

A Corpus-based Method for Authoring Competency Questions in Ontology Engineering

Introduction

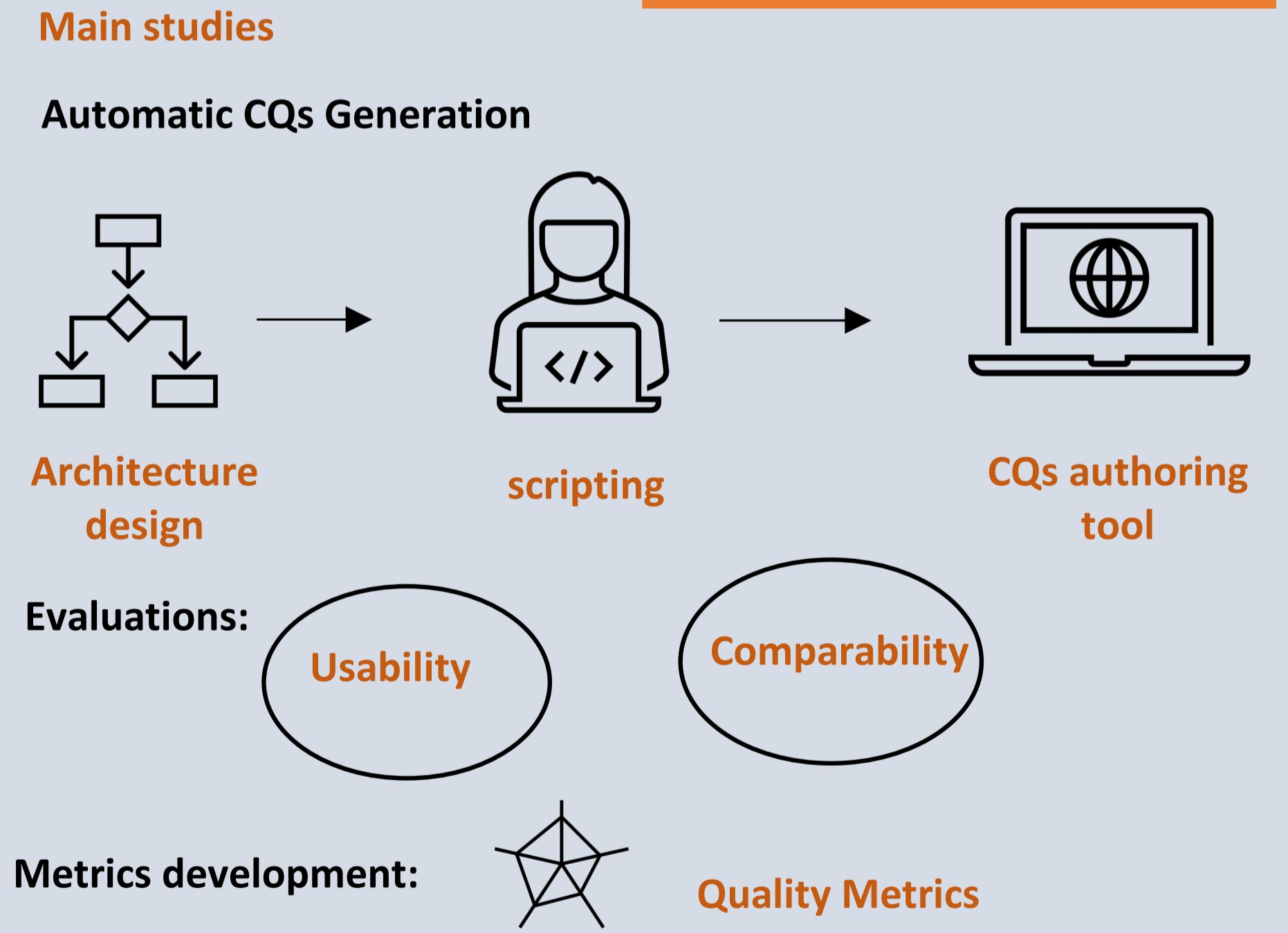
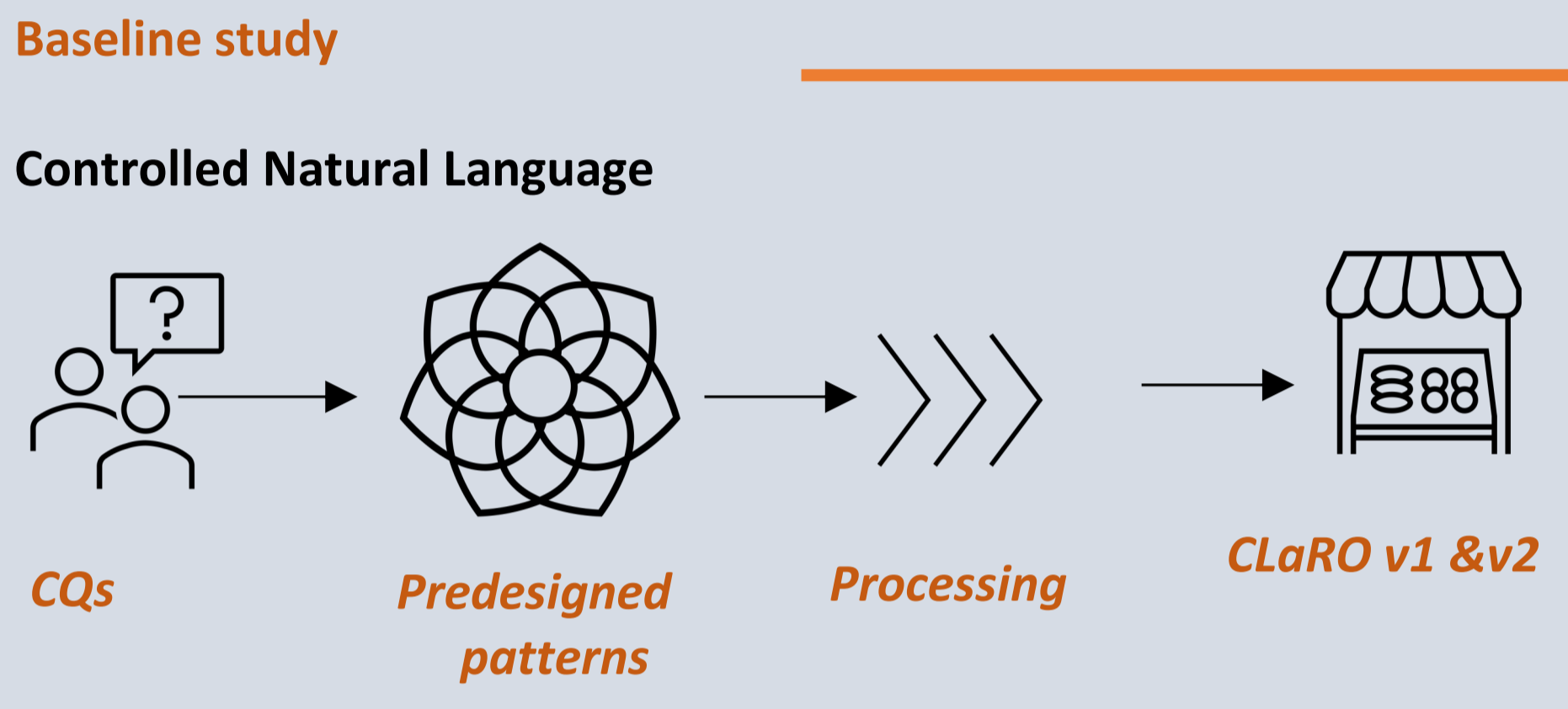
Competency questions (CQs) are natural language questions used during the development (serves to limit the scope of a given ontology) and verification (checks for completeness an ontology) stages of ontology engineering, as well as for providing non-ontology experts users, insights to the content of a given ontology.

CQs issues

- 1 **CQs rarely used by ontology engineers**
 - . Additional work deemed unnecessary
 - . Not reusable between Ontologies
- 2 **Lack of support tools for authoring process**
 - . Manual creation
 - . Time consuming
- 3 **Currently not measurable**
 - . Lack of quality metrics
- 4 **Bad CQs problems**
 - . Ontology lacks content needed to answer
 - . Questions formulated not answerable by an ontology

- Objectives:**
- Automatic CQs creation process
 - Measurable metric development
 - Evaluation of CQs creation methods

Study design



Preliminary and Prospective Findings

Preliminary Findings

Baseline results:

- CLaRO templates has
- 94% coverage over unseen CQs

And contains:

- 147 main templates
- 59 variants

Developed from:

- CQs of 12 Ontologies

Main studies

- Automatic CQs design architecture

Prospective Findings

- Automated CQs authoring tool
- CQs evaluation results
- Quality assessment metrics for CQs

Conclusion

Research makes CQs accessible
 Improves answerability and robustness of Ontologies
 Provides automatic authoring of CQs
 Provide quality metrics for CQs

Disclosure: Pattern design and code were from a previous study by Wisniewski et al., 2019

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