**CHAPTER 4**

**ANSWER-SET PROGRAMMING**

4.1 Overview

The system that has been designed uses an ASP-based approach to represent knowledge from natural language text. So, a basic understanding of answer-set programming is required to understand the remainder of the thesis. This chapter introduces the answer-set programming paradigm and further elaborates on some of the important definitions, concepts and patterns used in answer-set programming. At the end of this chapter, we will go over some of the systems that are developed to run ASP programs.

4.1 What is Answer-Set Programming (ASP)

Answer-Set Programming is a declarative problem-solving paradigm that uses both non-monotonic reasoning and logic programming. It is widely used in automatically solving problems relating to representation and reasoning tasks such as modeling reasoning agents, common sense reasoning, modeling preferences and priorities and many more. An answer set program is a collection of statements that describe the objects of a domain and model relations between them. The semantics of an ASP Program defines a set of possible beliefs that an agent has associated with the program. This set of beliefs is called as an answer-set. The basic constituents of an ASP program are the rules, facts and constraints that describe the problem. Such a program is then passed onto an answer-set solver, which generates answer-sets to the program, that are used to obtain solutions to the problem.

4.2 Syntax and Semantics

4.3 Closed World Assumption (CWA)

4.4 Modelling Negation in ASP

4.5 NAF vs Classical Negation

4.6 Non-monotonic Logic and Default Reasoning

4.7 Present systems SASP, CLASP, CCASP