Week7 Summary

General idea of this paper:

This paper talked about the reflective system embedded in LISP programming language. This papers also presents a general architecture, called procedural reflection, to support self-directed reasoning in a revamped dialect called 3-Lisp.

Details about the paper:

The first part of the paper talks about the basic concepts of reflection in regards of semantics in Lisp. The author said that the strategy of presenting a general architecture by developing a concrete instance of it was selected on the grounds that a genuine theory of reflection would be difficult without taking some more pragmatic steps.

The second part talked about how the idea and intuition of reflection was developed. The point of reflection is to give an agent a more sophisticated stance from which to consider its own presence in that embedding world. The author also made some assumptions like a simple serial model of computation to show a computational process as a whole, which is divided into an internal assemblage of program.

Then, the author talked about a framework for computational semantics. The semantic relationships and the outset including the objects and events. The author analyzed how the reflection mechanism works in this part. In terms of self-reference, the author compared the traditional Lisps and the 2-Lisp. EVAL and APPLY are replaced with NORMALISE and REDUCE.

In the last part, the author talks about the procedural reflection and 3-Lisp. Given the metacircular processor already defined above, 3-Lisp can be not-effectively defined in a series of steps. There are two ways to think about reflection, one is a primitive and noticeable reflective act and the other one is the explanation given in the previous paragraph. Also, the 3-Lisp can be understood only with a close inspection of the 3-Lisp reflective processor.

My Personal Thoughts:

Lisp is typical language holding self-reference capabilities. The author introduced how the reflection works and the meaning of doing so in Lisp. This just helps me to have a better understanding of the reflection methods. Nowadays, many languages including Java has a reflection method, the feature enables the language to process the objects dynamically and make the program able to control itself. Many frameworks and web applications are also programmed under the influence of the reflection method.