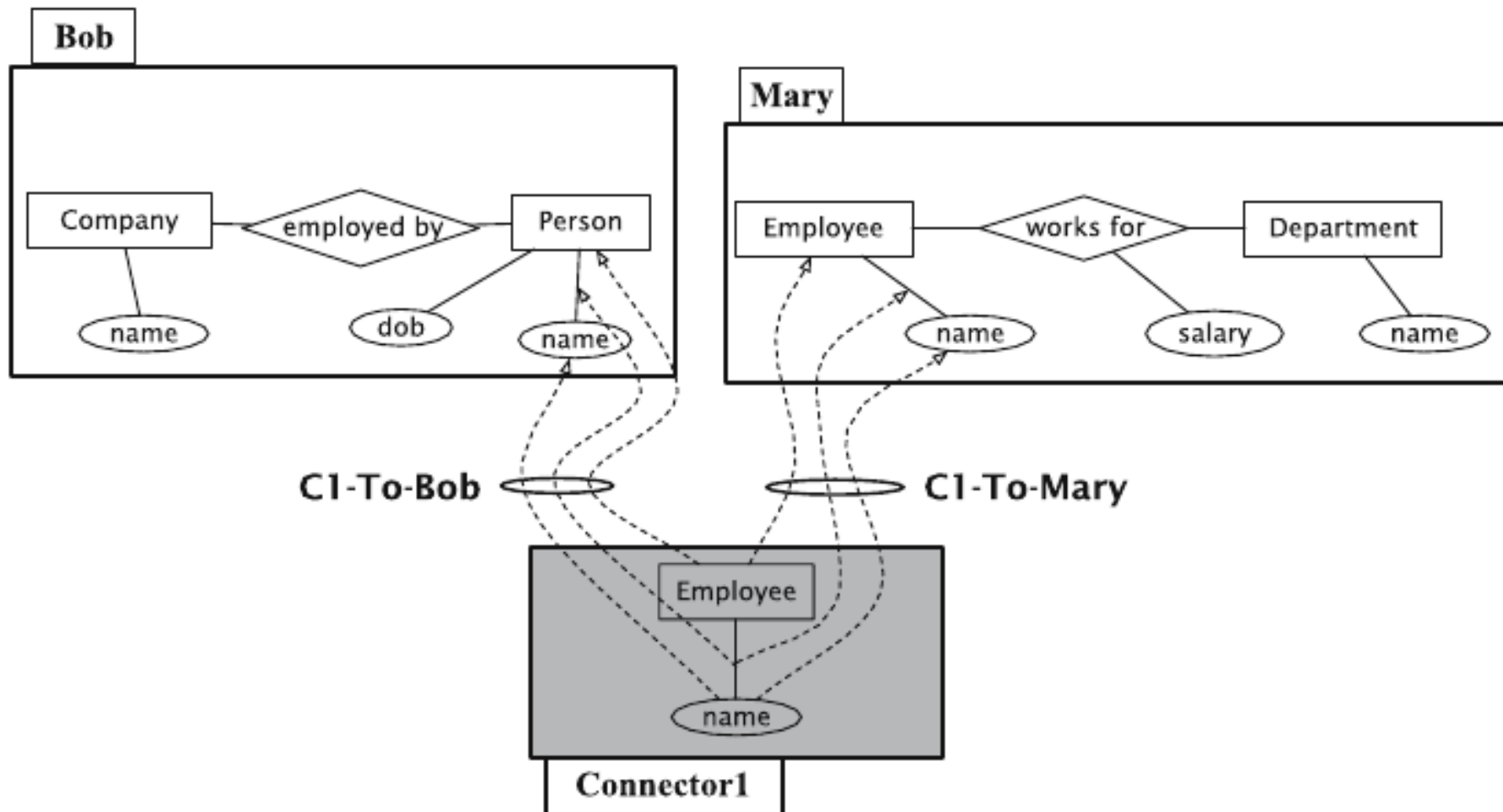
# Example: Stakeholder Views



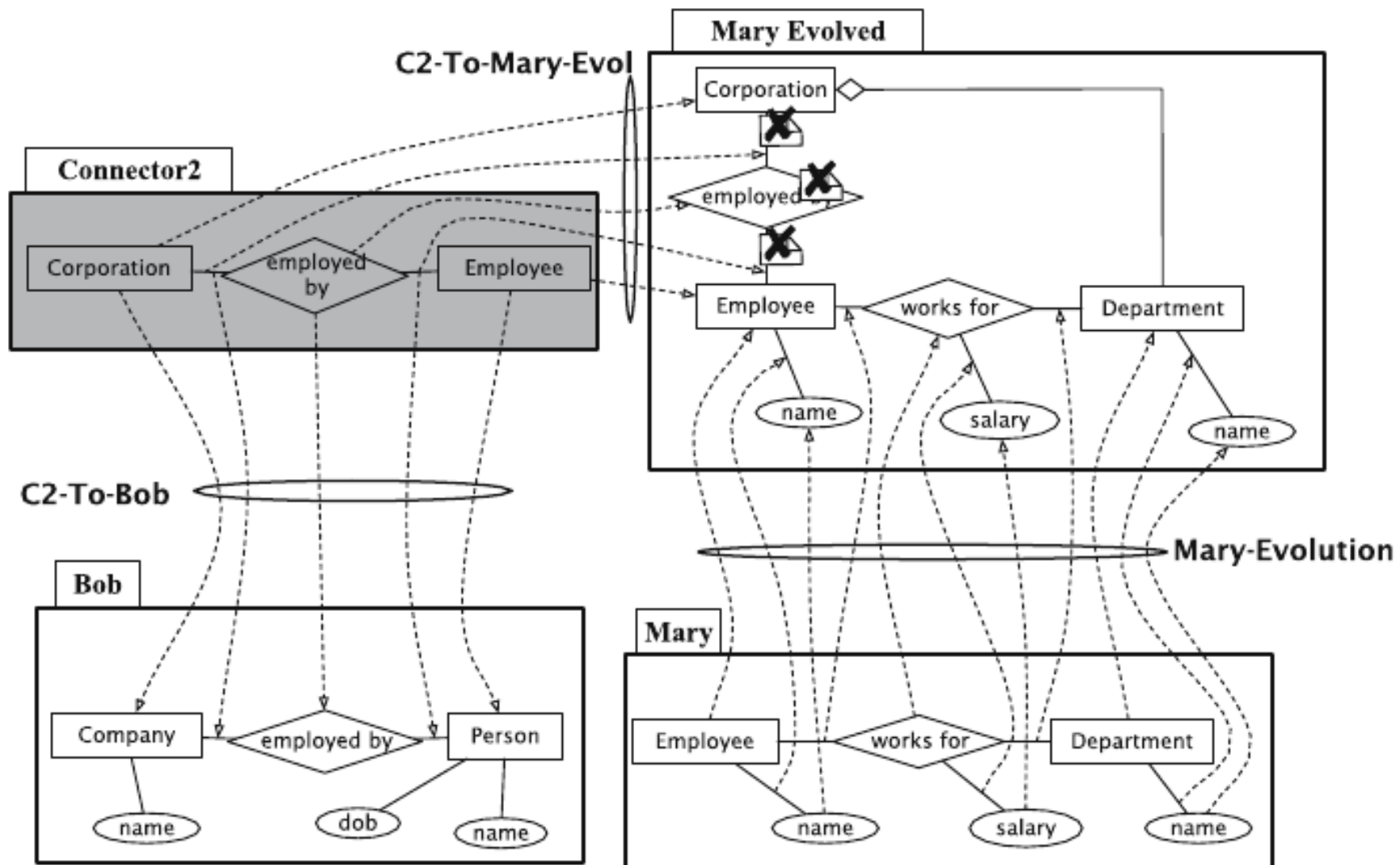
# Three-Way Merge

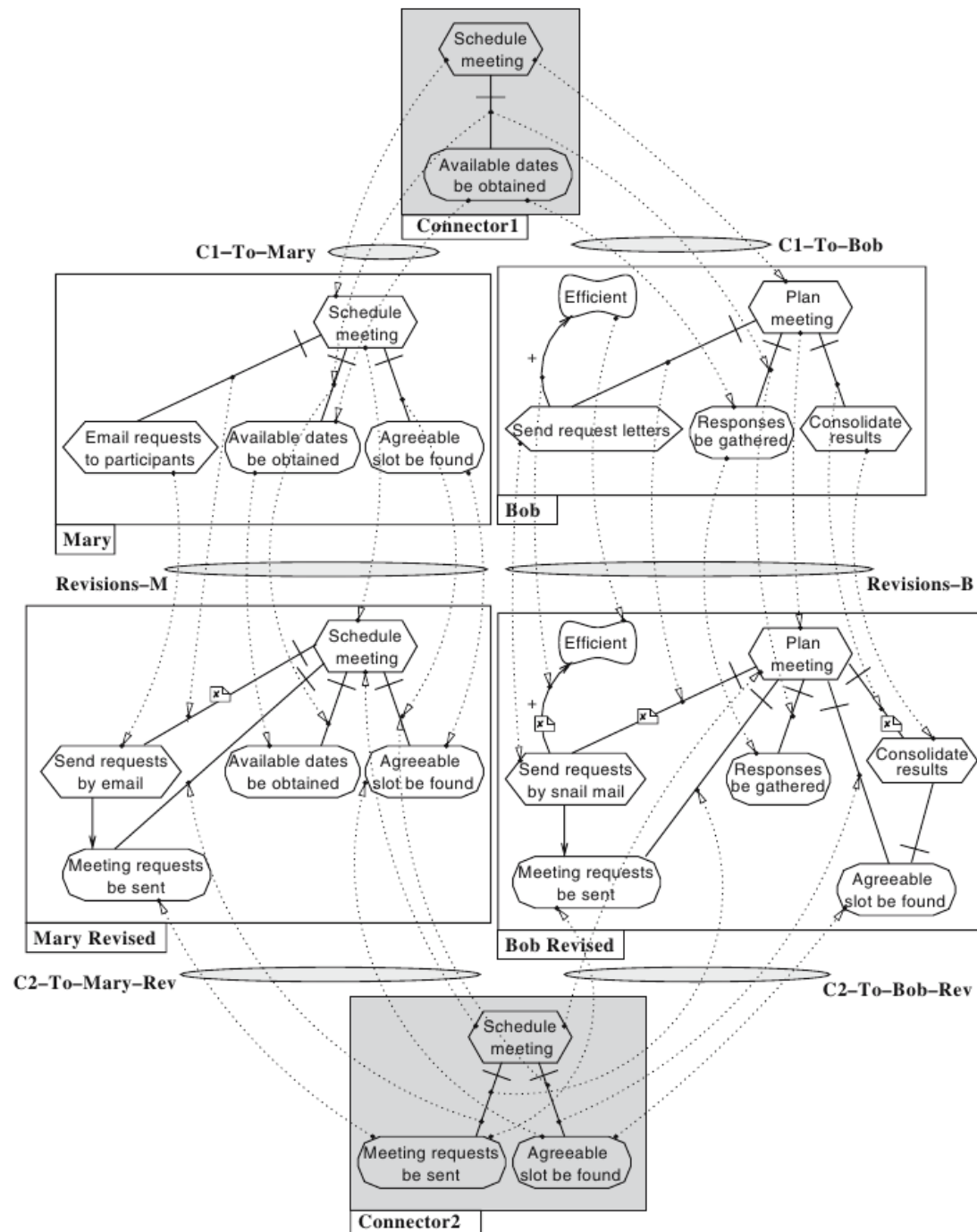


# Example



# Example

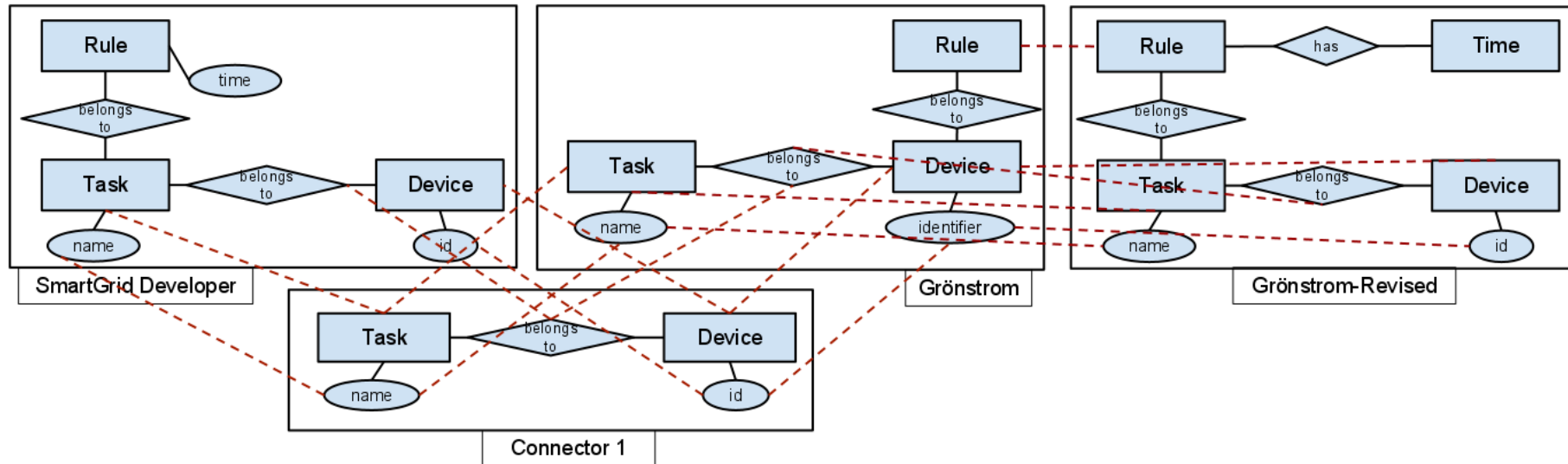




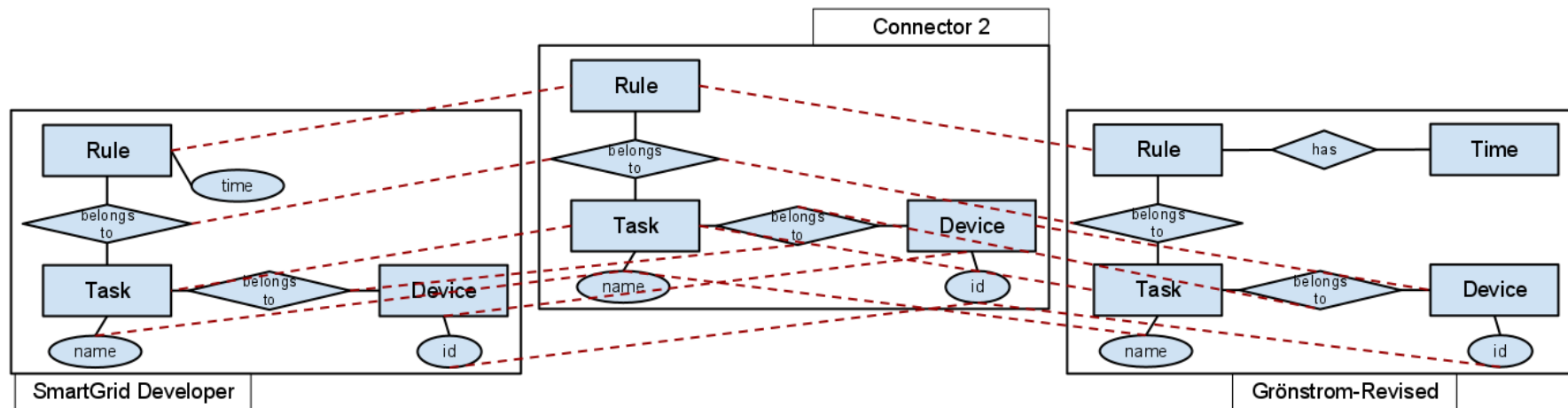
# Rationale

- Why not ad-hoc?
  - Traceability
  - Distinguish overlapping areas
  - High complexity for more than two views
  - Layout and naming preferences

# Example NRGCorp



# Example NRGCorp



# Conclusion

- Documenting inconsistencies is important for traceability
- Approach is based on graph models
  - Applicable for other models?
- Allows to see and change all steps of the model evolution