

## Questions on “Knowledge Representation and Reasoning”

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1. What is a semantic network? Give an example of semantic network. What does the node represent? What does a link represent? What does a path in a semantic network represent? SIR (semantic information retrieval) can be thought of as a precursor of the semantic network. How is SIR different from the semantic network?
2. What is HAM? What is description logic (KL-ONE, KRYPTON)? What is WordNet? What is Cyc? How are they all similar to and differ from the semantic network?
3. The following of (a)-(f) are methods for knowledge representation and reasoning developed in 1960's and 1970's. Explain their characteristics, similarities, and differences. (a) predicate calculus, (b) situation calculus, (c) logic programming (PROLOG), (d) semantic networks (HAM), (e) scripts, (f) frames.
4. What is nonmonotonic reasoning? What is defeasible reasoning? What is qualitative reasoning? For what purposes are they useful?
5. What are constraint satisfaction problems (CSPs)? What are constraints? What are typical applications of CSPs? What is a SAT problem? What is GSAT? What is WSAT?
6. How can we represent text and sentences in human memory? What is a vector space model of text? How does it represent texts? What is latent semantic analysis (LSA)? What is dimension reduction? How is LSA related with LSI (latent semantic indexing)? How Google and Naver can use LSA for information search and retrieval?