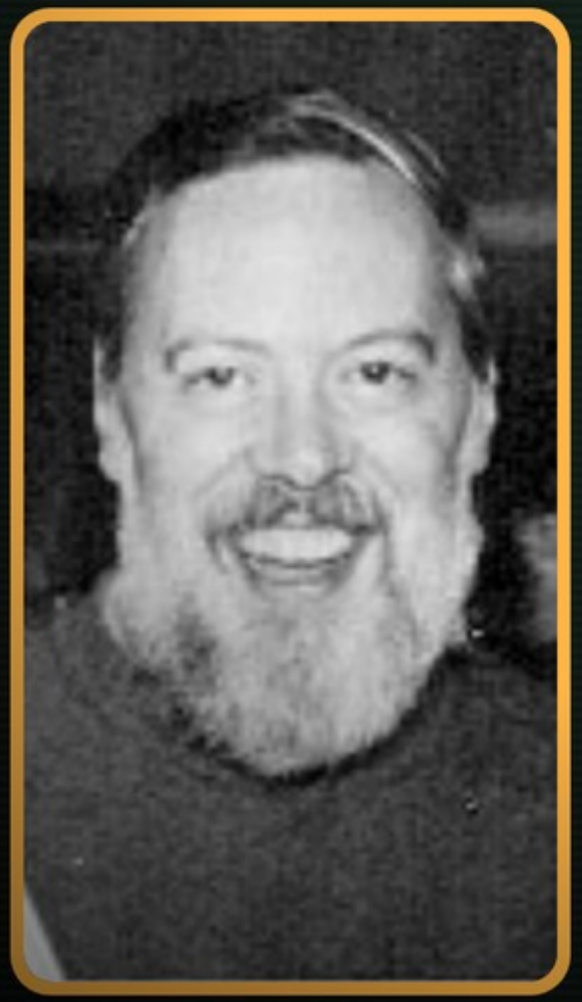
@MyWebUniversity

C

The Language That Built UNIX



```
printf("hello, world\n");
```



DENNIS RITCHIE · 1972

A MYWEBUNIVERSITY STORY

C

The Language That Built UNIX

```
printf("hello, world\n");
```



Dennis Ritchie



Ken Thompson

Photo: public domain, via Wikimedia Commons (The Jargon File)

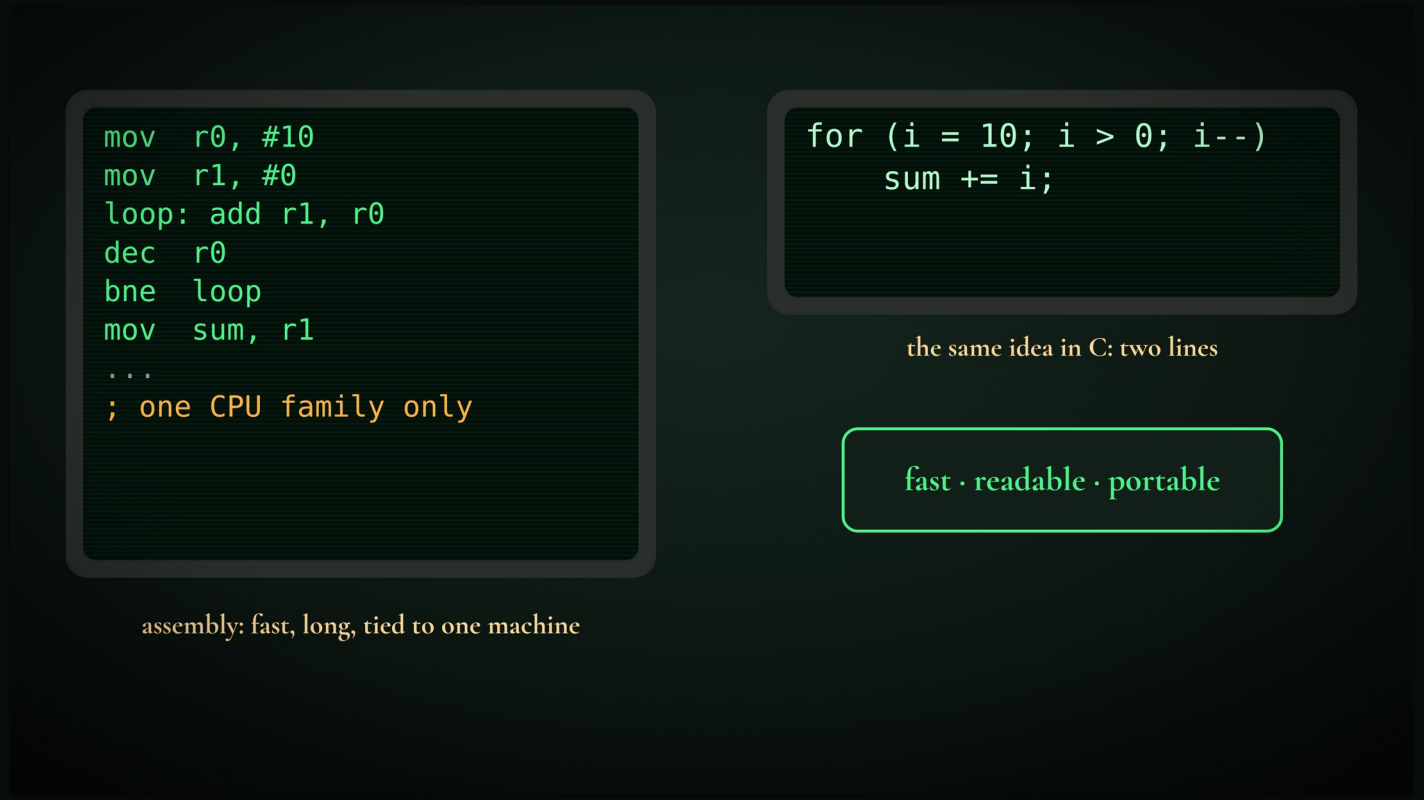
A Hallway of Geniuses



- Bell Labs, AT&T's research center in New Jersey
- Thompson & Ritchie build UNIX; Kernighan writes and teaches
- UNIX was first written in assembly

01

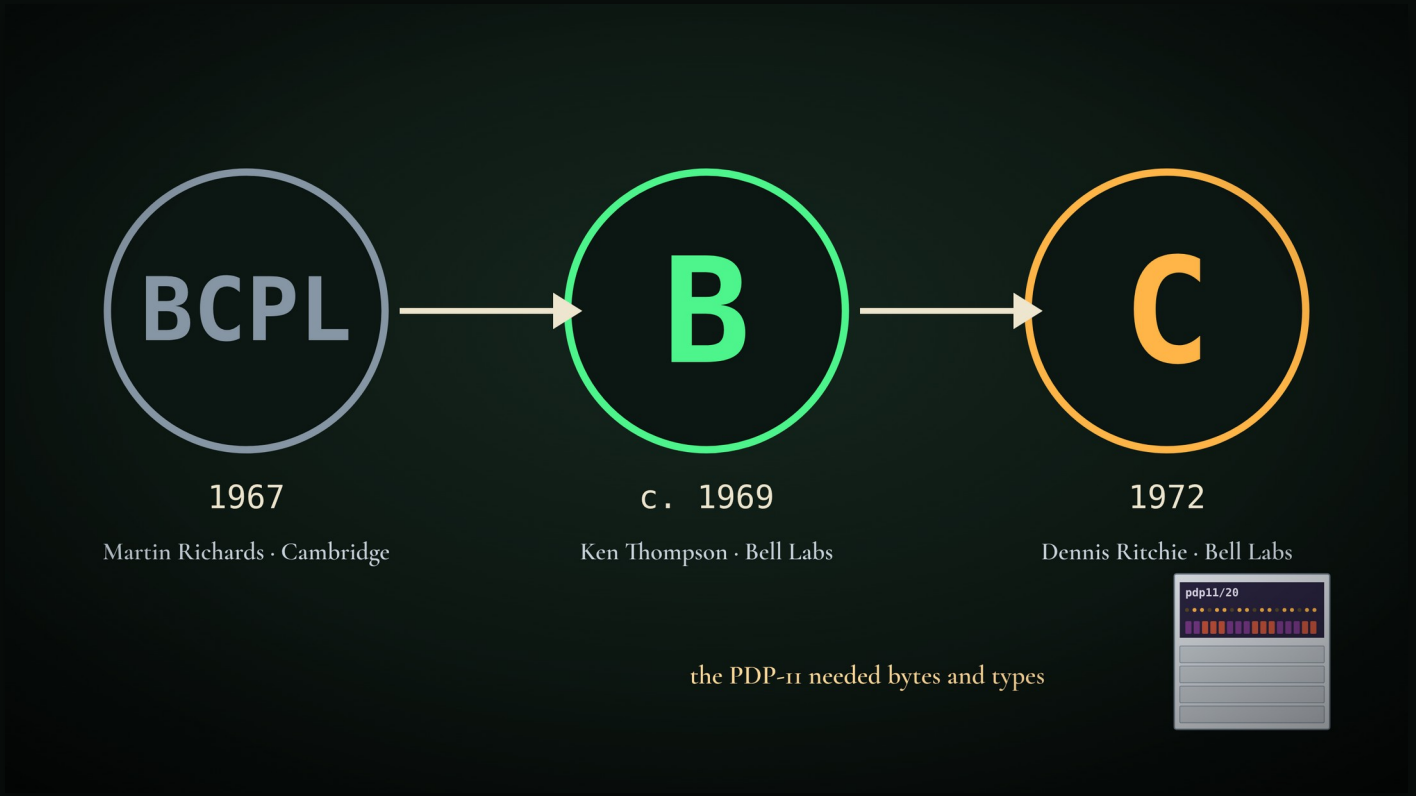
The Problem with Assembly



- Assembly: fast, but tied to one CPU family
- Long and hard to read
- Goal: almost as fast, far easier, portable

02

From BCPL to B to C



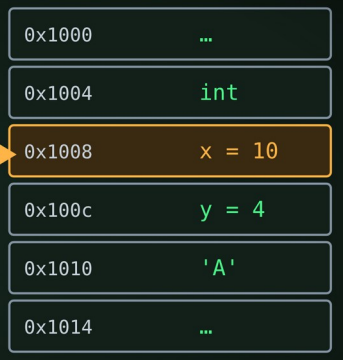
- 1967: BCPL, Martin Richards (Cambridge)
- c. 1969: B, Ken Thompson
- PDP-11 needed bytes and typed data

03

Dennis Ritchie Creates C

```c
struct point {
    int  x, y;
    char label;
};

struct point p = {3, 4, 'A'};
struct point *ptr = &p;
ptr->x = 10;   /* via pointer */
```



int · char · struct · pointers

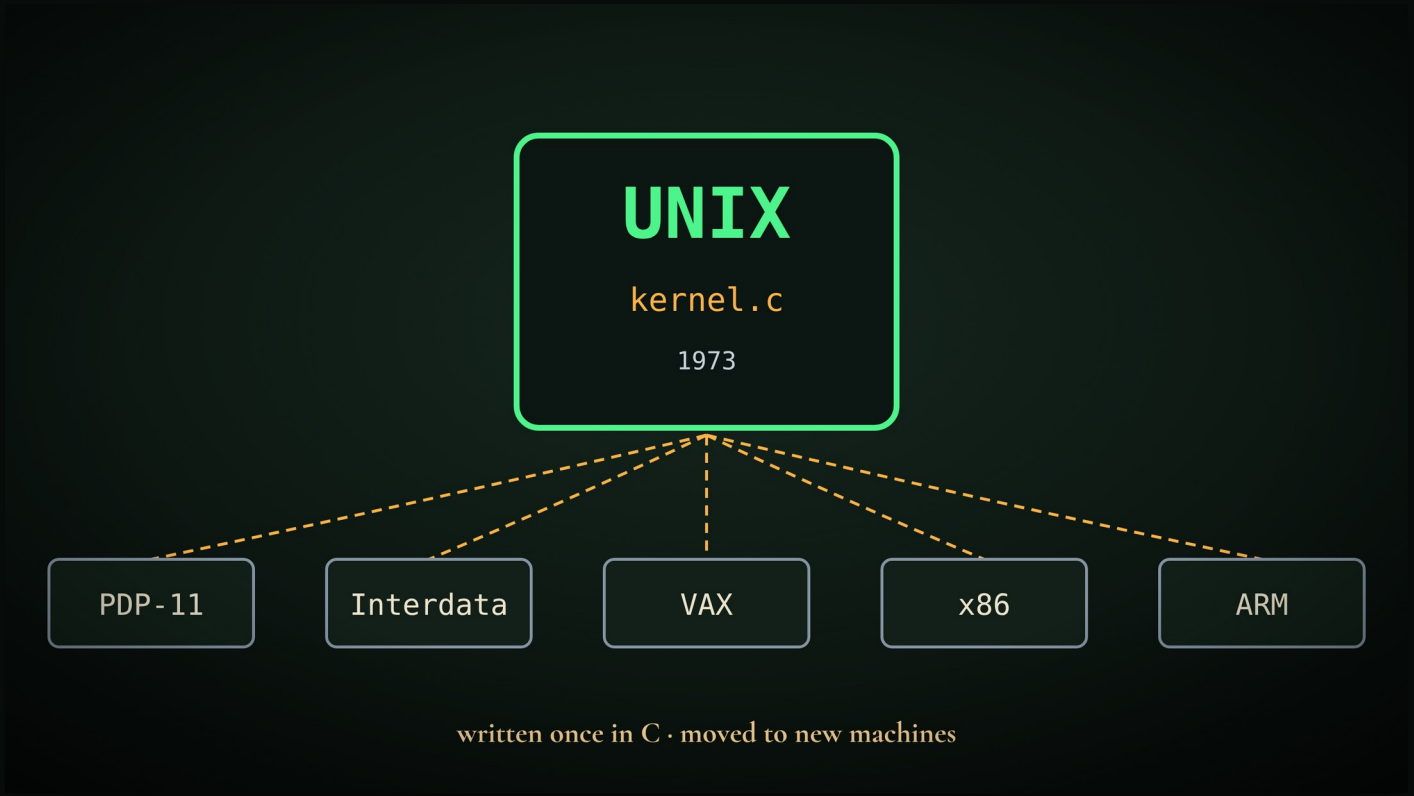
pointers = addresses in memory

Dennis Ritchie · 1971–1973

- 1971–1973: Dennis Ritchie creates C
- Types (int, char), structs, pointers
- Small, fast, close to the machine, readable

04

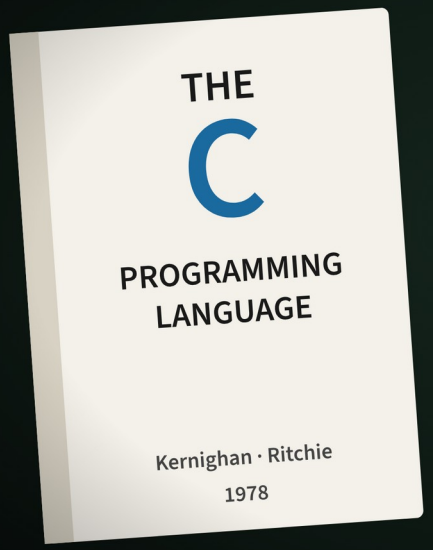
UNIX Rewritten in C, 1973



- 1973: UNIX kernel rewritten in C
- Only a small part changes per machine
- The road to Linux and macOS

05

Hello, World! The K&R Book




```c
#include <stdio.h>

int main(void) {
    printf("hello, world\n");
    return 0;
}
```

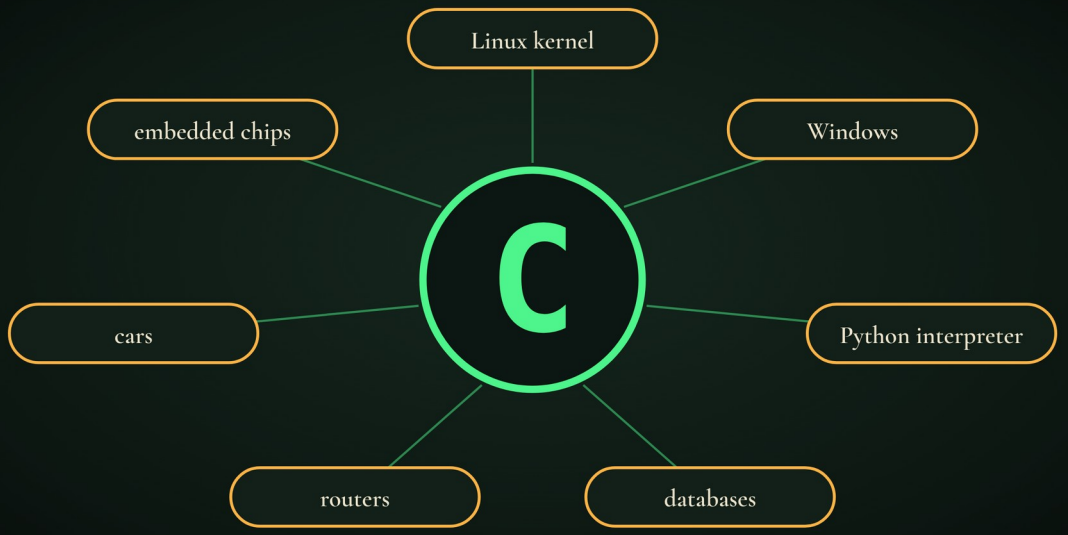
```
$ ./hello
hello, world
```

1989: ANSI C standard

- 1978: The C Programming Language (K&R)
- printf("hello, world\n");
- 1989: ANSI C standard

06

C Runs the World



- Linux kernel, Windows, Python interpreter, databases, embedded
- C syntax lives on in C++, Java, JavaScript, Go, C#
- Newest standard: C23 (2024)

07

Honors and Memory

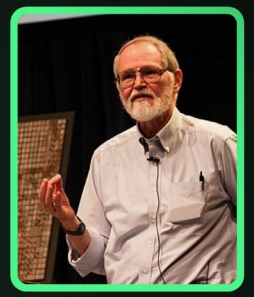


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Turing Award · 1983

National Medal of Technology · 1999



Brian Kernighan · Princeton

Photo: via Wikimedia Commons

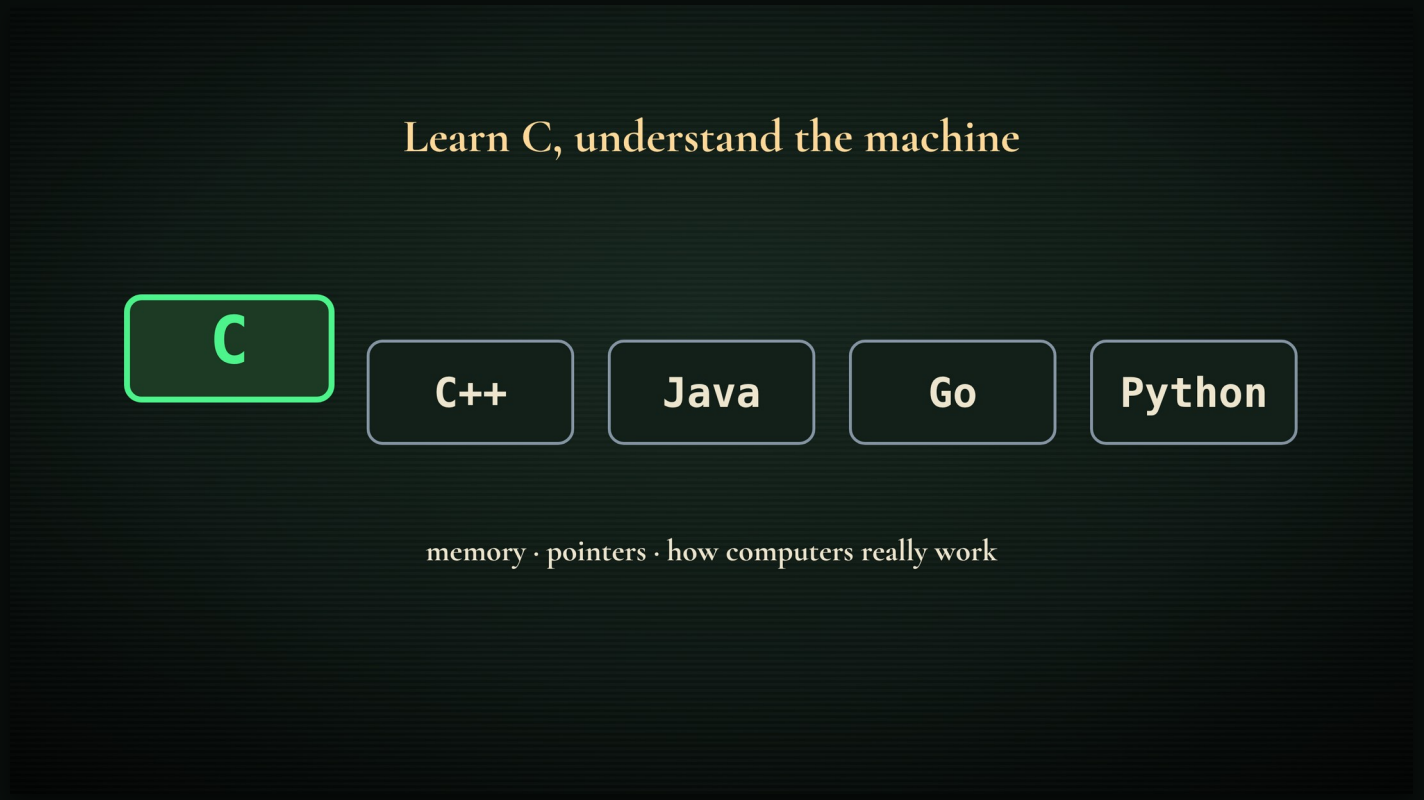
Dennis Ritchie · 1941–2011

Ken Thompson: later co-created Go at Google

- 1983 Turing Award · 1999 National Medal of Technology
- Thompson: co-creator of Go · Kernighan: Princeton
- Dennis Ritchie, 1941–2011

08

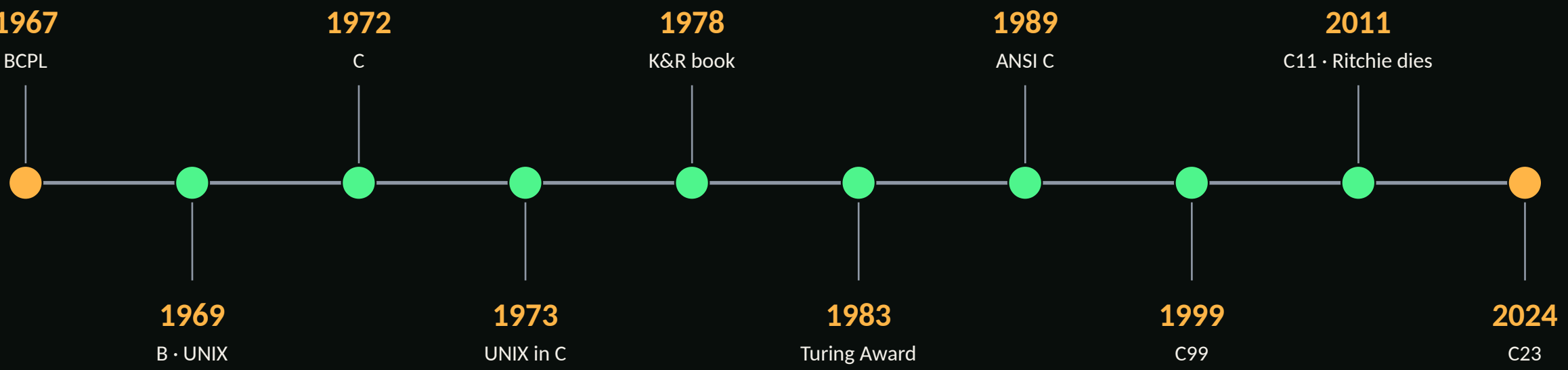
Learn C, Understand the Machine



- Built to solve a real problem, then shared
- Learn C → understand memory and pointers
- Then C++, Python, Java and Go come easier

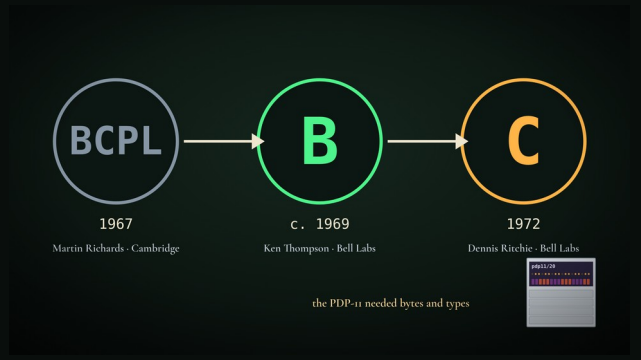
09

Timeline: 1967 to 2024



Sources and Further Reading

1. Dennis M. Ritchie, “The Development of the C Language,” 1993 — nokia.com/bell-labs
2. Kernighan & Ritchie, The C Programming Language (Prentice Hall, 1978; 2nd ed. 1988)
3. ACM A.M. Turing Award 1983: Ken Thompson and Dennis Ritchie — amturing.acm.org
4. ISO/IEC 9899:2024 (C23)
5. Photos: Ken Thompson and Dennis Ritchie — public domain, via Wikimedia Commons (The Jargon File); Brian Kernighan — via Wikimedia Commons.





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