

## Linking hierarchies of entities and their functions in geospatial ontologies

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**Abstract:** Concepts of entity functions are reported to exist independent of the entity itself. Hierarchies of such entity functions, based on entailment relations, provide useful information for task based reasoning in ontologies. Conventional geospatial ontologies mainly rely on taxonomical classification of geospatial entities. Integration of such function based information into traditional taxonomy based hierarchies is necessary in order to obtain higher precision and recall rates in geospatial ontologies. We present a probability based approach of integration using Bayesian networks of the two hierarchies. Our case study involves entities extracted from analysis of traffic code texts. Entities from the first text are matched to entities of the second text on the basis of entity functions. Our experiments show that such a framework results in good precision and recall values in and across ontologies.

**Keywords:** Ontologies, Geospatial, Entity functions, Bayesian network.