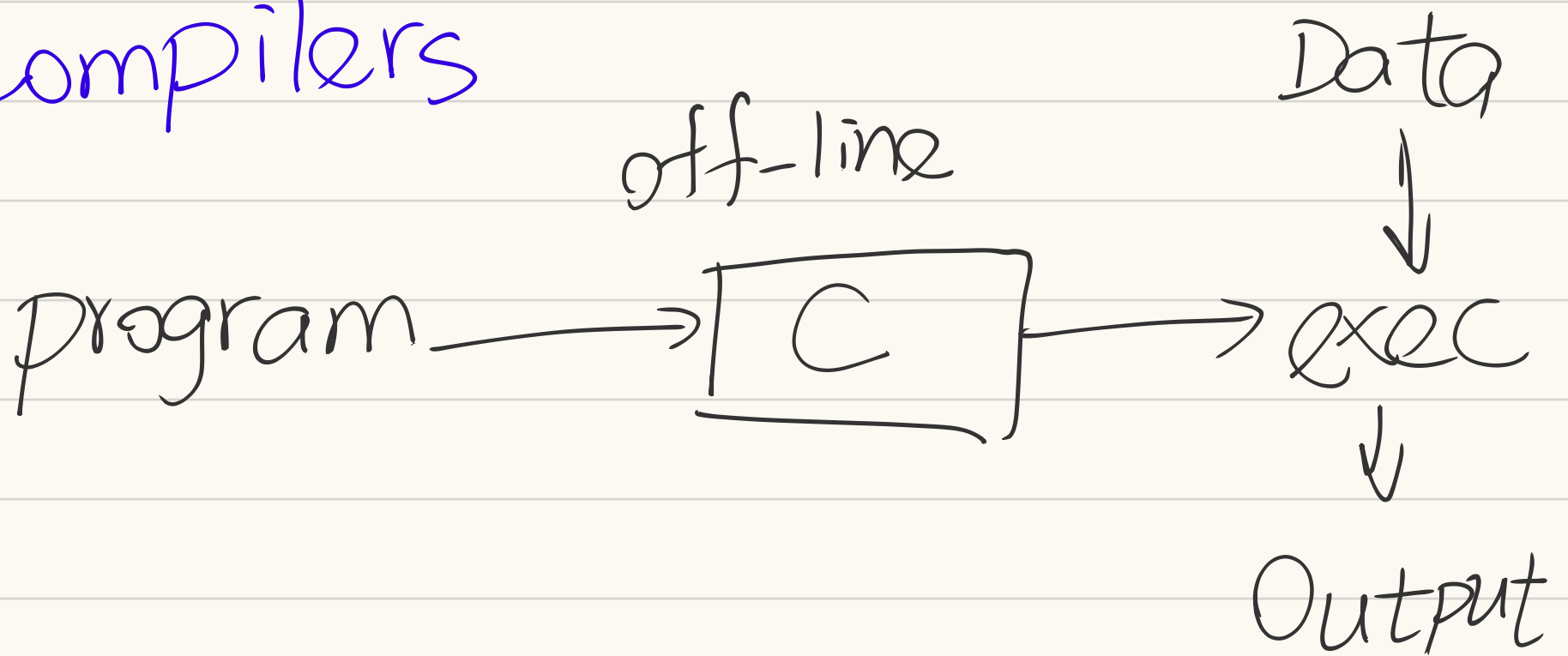
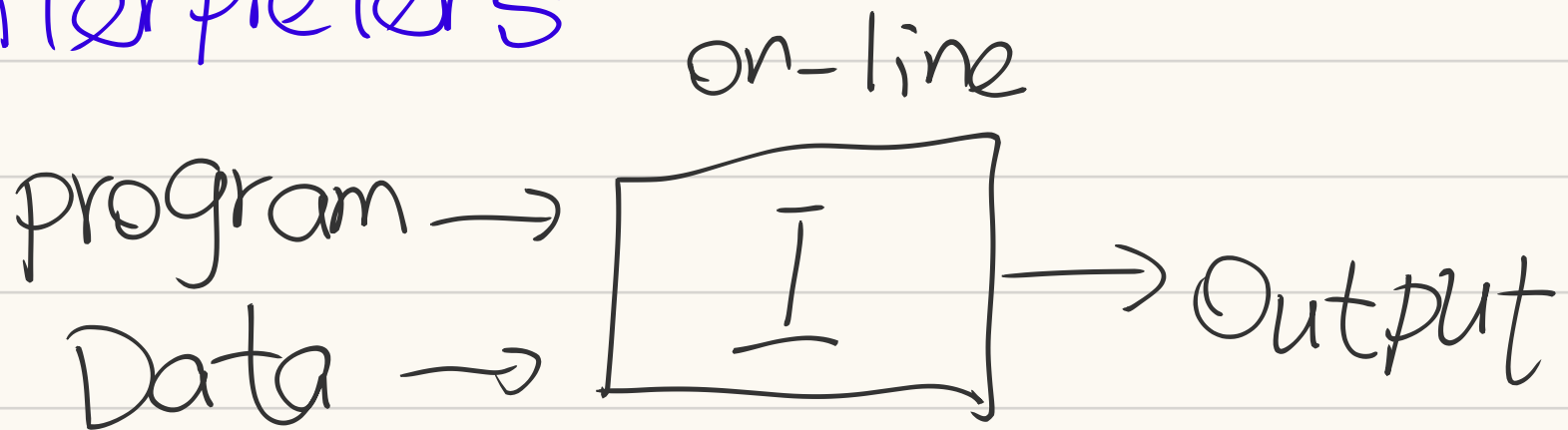


Compilers



Interpreters



FORTRAN I



Formulas Translated

Modern Compilers preserve the outline of

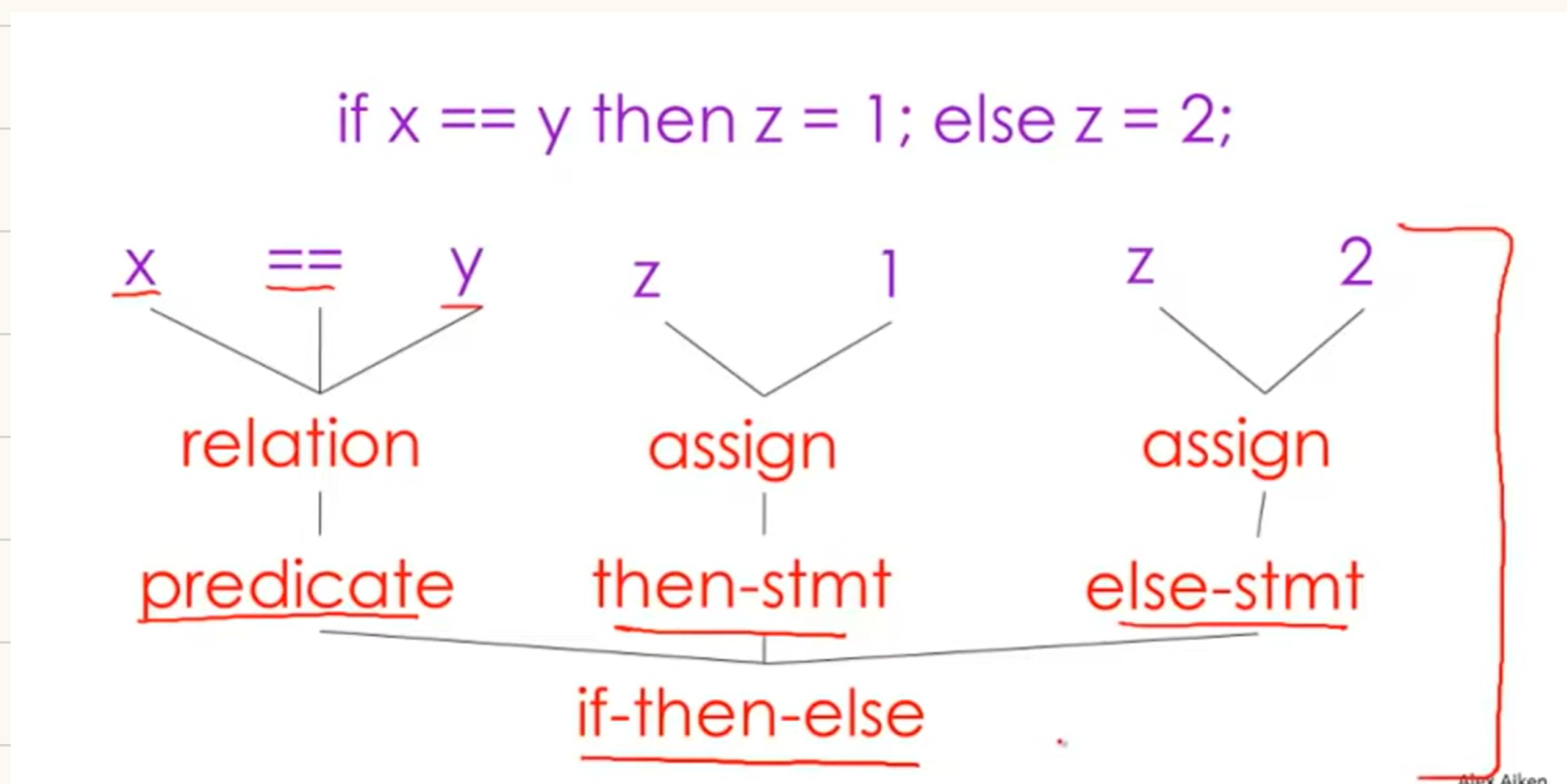
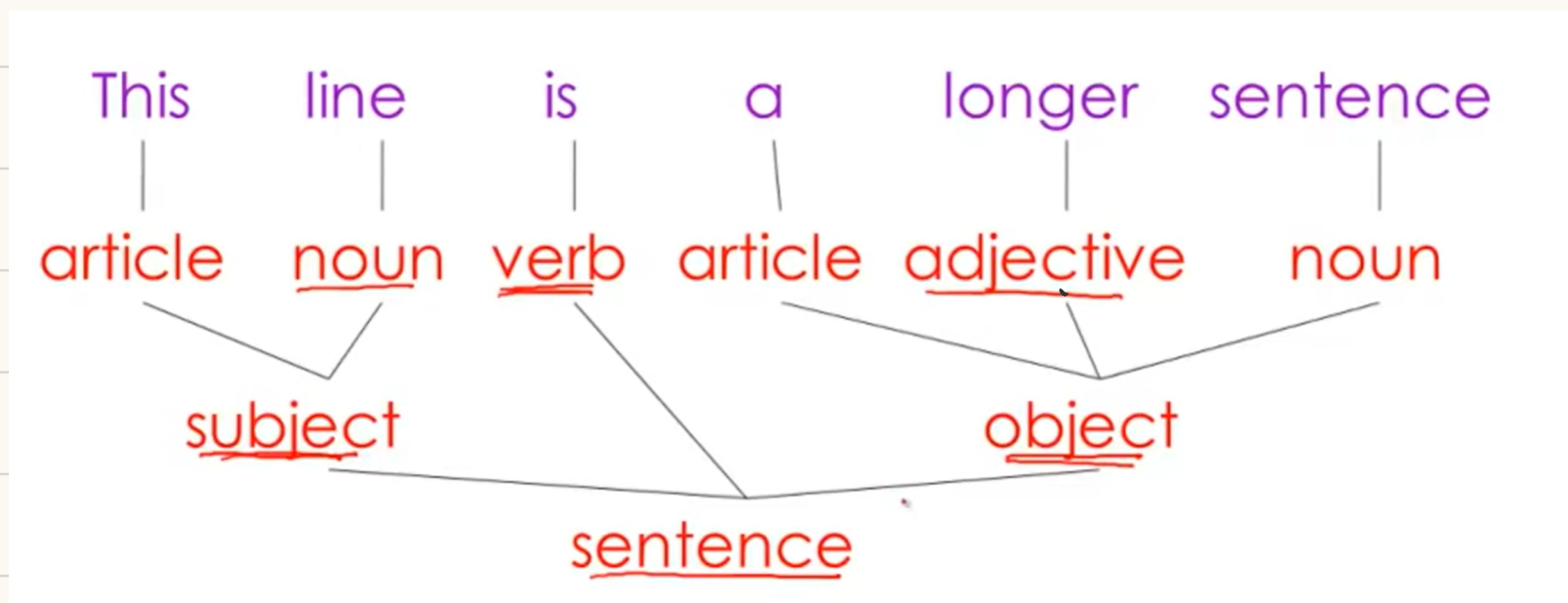
1. Lexical Analysis
 2. Parsing
 3. Semantic Analysis → Types scope
 4. Optimization
 5. Code Generation → Translation
- } Syntactic FORTRAN I

① 词法分析

Lexical analysis divides program text into "words" or "tokens"

Once words are understood, the next step is to understand sentence structure.

- ② Parsing = Diagramming Sentences
- The diagram is a tree



Once sentence structure is understood, We can try to understand "meaning"
 - This is too hard!

③ Compilers perform limited semantic analysis to catch inconsistencies.

Compilers perform many semantic checks besides variable bindings.

④

Optimization has no strong counterpart in English.

- But a little bit like editing.

Automatically modify programs so that they

- Run faster

- Use less resources.

⑤

Code Gen produces assembly code (usually)