DE LA SALLE UNIVERSITY

SPHINX: A Knowledge Acquisition Assistant

A Thesis

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by

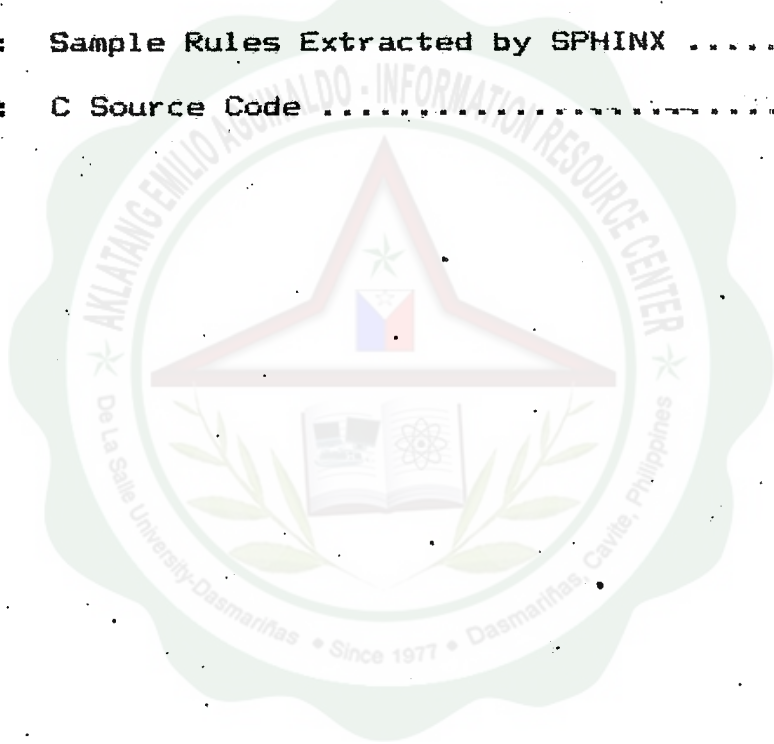Roland D. Go

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Abstract

Unstructured analysis and design of expert systems can cause problems at later stages. And consequently the failure of the expert system.

This study investigated and proposed a methodology that is structured for Knowledge Engineering (KE) specifically for diagnostic problem domain. The methodology proposes a model-driven analysis and design of diagnostic expert systems. The formal model developed of the diagnostic knowledge will enable the construction of heuristics and other algorithms used to maintain knowledge bases. The model also serves as an interface that bridge the gap between verbal data on expertise and an implementation language used to simulate the expert's knowledge using the computer.

An assistant, called SPHINX is constructed based on the model-driven concept. SPHINX provides an environment that enables a knowledge base designer to iteratively transfer knowledge from a human expert. It is used to build a prototype expert system for symptom/diagnostic problem domain. One of the important capabilities SPHINX is its ability to explicitly represent knowledge and translates this knowledge into a rule-based system fully compatible with VP Expert [VP87] (an expert system shell). For portability reason, SPHINX is implemented in C.

Index Terms----: Knowledge engineering, knowledge acquisition, expert system, causal net, knowledge base system