

Concepts of programming languages

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13 september 2023

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Lecture 1: Lecture 1

di 12 sep 2023 19:41

1 Bridging the gap

Definition 1. A compiler translates from source code to a target language, typically machine code.

Ex. C, C++, Haskell, Rust

Definition 2. An interpreter executes a program as it reads the source code Examples: perl, python, javascript

Note: Some languages make use of a hybrid approach. First translating the source language to an intermediate language (abstract or virtual machine), then interpret that. Examples: Java, C

2 Stages of a compiler

The first stage of a compiler is called a lexer, which given an input string of source code , produces a stream of tokens or lexemes, discarding irrelevant information like whitespace or comments.

Definition 3. The structure of lexemes expected to produce certain parse trees is called a grammar.