

## Research Problem

- **Scarcity of labelled argument quality data** (approaches are based on e2e learning from text or manual creation)
- Knowledge Graphs: **domain knowledge** publicly accessible by machines

**Idea:** populate argument schemes directly from KGs

## Research Questions

How can we use large-scale Knowledge Graphs in argumentation about complex hypotheses?

- RQ1. **Modelling:** best representation to encode all layers of an argument (discourse structure, quality, strength, direction) ?
- RQ2. **Search/Extraction:** Which algorithms to populate an empty ontology consisting with the argument/story scheme?
- RQ3. **Evaluation:** performance in concrete case-studies?

## Possible Approaches

- **Story-based approach** to get evidence from KGs and generate argumentations
- **GNN** to infer the sub-graph containing information related to the argument (community detection/clustering task)
- **Eristic Argumentation** (dispute the argument rather than searching for truth) to account for errors and biases

## Relevance to HI

- Scenario : arguments provided by the humans + HI agent performs the argumentation responsibly
- Line: Adaptive, Responsible, Explainable
- Cluster: Communication/Dialogue

## References

- [1] Bex, F et al. Formalising argumentative story-based analysis of evidence. AI&Law 2007.
- [2] Blin, I.,. Building Narrative Structures from Knowledge Graphs. ESWC 2022.
- [3] Dunne, P.E. Irrationality in Persuasive Argumentation. Logic Programs, Norms and Action 2012.