

# Computer Languages

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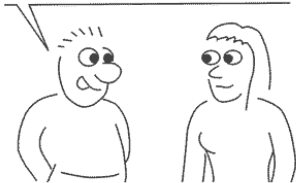


CENTER FOR RESEARCH ON EMBEDDED SYSTEMS  
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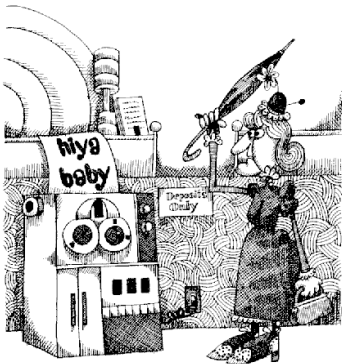
# Motivation

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- You have to learn new computer languages all the time. Why not learn about some concepts that occur in most of them?
- Many problems can be solved by implementing a little language.
- There are tools that have been created for language implementation, worth knowing about because they can be used in other programming areas.
- As a computer engineer you might have to interact with other engineers designing programming tools for your system.

# Goals



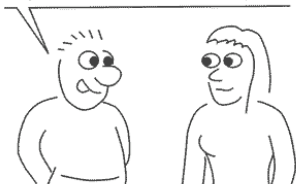
- Concepts behind design and implementation of computer languages.
- Theory of formal languages.
- Big software project.
- Experience with tools.

# Contents

- Formal languages: Regular expressions, finite automata, lexical analysis of programming languages.
- Context free grammars, stack automata, parse trees, abstract syntax, syntactical analysis of programming languages.
- Types and typechecking of programming languages
- Compilation of programming languages: Intermediate representation.
- Code generation.

# Organization

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- Lectures.
- Computer based exercises.
- Project.
- Oral exam.