

LLM-Based Assertion Extraction: Prompt Design, Error Taxonomy, and Validation

This supplementary section documents the implementation specifics of the LLM-based assertion extraction pipeline.

Relationship to Prior Approaches

The closest prior effort is the systematic literature analysis of Knight, Cordes, and Friedman knight2022fep, which used human annotators to manually code structural, visual, and mathematical features of FEP and Active Inference publications. Their work operated at the scale of hundreds of annotated papers and employed terms from the Active Inference Institute’s Active Inference Ontology for automated text analysis. Our pipeline replaces the manual coding step with LLM-based assertion extraction, enabling scalable processing of the full corpus ($N = 1208$ papers) at the cost of exchanging human-verified precision for machine-generated assessments that require post-hoc validation.