W8. Check List — Junyi

- Why we need to evolve a knowledge graph?
  - change in the real-wrold & the business requirements→ revise schema & ground facts→ approaches: technical challenges & social challenges
- What kind of things can change?
  - Changing world: Amazon Product Knowledge Graph
  - Changing requirements: Google Knowledge Graph
  - Changing sources (Google Knowledge Graph)
  - Changes affecting previous inferences:
    - Consider the constraint that a movie theater only shows movies
      •Using this constraint a KG might have previously inferred that certain events are movies
    - More recently the movie theaters are being used for operas, and social events
      •If we had previously derived such events to be movies, we must update them
  - Changes requiring redesign
- change management techniques
  - schema evolution
    - For a relational database
      - Adding/removing a column, renaming an attribute
    - For a knowledge graph

      Approach is to maintain invariants, and make system-specific decisions
      - Adding/removing a class
      - Adding/removing a superclass
      - Adding/removing a property
      - Adding/removing a constraint
  - view maintenance

A mechanism from databases to name a query
•Query is defined with respect to one or more tables (known as base tables)
•If we store the results of the query, the stored data is called materialized view

▼ If the base data changes, the materialized view must be updated

▼ truth maintenance

A mechanism from rule-based systems
•Tracks how each conclusion was derived

▼ A popular implementation: Justification based system

•Each derived conclusion records the fact or rule that was used in derivation
•Any time that fact or rule updates, the conclusion must be revised