FACTS ABOUT C-BASED LANGUAGES (C, C++, C#, Java, etc.)

The C language was designed originally by Ken Thompson, to port a Space Travel game played by himself and other researchers at Bell Labs while waiting for an assigned project.† It was later modified by Dennis Ritchie, [1].

Thompson's goal was to port the game, written in FORTRAN for the GE 635, to a little used PDP-7 computer to cut the cost of running it, as well as improve the graphical interface.

It was not a Bell Labs project.

As described by Ritchie, the PDP-7 was a word-oriented machine with a "bare assembly language" - there were no macros, no link-editor, and no loader. Every program had to be complete. After deciding that FORTRAN would be an important part of their environment, Thompson started to write a FORTRAN compiler using TMG, see [2], the only other language on the PDP-7.

After a day or so of trying to write the compiler in TMG, Thompson designed what he called the B language, based upon BCPL, see [3]. Thompson's design was based upon his desire for Spartan syntax, the need to keep the translator simple to write, and the requirement to fit into the PDP-7's tiny memory. This version was interpretive and therefore slow, but the game was ported with help from Dennis Ritchie.

Data types were added later by Ritchie to support the development of a file system written for the PDP-11, a byte-oriented machine. This effort provided a text processing system for the patent department at Bell Labs (the file system evolved into UNIX). This version, called New B, was rebuilt as a compiler and called C.

As acknowledged by its developers, the C language was never intended to be a real programming language. Subsequent C-based languages (e.g., C++, C#, Java, etc.) have added special features, but have not changed the basic language

[1] Ritchie, D.M., *Evolution of the Unix Time-sharing System*, ATT/BLTJ, Vol. 63 No.8, Oct. 1984.

[2] McClure, R.M., *TMG - A Syntax Directed Compiler*, Proc. 20th ACM National Conference, 1965.

[3] Richards, M., *BCPL: A Tool for Compiler Writing and Systems Programming*, Proc. AFIPS SJCC 34, 1969.

† These people had been assigned to the Multics Project (part of Project MAC, a joint effort with MIT) which Bell Labs pulled out of because of lack of success.