



Compilers

The Economy of
Programming Languages

- Why are there so many programming languages?
- Why are there new programming languages?
- What is a good programming language?

Why are there so many programming languages?

Application domains have distinctive/conflicting needs.

scientific computing

[good FP
good arrays
parallelism] FORTRAN

business applications

[persistence
report generation
data analysis] SQL

systems programming

[control of resources
real time constraints] C/C++

Why are there new programming languages?

Claim: Programmer training is the dominant cost for a programming language.

- 1. Widely-used languages are slow to change.
- 2. Easy to start a new language.
productivity > training cost
- 3. Languages adopted to fill a void.

Why are there new programming languages?

Claim: Programmer training is the dominant cost for a programming language.

New languages tend to look like old languages.

Java vs. C++

What is a good programming language?

There is no universally accepted metric for language design.

A good language is one people use?

VB is the best language?

Application domains have conflicting needs.

It is hard to design one system for all.

Programmer training is the dominant cost for a programming language.