

## Objectives

- |                            |   |                             |
|----------------------------|---|-----------------------------|
| 1) Fast & easy prototyping | ← | <b>Matlab, Mathematica</b>  |
| 2) High-performance        | ← | <b>C, Fortran, Assembly</b> |

- **Productivity vs. Performance**

Mathematical abstraction → language

- **Numerical vs. Symbolic** computations

Floating point arithmetic, arbitrary precision, symbols

- Imperative vs. **Functional** programming

Pattern matching, rewrite rules, functions & maps



- In English, programming assignments, challenges
- Start: **Thursday - April 27, 2:15pm** (double lecture)  
2181|P11, MeT P 11, Kopernikusstr. 14
- Followups: “Automatic Generation of Algorithms”  
“High-performance Matrix Computations”