

Contents

1 Building Abstractions with Procedures	1
A Notes on LISP	2
A.1 <i>Recursive Functions of Symbolic Expressions and Their Computation by Machine</i> , McCarthy 1960	2
A.1.1 Introduction	2
A.1.2 Functions and Function Definitions	2
Index	3

1 Building Abstractions with Procedures

Definition (computational process)

Abstract beings that inhabit computers.

Definition (data)

Computational processes manipulate other abstract things called ***data*** as they evolve.

Definition (program)

A pattern of rules by which the evolution of a computational process is directed.

Definition (programming language)

That in which programs are carefully composed from symbolic expressions that prescribe the tasks we want our computational processes to perform.

Definition (bug, glitch)

Small errors.

Definition (debug)

Remove bugs.

Programming in Lisp

See the [appendix](#).

Appendix

A Notes on LISP

A.1 *Recursive Functions of Symbolic Expressions and Their Computation by Machine*, McCarthy 1960

[Link to article.](#)

A.1.1 Introduction

LISP:

- "LIS^t Processor"
- Developed for the IBM 704 computer by the Artificial Intelligence group at M.I.T.
- Designed to facilitate experiments with a proposed system called the *Advice Tracker*:
 - A programming system for manipulating expressions representing formalized declarative and imperative sentences so that the Advice Tracker system could make deductions.
 - Originally proposed in November 1958.
- Came to be based on a scheme for representing the partial recursive functions of a certain class of symbolic expressions, independent of any electronic computer.

In this article:

1. Describle a formalism for defining functions recursively.
2. Describe S-expressions and S-functions, give examples, and describe the universal S-function *apply* which plays the theoretical role of a universal Turing machine and the practical role of an interpreter.
3. Describe the representation of S-expressions in the memory of the IBM 704 by list structures ... and the representation of S-functions by program.
4. Mention the main features of the LISP programming system for the IMB 704.
5. Another way of describing computations with symbolic expressions.
6. Give a recursive function interpretation of flow charts.

A.1.2 Functions and Function Definitions

Index

bug, 1

glitch, 1

computational process, 1

data, 1

program, 1

debug, 1

programming language, 1