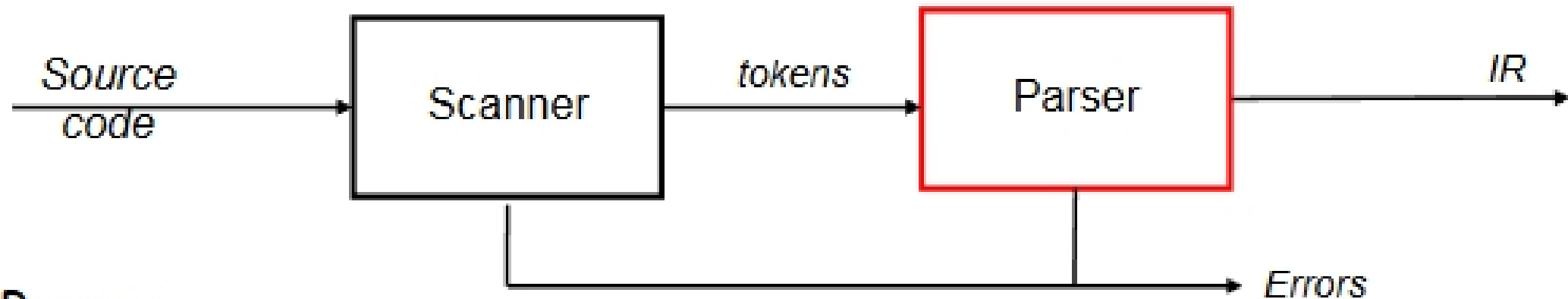




Introduction to Parsing

The Front End



Parser

- Checks the stream of words and their parts of speech (produced by the scanner) for grammatical correctness
- Determines if the input is syntactically well formed
- Guides checking at deeper levels than syntax
- Builds an IR representation of the code

Think of this as the mathematics of diagramming sentences



The Study of Parsing

The process of discovering a *derivation* for some sentence

- Need a mathematical model of syntax — a grammar G
- Need an algorithm for testing membership in $L(G)$
- Need to keep in mind that our goal is building parsers, not studying the mathematics of arbitrary languages

Roadmap

- 1 Context-free grammars and derivations
- 2 Top-down parsing
 - Hand-coded recursive descent parsers
- 3 Bottom-up parsing
 - Generated LR(1) parsers