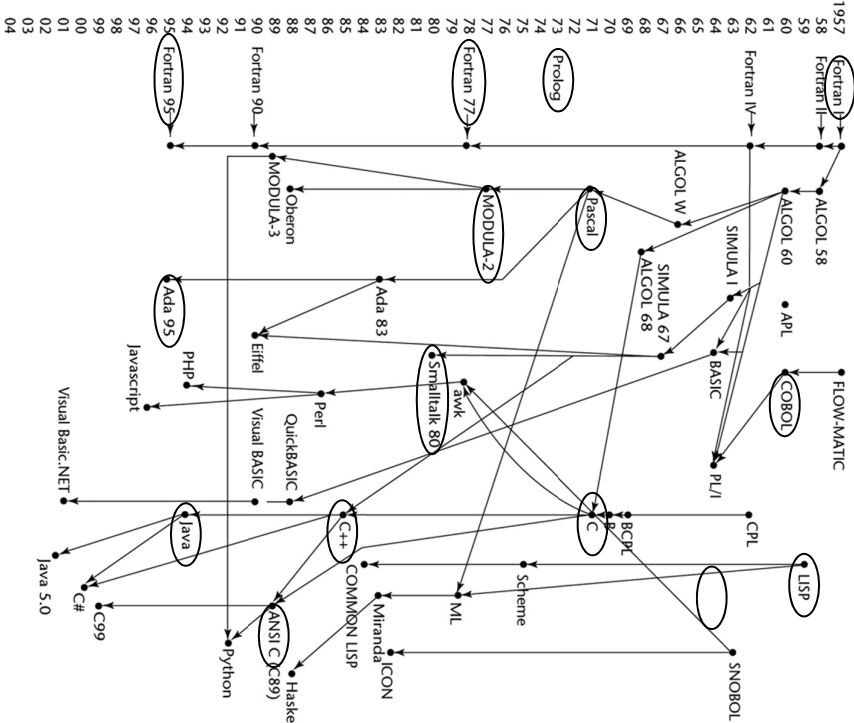


Chapter 2

Evolution of the Major Programming Languages

- 2.1 Zuse's Plankalkul
- 2.2 Minimal Hardware Programming : Pseudocodes
- 2.3 The IBM 704 and FORTRAN
- 2.4 Functional Programming : LISP
- 2.5 The First Step Toward Sophistication : ALGOL60
- 2.6 Computerizing Business Record : COBOL
- 2.7 The Begining of Timesharing : BASIC
- 2.8 Everything for Everyone : PL/I
- 2.9 The beginning of Data Abstraction : SIMULA67
- 2.10 Orthogonal Design : ALGOL68
- 2.11 Two Important Descendants of the ALGOLs : Pascal and C
- 2.12 Programming Based on Logic : Prolog
- 2.13 History's Largest Design Efforts : Ada
- 2.14 Object-Oriented Programming : Smalltalk
- 2.15 Combining Imperative and Object-Oriented Features : C++

• Genealogy of High-Level Programming Languages



<Homework 1>
Solve the Problems
#7, #12, #14

- 7. LISP began as a pure functional language but gradually acquired more and more imperative features. Why?
- 12. Describe, in your own words, the concept of orthogonality in programming language design.
- 14. What are the arguments both for and against the idea of a typeless language?

Figure 2.1 Genealogy of common high-level programming languages

- TIOBE Programming Community Index for Feb. 2016
 - http://www.tiobe.com/tiobe_index
 - gives an indication of the popularity of programming languages.
 - ⇒ is updated once a month.
 - The ratings are based on the world-wide availability of skilled engineers, courses and third party vendors

Feb 2016	Feb 2015	Change	Programming Language	Ratings	Change
1	2	⬆	Java	21.145%	+5.80%
2	1	⬆	C	15.594%	-0.89%
3	3		C++	6.907%	+0.29%
4	5	⬆	C#	4.400%	-1.34%
5	8	⬆	Python	4.180%	+1.30%
6	7	⬆	PHP	2.770%	-0.40%
7	9	⬆	Visual Basic .NET	2.454%	+0.43%
8	12	⬆	Perl	2.251%	+0.86%
9	6	⬆	JavaScript	2.201%	-1.31%
10	11	⬆	Delphi/Object Pascal	2.163%	+0.59%
11	20	⬆	Ruby	2.053%	+1.18%
12	10	⬆	Visual Basic	1.855%	+0.14%
13	26	⬆	Assembly language	1.828%	+1.08%
14	4	⬆	Objective-C	1.403%	-4.62%
15	30	⬆	D	1.391%	+0.77%
16	27	⬆	Swift	1.375%	+0.66%
17	18	⬆	R	1.192%	+0.23%
18	17	⬆	MATLAB	1.091%	+0.06%
19	13	⬆	PL/SQL	1.062%	-0.20%
20	33	⬆	Groovy	1.012%	+0.51%