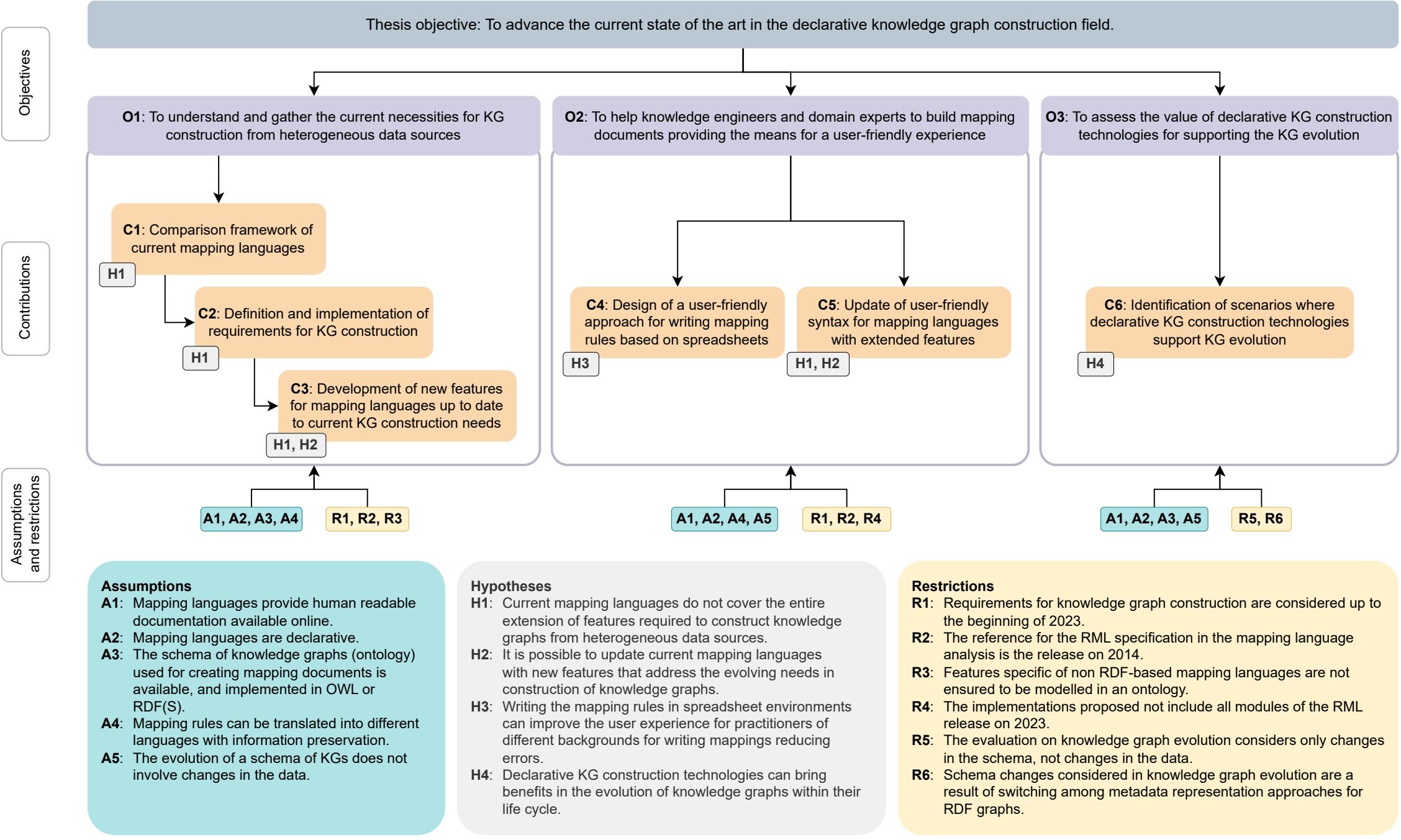
Objectives
Contributions
Assumptions and restrictions
Thesis objective: To advance the current state of the art in the declarative knowledge graph construction field.
O1: To understand and gather the current necessities for KG construction from heterogeneous data sources
O2: To help knowledge engineers and domain experts to build mapping documents providing the means for a user-friendly experience
O3: To assess the value of declarative KG construction technologies for supporting the KG evolution
C1: Comparison framework of current mapping languages
H1
C2: Definition and implementation of requirements for KG construction
H1
C3: Development of new features for mapping languages up to date to current KG construction needs
H1, H2
C4: Design of a user-friendly approach for writing mapping rules based on spreadsheets
H3
C5: Update of user-friendly syntax for mapping languages with extended features
H1, H2
C6: Identification of scenarios where declarative KG construction technologies support KG evolution
H4
A1, A2, A3, A4
R1, R2, R3
A1, A2, A4, A5
R1, R2, R4
A1, A2, A3, A5
R5, R6
Assumptions
A1: Mapping languages provide human readable documentation available online.
A2: Mapping languages are declarative.
A3: The schema of knowledge graphs (ontology) used for creating mapping documents is available, and implemented in OWL or RDF(S).
A4: Mapping rules can be translated into different languages with information preservation.
A5: The evolution of a schema of KGs does not involve changes in the data.
Hypotheses
H1: Current mapping languages do not cover the entire extension of features required to construct knowledge graphs from heterogeneous data sources.
H2: It is possible to update current mapping languages with new features that address the evolving needs in construction of knowledge graphs.
H3: Writing the mapping rules in spreadsheet environments can improve the user experience for practitioners of different backgrounds for writing mappings reducing errors.
H4: Declarative KG construction technologies can bring benefits in the evolution of knowledge graphs within their life cycle.
Restrictions
R1: Requirements for knowledge graph construction are considered up to the beginning of 2023.
R2: The reference for the RML specification in the mapping language analysis is the release on 2014.
R3: Features specific of non RDF-based mapping languages are not ensured to be modelled in an ontology.
R4: The implementations proposed not include all modules of the RML release on 2023.
R5: The evaluation on knowledge graph evolution considers only changes in the schema, not changes in the data.
R6: Schema changes considered in knowledge graph evolution are a result of switching among metadata representation approaches for RDF graphs.