The Phases of Language Translation
(and associated data structures)

String of characters

Scanning (lexical analysis)

Sequence of tokens

Parsing (syntactic analysis)

Abstract syntax tree (AST)
or parse tree

(Static) semantic analysis

(modified) tree + symbol table

Intermediate code generation

Intermediate code

Optimization

Tighter intermediate code!

Code generation

Assembly language

Assembly

Machine code
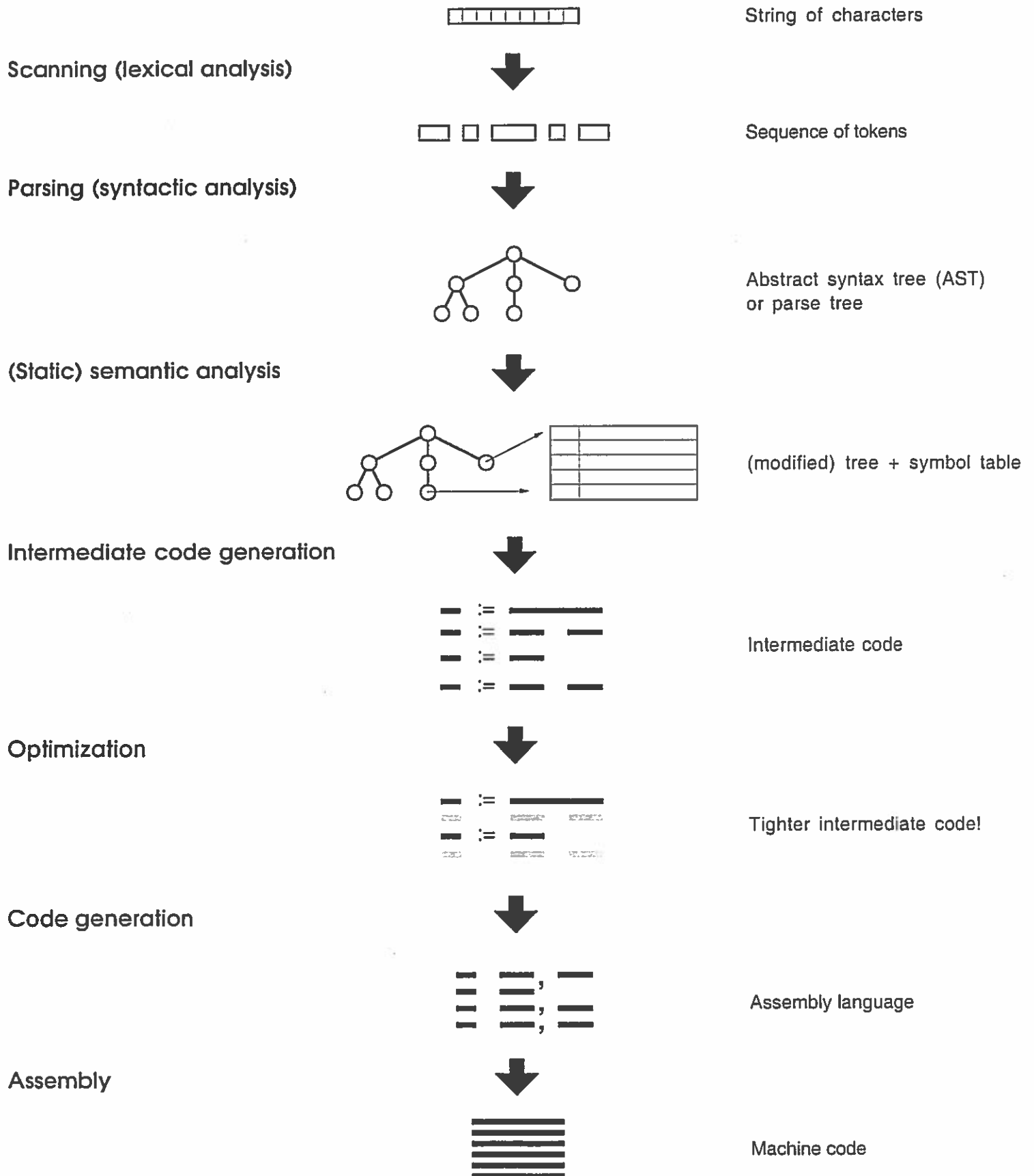
As important as the translation at each stage, so is the identification and "filtering" of ill-formed or erroneous input. In general, each phase depends on well-formed output from the previous phase.