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Categorical design for encoding rule-based text

Rule-based documents such as building codes contain intricate cross-references and logical conditions that can be organized into a mathematical structure. In this talk, we present a category-theoretic model for representing such texts. We begin by representing their reference network as a knowledge graph and then formalize the logical relations using ologs (ontology logs), a category-theoretic construction introduced by David Spivak. Within this setting, conjunctions and disjunctions correspond to pullbacks (limits) and pushouts (colimits), allowing logical composition to be expressed diagrammatically. This model provides a rigorous basis for rule logic and supports downstream integration with satisfiability modulo theories (SMT) solvers and large language models for automated reasoning tasks.