

From **Ada**to **Zuse**



..... and onward

- the evolution of computer software

They should be as famous as Bill Gates !

... *these Turing Award Winners*



Wilkes



Dijkstra



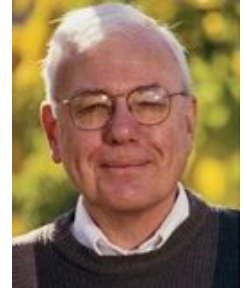
Thompson & Ritchie



Wirth



Hoare



Thacker

.. *these Lovelace Medal Winners*



Linus
Torvalds

B.D.F.L



Tim
Berners-Lee



Karen
Sparck-Jones

.. *and some other interesting people*



Sophie
Wilson



James Ellis
(IEEE 100th
Milestone Award)



Alan
Black

The early pioneers



Ada Lovelace



Max Newman



Alan Turing



The Eniac Programmers



John von Neumann



Konrad Zuse

Bletchley Park -



BOMBE



Turing



Michie

(AI)



Newman

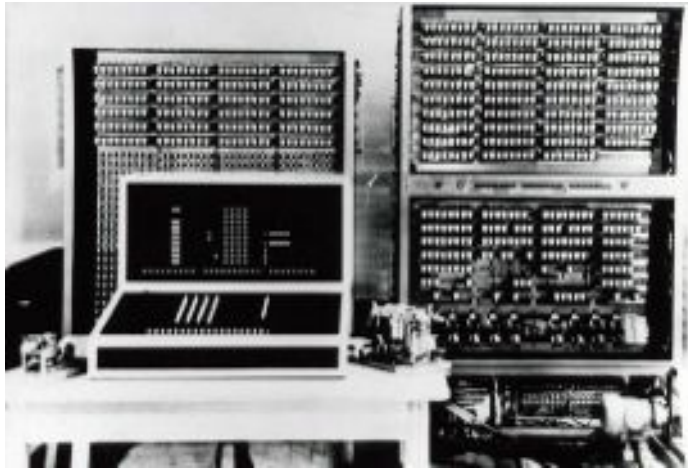


HEATH-ROBINSON

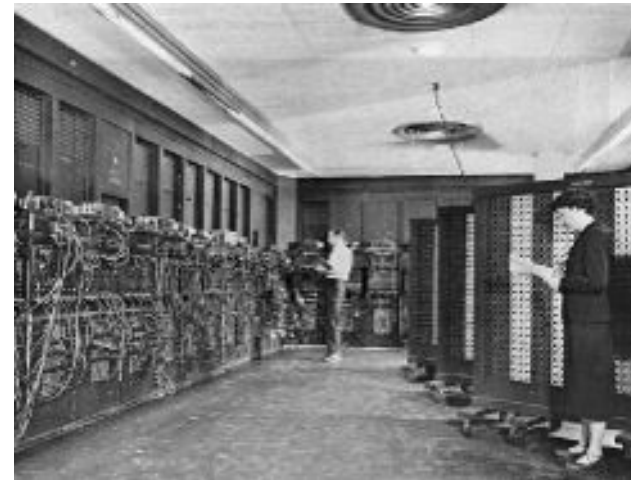


COLOSSUS

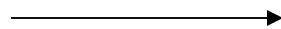
- And elsewhere



ZUSE-3 - 1941



ENIAC - 1946



EDVAC REPORT - 1945

Von Neumann architecture

“1949 - a Mechanical Brain”

- from “The Star”

On the top floor of a rather drab building in a narrow Cambridge back street is an apparatus which seems to consist chiefly of a vast number of valves set in grey painted racks.....

This is how it works. First Mr Wilkes fed a strip of paper punched with holes into a "ticker-tape" machine. As the paper ticked through, miniature television screens showed a row of green blobs ... then almost instantaneously a teleprinter nearby began to print rows of figures. That was all.....

There are not enough "brains" to go around at the moment, but a dozen would probably be sufficient for the whole country ... The future? The "brain" may one day come down to our level and help with our income-tax and book-keeping calculations.

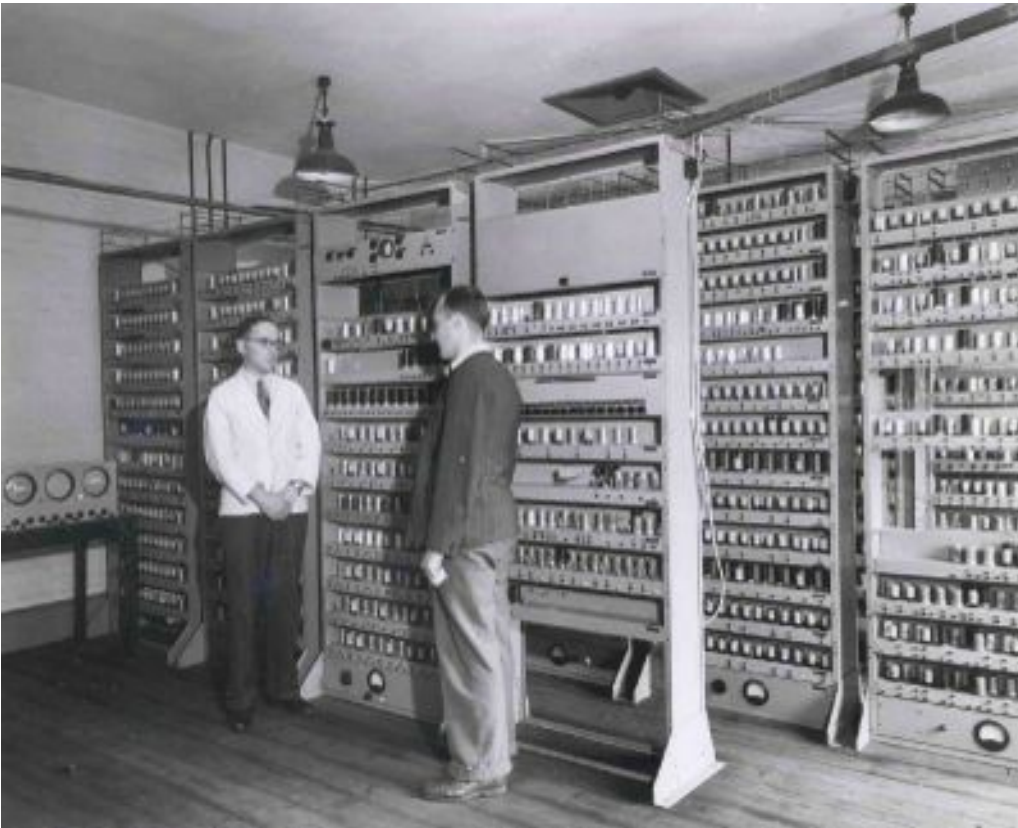
About Machine Code Programs

Machine Code - a stream of binary

.....10111001 00101111 10001010.....

“There are 10 types of people in the world; those who understand Binary and those who don't.”

EDSAC - 1949 and Leo 1 - 1951



Maurice Wilkes & EDSAC

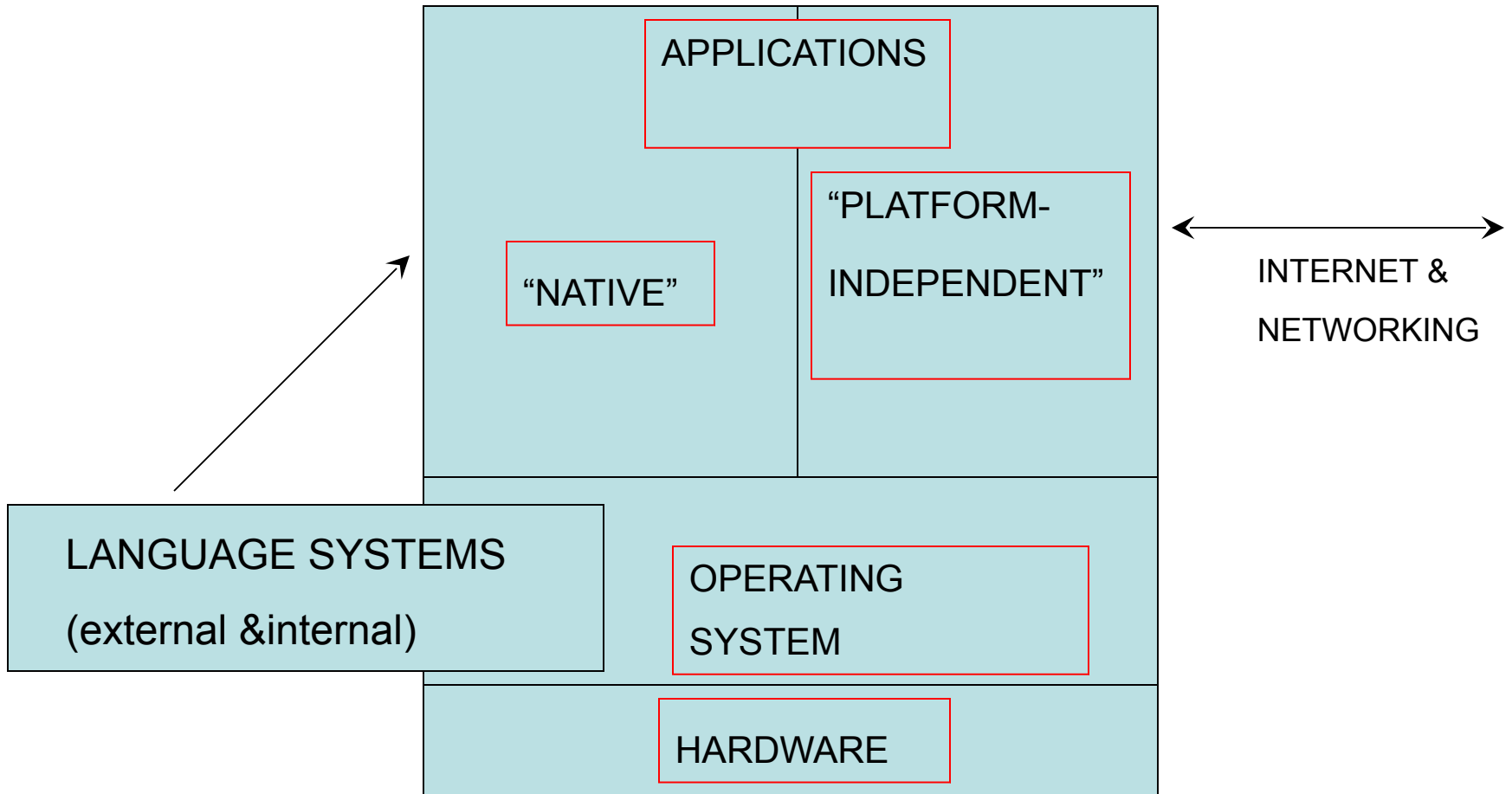


David Wheeler



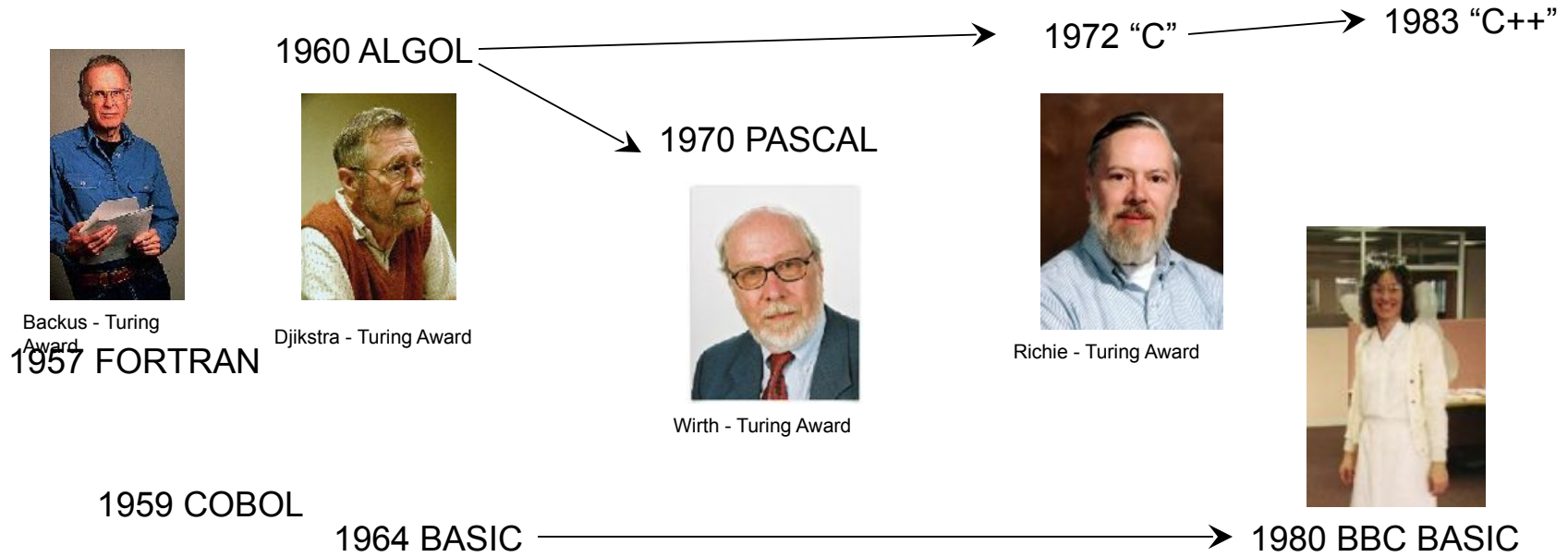
David Caminer

Types of software



TYPICAL COMPUTER

Important computer languages - and their creators



Larry Wall

1987 PERL
BDFL



Berners-Lee - Lovelace Medal

1990 HTML



James Gosling

1995 JAVA



Guido van Rossum

2000 PYTHON2
BDFL

WINDOWS

MACOS X

LINUX

Some functions of Operating Systems

- User interface - e.g. GUI (Windows)
- Filing system
- Memory management
- Managing peripherals - printers etc.
- Multi-tasking, multi-user

Origins of Operating Systems



Fernando Corbato - Turing Award

1964 MULTICS



Thompson & Richie - Turing Award

1969 UNIX



Thacker - Turing Award

1973 XEROX ALTO

1973 CP/M

MS-DOS

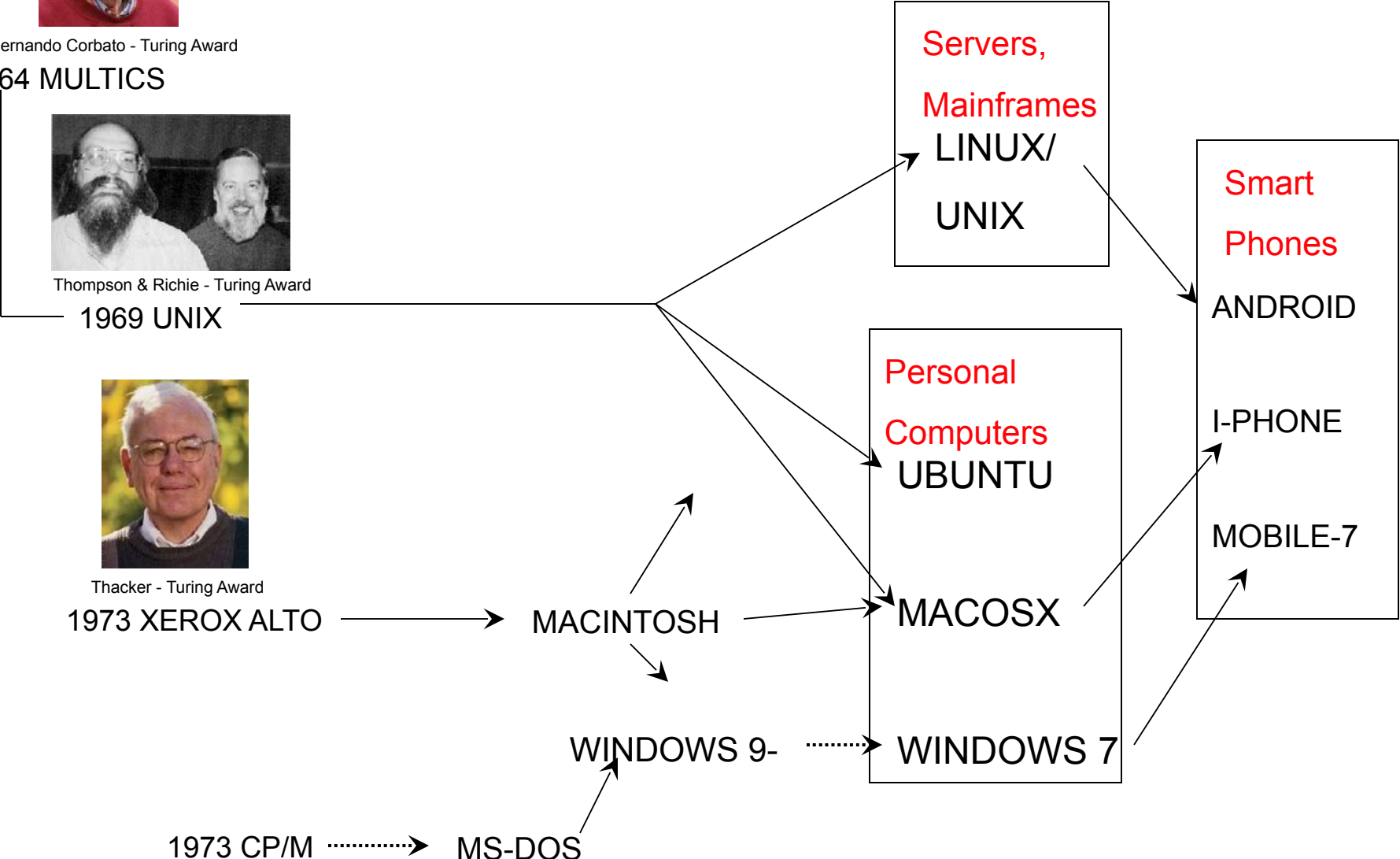
WINDOWS 9-

MACINTOSH

Servers,
Mainframes
LINUX/
UNIX

Personal
Computers
UBUNTU
MACOSX
WINDOWS 7

Smart
Phones
ANDROID
I-PHONE
MOBILE-7



Evolution of Microsoft Windows

1985 GEM — (AMSTRAD)
(Digital Research)



1973 CP/M

(Digital Research)

1979 Q-DOS

(Seattle Computer Products)



Tim Paterson

1982 MS-DOS → 1990 WINDOWS3

- WINDOWS95

- WINDOWS98

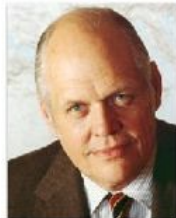
1993 WINDOWSNT

- 2001 WINDOWSXP

- 2007 VISTA

-2009 WINDOWS 7

DEC



Ken Olsen



Dave Cutler



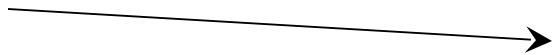
“In a world without walls, who needs Gates and Windows ?”

Evolution of Apple MACOS X operating system



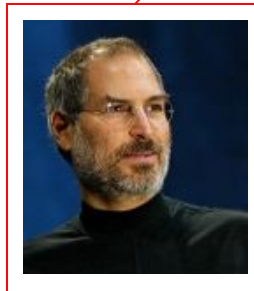
Thompson & Richie - Turing Award

1969 UNIX

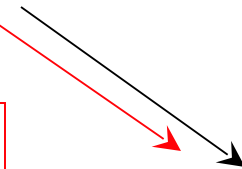


"NeXT"

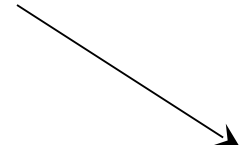
(1985-1996)



Steve Jobs



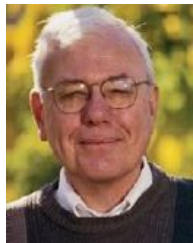
2000 DARWIN



1982 MACINTOSH

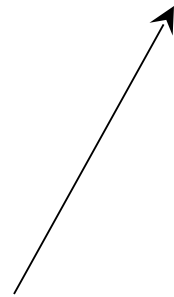


2002 MACOS X

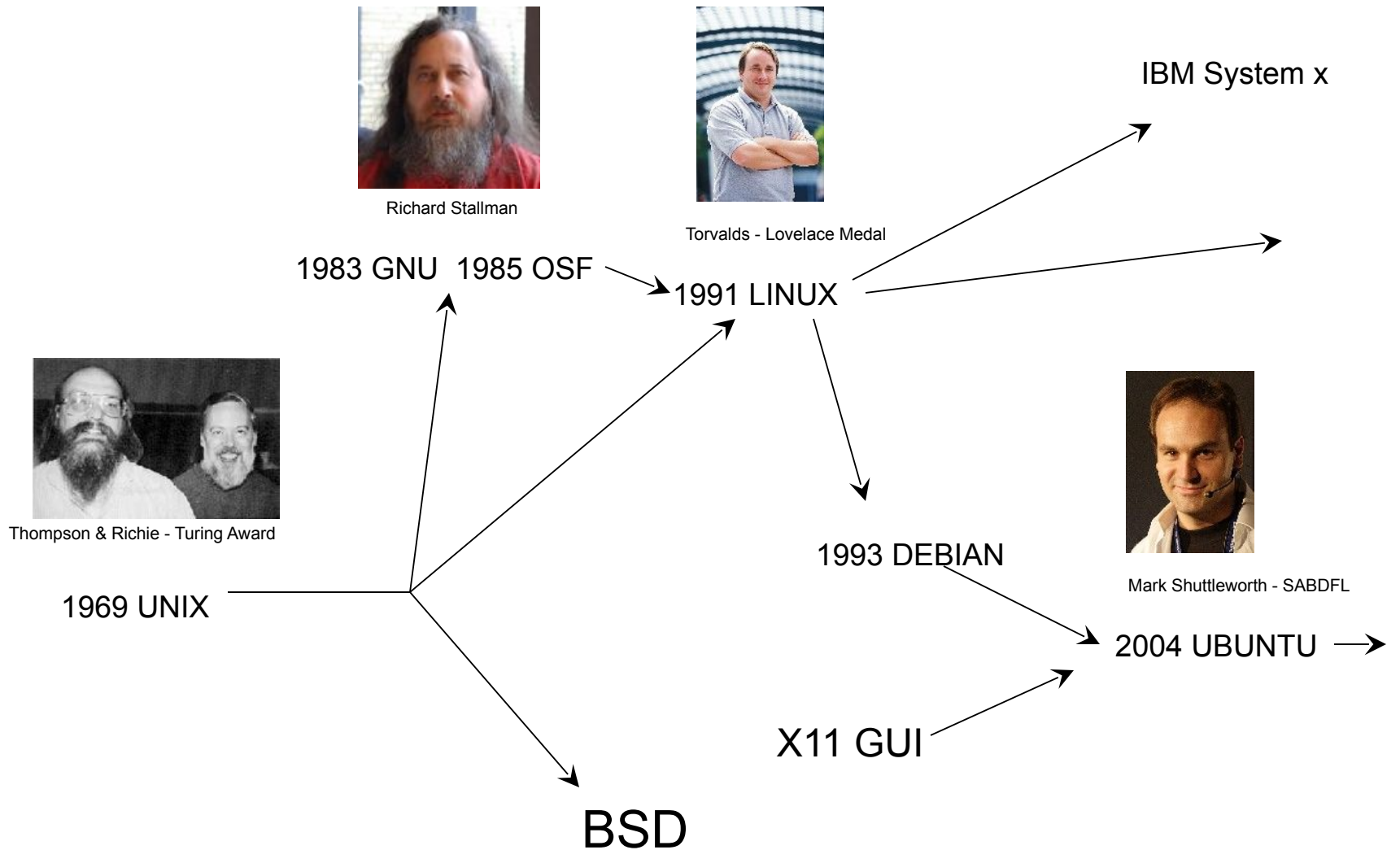


Thacker - Turing Award

1973 XEROX ALTO

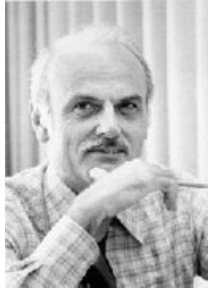


Evolution of Linux operating systems



Origins of Office Applications

1970

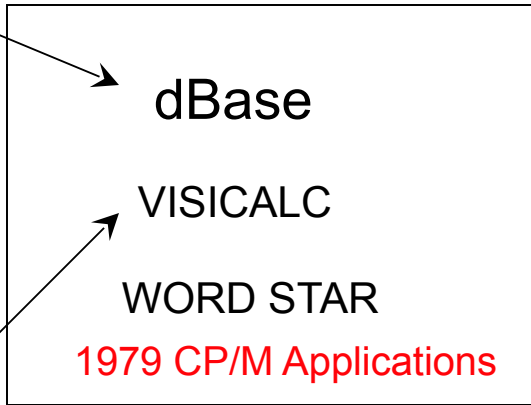


Ted Codd - Turing Award

SQL

1983 GNU

2000 OPEN OFFICE



dBase

VISICALC

WORD STAR

1979 CP/M Applications

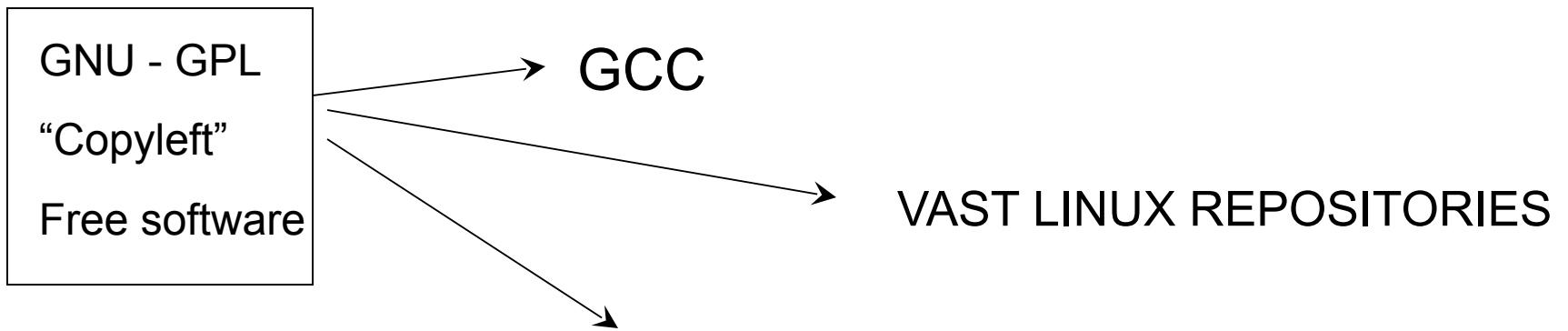
1986 STAR OFFICE

1992 MICROSOFT OFFICE

1986 SAGE OFFICE (AMSTRAD)



Dan Bricklin



GNU (GPL) Applications (for Windows, MAC, and Linux)

Free	(Proprietary equiv.)
Open Office	(Microsoft Office)
GIMP	(Photoshop)
Thunderbird	(Outlook Express)
Scribus	(Adobe Pagemaker)
Inkscape	(Corel Draw)

They should be as famous as Bill Gates !

... *these Turing Award Winners*



Wilkes



Dijkstra



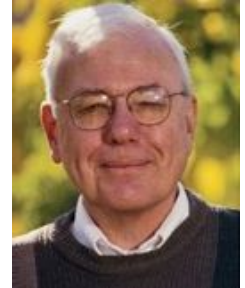
Thompson & Ritchie



Wirth



Hoare



Thacker

.. *these Lovelace Medal Winners*



Linus
Torvalds

B.D.F.L



Tim
Berners-Lee



Karen
Sparck-Jones

.. *and some other interesting people*



Sophie
Wilson

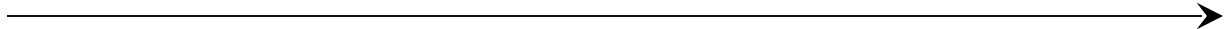


James Ellis
(IEEE 100th
Milestone Award)



Alan
Black

Artificial Intelligence



LOEBNER PRIZE

1950 TURING TEST



Yorick Wilks
Loebner Prize 1997
Lovelace Medal 2009



Karen Sparck-Jones
Lovelace Medal 2007

COMPUTATIONAL LINGUISTICS

NATURAL LANGUAGE PROCESSING

- programming computers to

- *understand human language*

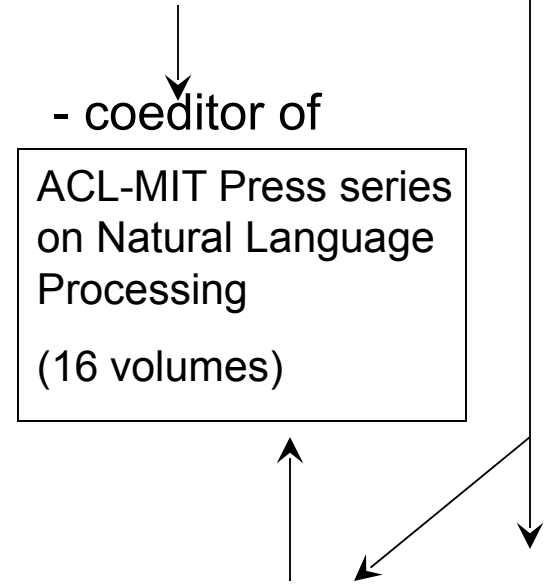
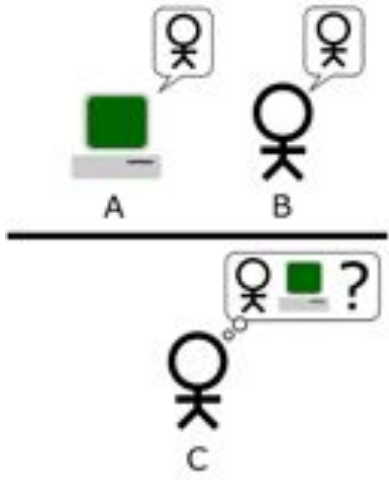
- *write/speak human language*

EXPERT SYSTEMS

- coeditor of

ACL-MIT Press series
on Natural Language
Processing
(16 volumes)

Other Authors



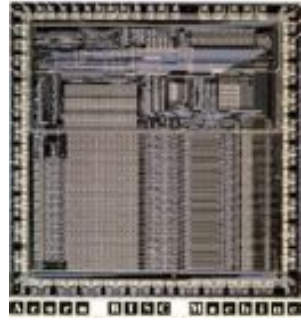
Alan Black

- “Festival” Speech Synthesis System (Edinburgh)
- Carnegie-Mellon
- Founder of Cepstral





Sophie Wilson



1981 Created BBC BASIC

(still in widespread use)

“Sophie nee Roger Wilson, the one-woman once-man whirlwind”

(now “Chief Architect”, Broadcom DSL)

1983 Designed the ARM Instruction Set; emulated the ARM1 on a BBC Micro prior to the making of a chip which worked first time.

(leading to the huge success of ARM processors)



James Ellis

1970 to 1973 James Ellis devised “Public Key Cryptography”, which was then secretly developed by Cocks and Williamson at GCHQ.

1977 “re-invented” by Rivest, Shamir and Adleman and publicly described.

1997 GCHQ reveals the work, one month after Ellis died.

2002 Turing Award to R, S, and A.

2010 IEEE 100th Milestone Award to Ellis, Cocks and Williamson.

