

1 Historical Perspective

Friday, January 23, 2026 3:00 PM

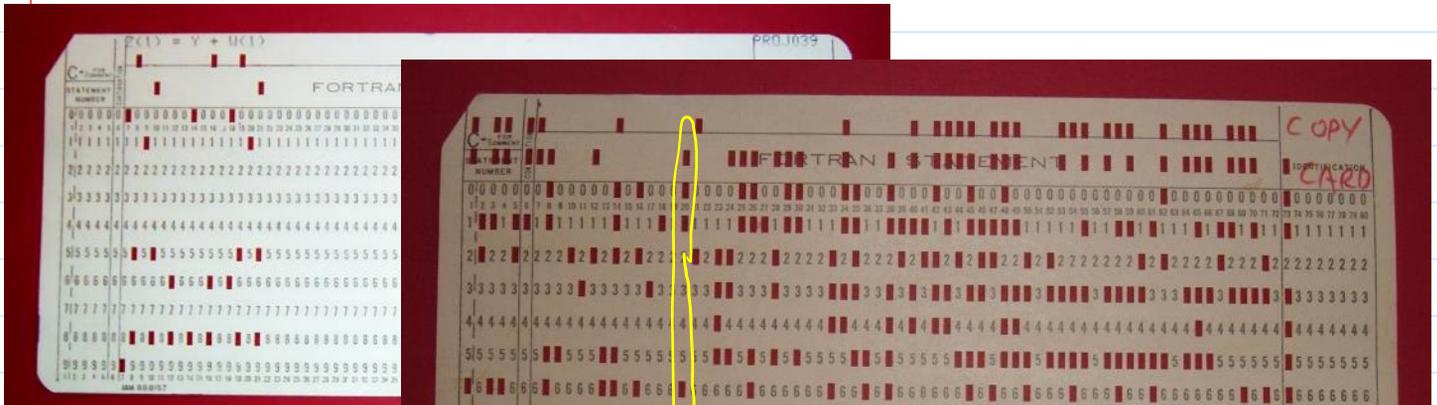
- Why Programming Languages ?

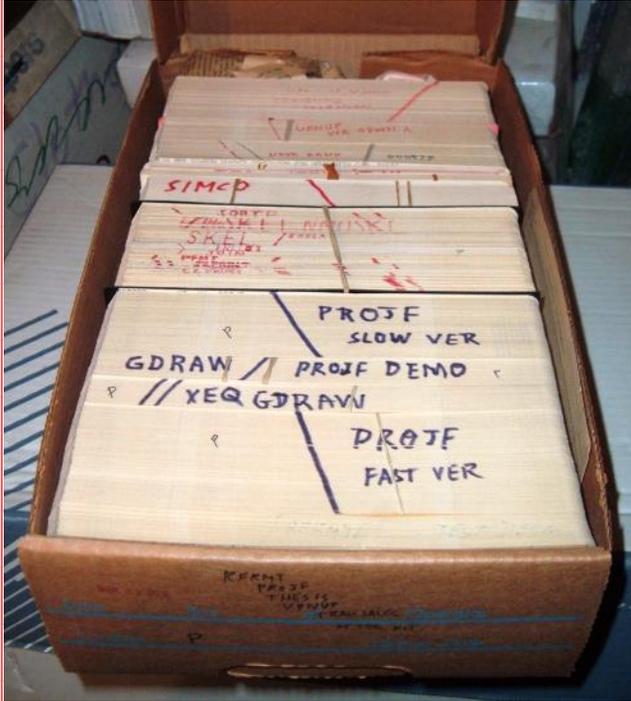
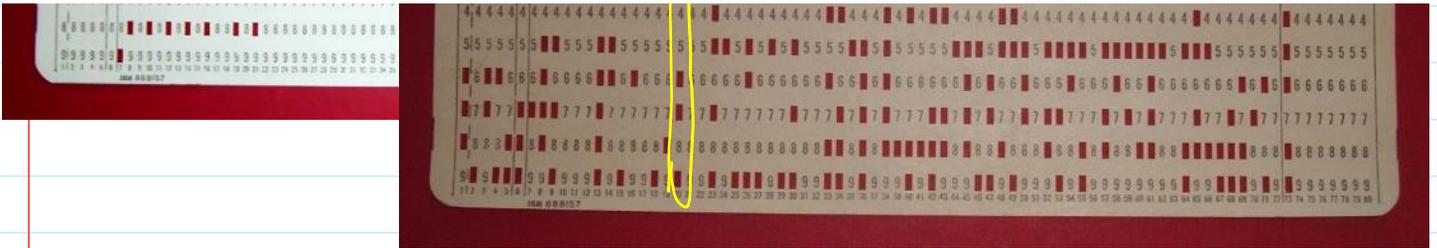
"In the Beginning, Machines were Big, Problems Small"



Binary Code.

```
01010100 01101000 01101001 01110011 → Add x 2
00100000 01101001 01110011 00100000
01110100 01101000 01100101 00100000
01110100 01110101 01110100 01101111
01110010 01101001 01100001 01101100 → sub x 123
00100000 01110100 01101111 00100000
01101100 01100101 01100001 01110010
01101110 00100000 01100010 01101001
01101110 01100001 01110010 01111001
00101110 00100000 01001001 00100000 → store y in address 0000
01101000 01101111 01110000 01100101
00100000 01111001 01101111 01110101
00100000 01100101 01101110 01101010
01101111 01111001 00100000 01101001
01110100 00100001
```





ComputerHope.com

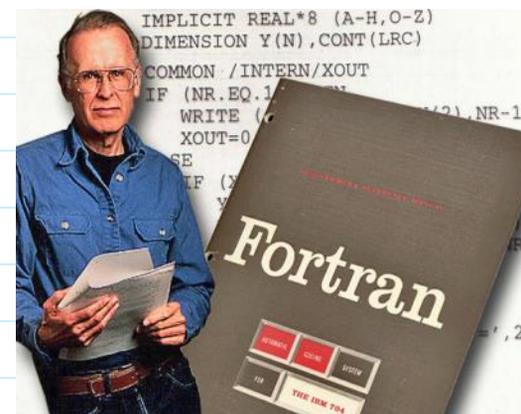
- Programming Languages

- '53 John Backus at IBM

- "Make programmes more productive"
- "Eliminate Bugs"
- "It will take six months"

- '59 **FORTRAN** Formula translator.

- '60s **Algol-60** First language with a formal specification:
iRecursion!
Backus-Naur Form



- COBOL
- PL/1
- Algol-68
 - Templates
 - List Comprehensions
 - Exception Handling
 - Fancy loops over iter.

- LISP
by John McCarthy

• '70s

- BCPL
- B
- C by Kernighan & Ritchie UNIX

- Pascal by N. Wirth,
first Personal computers.



- BASIC
- LOGO "for kids"

- Simula '79
 - Object Oriented Programming

- Prolog
Colmerauer & Russell

• 80's

Alan Kay :- SmallTalk

Pascal → Object Pascal → Delphi

C → • Objective C MacOS

• C with Objects.

• C++ by Bjarne Stroustrup

• Eiffel

• Perl by Larry Wall

• '90

- PC's are everywhere.
- Visual Basic.

- '96 "The internet"

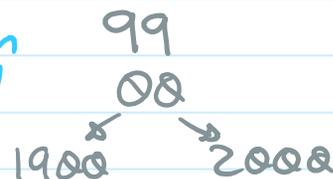
- HTML
- Java - Virtual Machine -  Android
- JavaScript. Brendan Eich
- PHP

• 2000

- Python

"The Y2K bug"

Cobol & Fortran
still alive!!!



• 2010

Improve older Languages.

- A better Objective-C
 - Swift
- A better Java
 - Scala
 - Kotlin
 - J++
- C# by Anders Hejlsberg.
- A better C++
 - D
 - Go
 - Rust
 - Zig.
- A better JavaScript.
 - Dart
 - TypeScript
 - WebAssembly.

• 2020:

"the LLM is the new compiler"

2024.

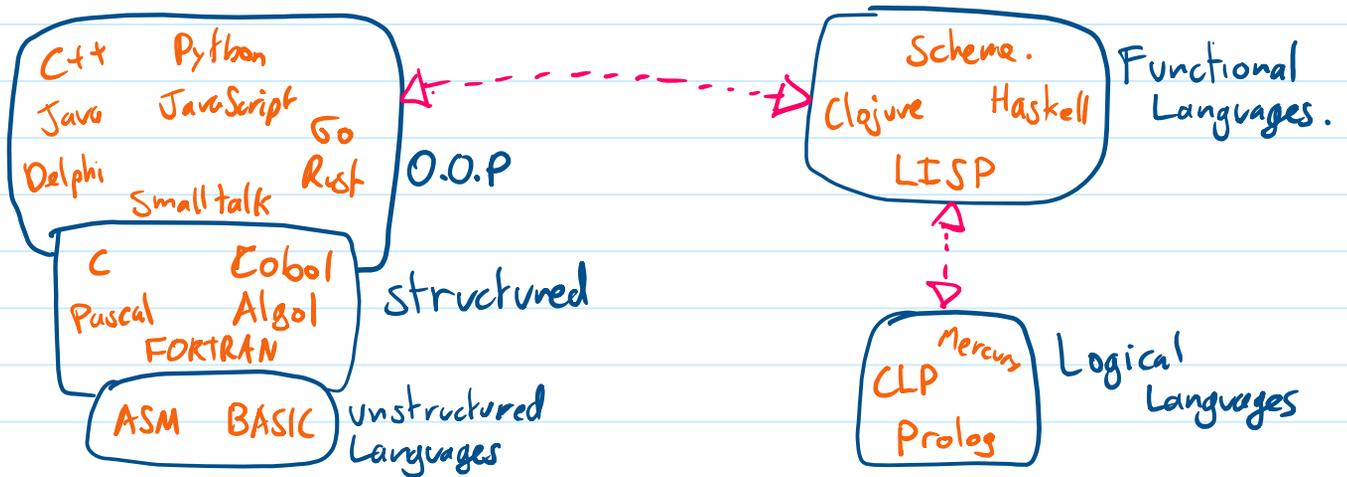
"the LLM is the new compiler"

compiler: source → binary known & deterministic.

LLM: intent → source. Unknown & non-deterministic. 😞

• The Future?

• Programming Language Taxonomy



C++ '98 '03 ... '11 '17 '20 '23 '26 '29 '32

