

Prolog

1972

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lang

sed programming
ciated with symbolic
artificial intelligence.

CMPT 383
Summer 2022
SFU Surrey

What was the situation in 1972?

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1972: First Appearances

HP-35 Pocket Scientific Calculator

How much would you pay for it?

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\$395 in 1972

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\$2559 in 2021

1972: First Appearances

ODYSSEY

Magnavox Odyssey

First Home Video

Game System

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Table Tennis

How much would you pay for it?

\$99.95 in 1972

\$647 in 2021

1972: First Appearances

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Nolan Bushnell

1972: First Appearances

Pong

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Atari's 1st
commercially
successfully
video game

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1972: Highest-grossing Arcade Games

#1 Computer Space

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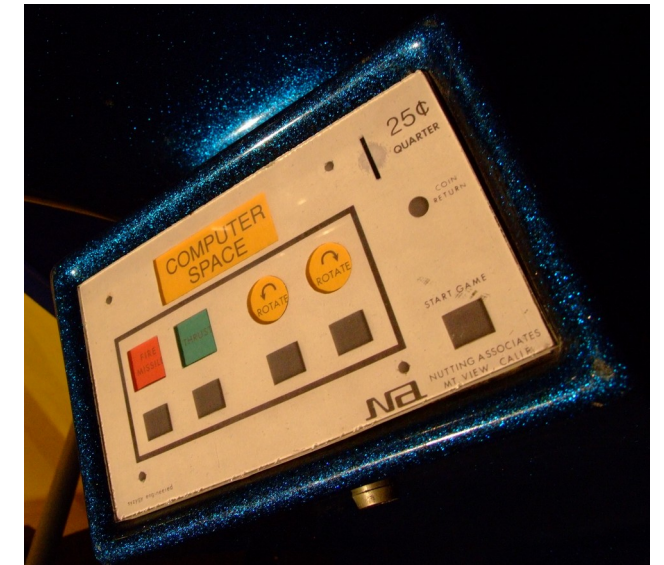
200 cabinets

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#2 Pong

1 cabin

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1972: Highest-
Movie

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1972: Most Popular Song

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The First Time Ever I

Saw Your Face

Roberta Flack

1972: First Appearances

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Dennis Ritchie

1972

Canadian PM

US President

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Pierre Trudeau

Richard Nixon

Prolog

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1972

based prog
langu associated with symbolic
artificial intelligence.

Prolog's Creators

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Alain Colmerauer
(1941 – 2017)

Robert Kowalski

Prolog Probably **Can't** Get You a Job!

Prolog has been most influential as a
research language used by AI researchers.

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It also has some relevant base
processing, and declarative languages
such as SQL.

What's Prolog Good for?

Computational logic,
e.g. theorem-proving.

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Sym <https://eduassistpro.github.io/>

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Parsing natural language.

What's Prolog **Not** so Good For?

- Prolog is often **not** as efficient as other languages.
 - Prolog uses simple depth-first search, and needs heuristics to improve that.
 - Often stores large databases, and efficiently querying those databases can be
- Prolog is **not** used much in practice, s hard to find support for it.
- Prolog has a very logical flavor, which appeals to some people, but turns others off.
- Prolog syntax and semantics is quite different than other languages.

Measuring the performance of different programming languages is surprisingly difficult to do fairly. Check out [the Computer Language Benchmarks Game](#)

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Major Features of Prolog

Functions are first-class objects

Functions can be passed and returned (closures)

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Interpreted

Easy to evaluate individ <https://eduassistpro.github.io/>

Memory-safe and garbage-collected

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No manual memory deletion

Major Features of Prolog

Types

Dynamically typed, i.e. types checked **at** run-time

Pattern matching (unification)

Given two expressions with variables that make them identical, find values for those variables.

Declarative (sometimes)

You can often think of a Prolog program as describing a goal state without saying exactly how to find it. It automatically searches for a solution using depth-first search.

Automatic backtracking

After finding a solution to a problem, Prolog can automatically **backtrack** to decision points and make different choices.

Major Features **Not** in Prolog

Features **not** part of Prolog

No functional programming (at least not in the style of Racket/Haskell)

No object-oriented programming

No loops

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Hello World in Prolog

Please use install and run SWI-Prolog. See the course notes or SWI-Prolog website for installation instructions.

?- `write('Hello, world!').`

Hello, world!

true.

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