CS 4100, Spring 2007
Assignment 3
The Enduring Legacy of FORTRAN
Due April 17, 2007

The FORTRAN language pioneered a large number of linguistic features. As it was a first attempt at defining a high-level computer language, not all of these attempts worked out as well in practice as the designers might have liked. Also, in the intervening fifty years, programmers' needs have changed, so even the features that worked well in the 1950s might no longer be completely appropriate in the 21st century.

Think about aspects of the design of FORTRAN that are still present in some form in modern languages like C++. Write a short paper about one of these language aspects, discussing its importance and how its incorporation into computer language designs has changed since the days of FORTRAN. You may use your knowledge of programmers' needs and modern language structure to argue why the feature has or has not changed. You may similarly argue, again with carefully crafted support, that the feature should have or should not have changed.

Take care in you paper to maintain a scientific tone, acknowledging the merits on all sides of the issues, and backing up your theses with sound arguments. Organize your paper at the paragraph and sentence level for a direct presentation of the issues, and proofread mercilessly for wordiness or extraneous arguments. Time your writing so that you can thoroughly revise it into a well-written paper. In most cases you should be able to condense your material to fit into approximately two pages.

Possible Topics

You may choose to write on one of the following topics, or on another topic that meets the guidelines above.

DO Loops
The Presence of a Data Type to Model Vectors and Arrays
Representation of Arithmetic Calculations Using Algebraic Notation
Specification of Format of Data Output
Freedom to Add Blanks Between Language Elements Without Changing Meaning
The Ability to Share Common Data Between Subprograms
Arithmetic Limits and Precision Defined by Hardware
Lack of Direct Implementation of Vector or Matrix Operations