Objective
Design, prototype and evaluate a system supporting the discovery, indexing, querying, and ranking of complex semantic relationships on the Semantic Web. The system maintains and utilizes trust, provenance, and ranking information to enhance relationship discovery.

Approach
Knowledge representation systems reason over semantic web RDF graphs of metadata obtained with ontology-based process. Metadata can also be reduced to triples that can be stored in relational databases. In the Web of Belief, trust models and heuristics guide the formation of conclusions.

Broader impacts
Techniques and prototypes developed can be applied to a range of problems, including discovering new connections and relations in scientific information and homeland security. Research takes to next generation of processing of Web content, from document-centric to relationship-centric.

Web Of Belief (WOB) Framework
A “web of belief” models the entities and associations in the Semantic Web. With the concepts of agent, knowledge, trust, belief and justification, it represents, integrates, and evaluates conclusions drawn from the large volume of heterogeneous in-formation sources.

SWETO
SWETO is large ontology covering several test-bed domains. Ver. 1.4 is populated with 800K instances and over 1.5M relations extracted from heterogeneous Web sources. SWETO was developed using Semagix Freedom system.

Information from various online information sources is integrated to model trust relationships.

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