INFORMAL VERIFICATION OF CORRECTNESS OF THE SCANNER MODULE OF AN INTERPRETER PROGRAM

by

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1.1 Purpose of the Report

The purpose of this report is to provide a documented, informal verification of correctness of the Scanner module of an interpreter program. The verification follows three levels of program development: (1) that of English specifications and assertions, (2) high level design language, and (3) FORTRAN code. Assertions are developed from the Scanner module's specifications and are refined in parallel with program development. Verification of correctness is presented for the program based on the refined assertions. The scope of the verification will include the Scanner subroutine, all subroutines developed directly from the Scanner module, and all external routines used by the Scanner.

1.2 General Background of the Interpreter Program

The interpreter program of which the Scanner module is a portion was designed and implemented by the students of CS 286-700, summer 1975 session. The program was divided into the eleven following student groups:

(1) Interpreter Driver
(2) Scanner
(3) Text Editor
(4) Top Down Parser
(5) Bottom Up Parser
(6) Command Line Interpreter
(7) Operation Functions
(8) Heap Maintenance
(9) Stack Functions