61A Lecture 26

Friday, April 3

Announcements

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- **Canonical Implementation:** An interpreter or compiler for the language

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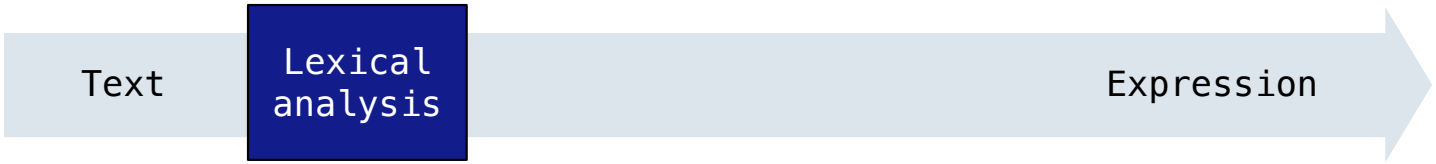

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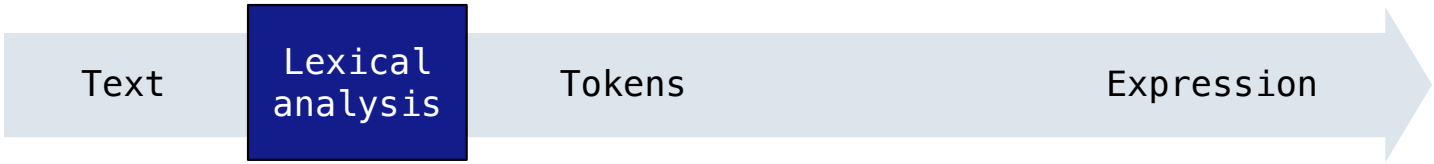

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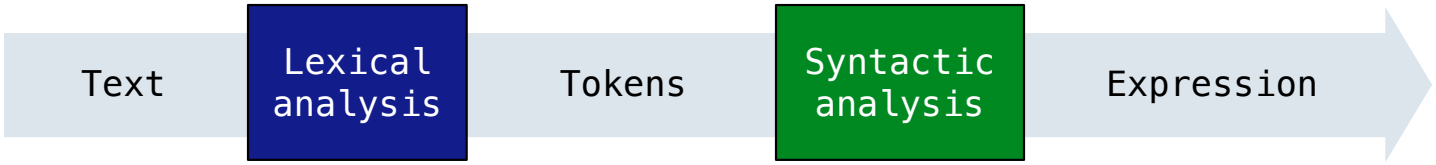


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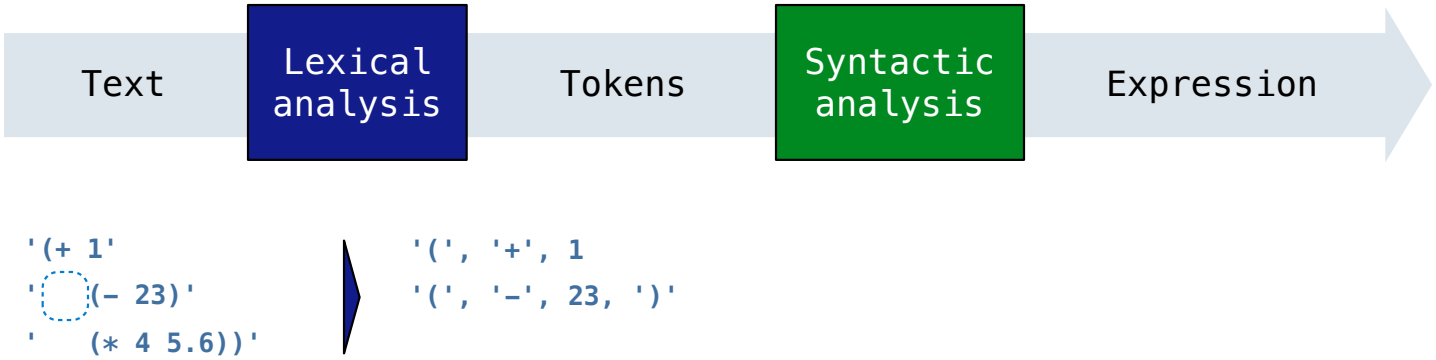

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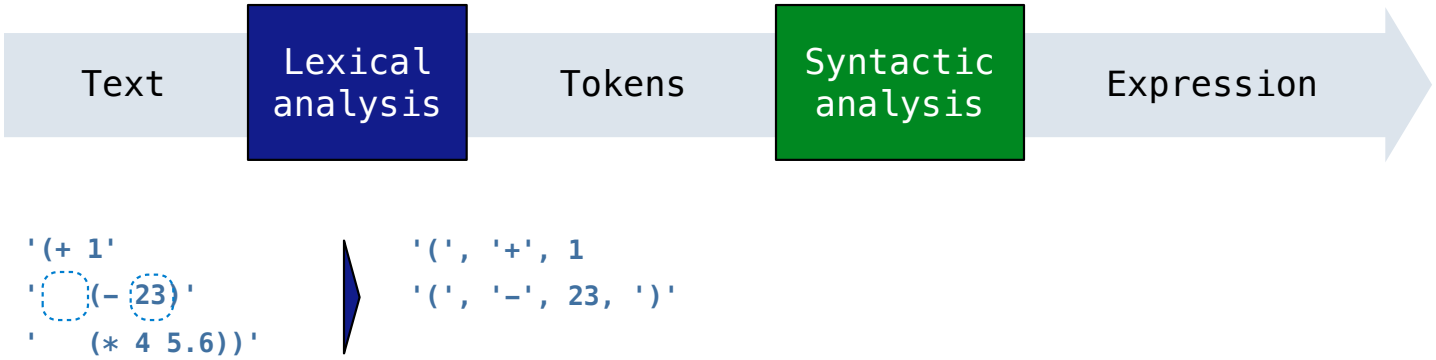

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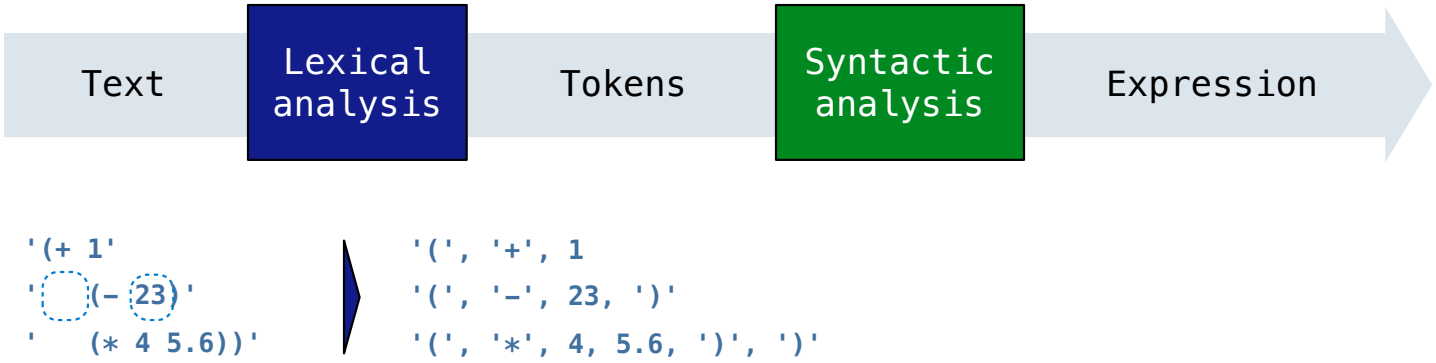

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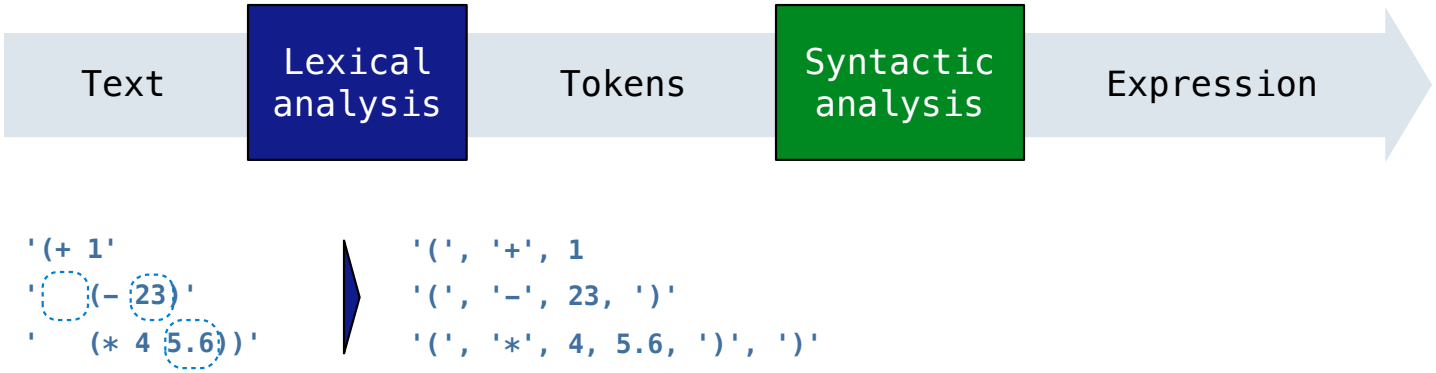

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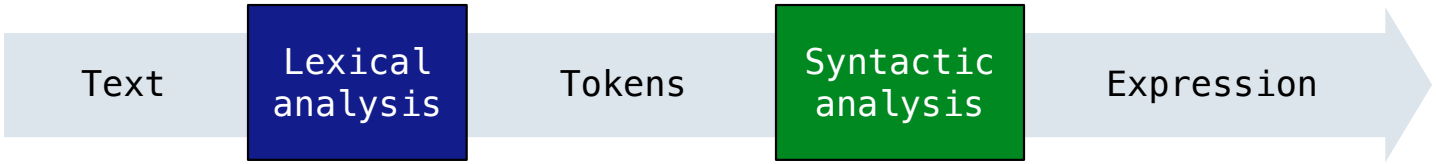


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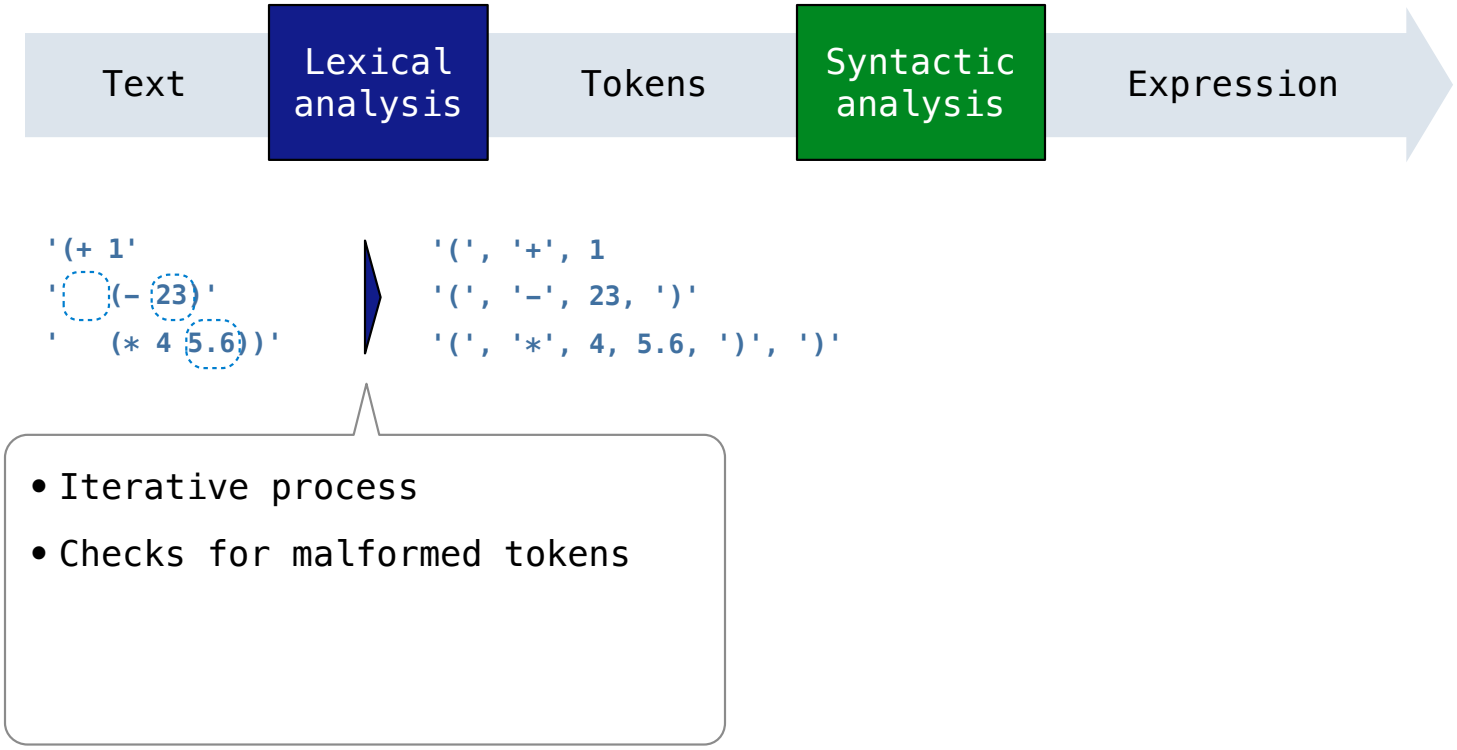

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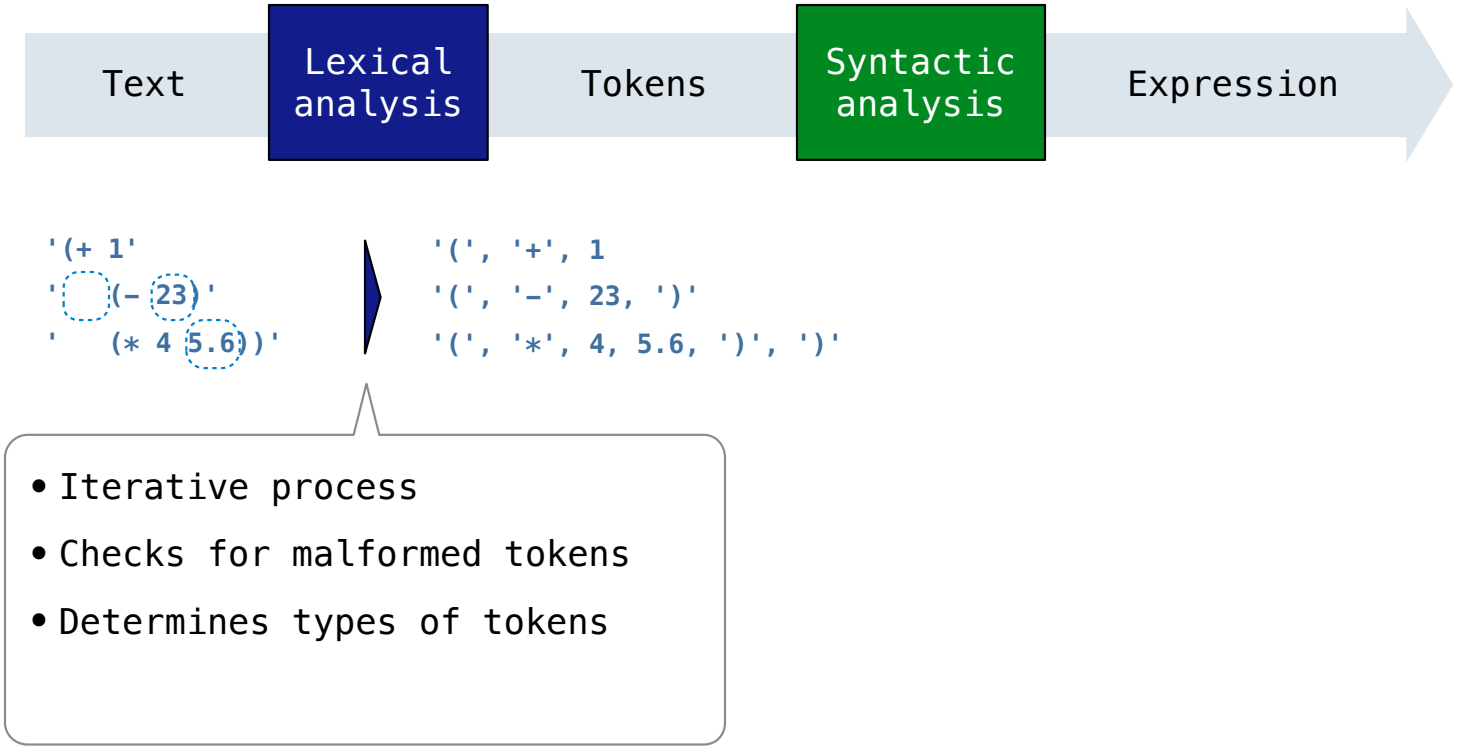

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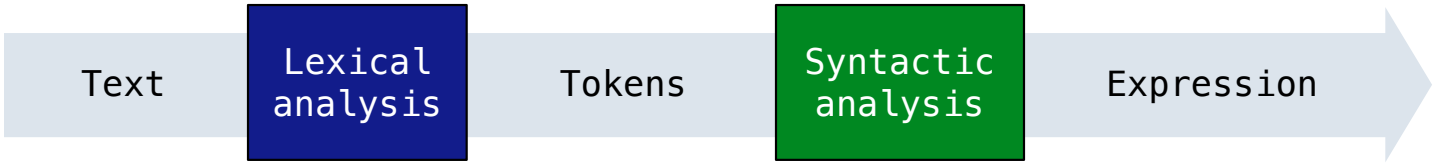


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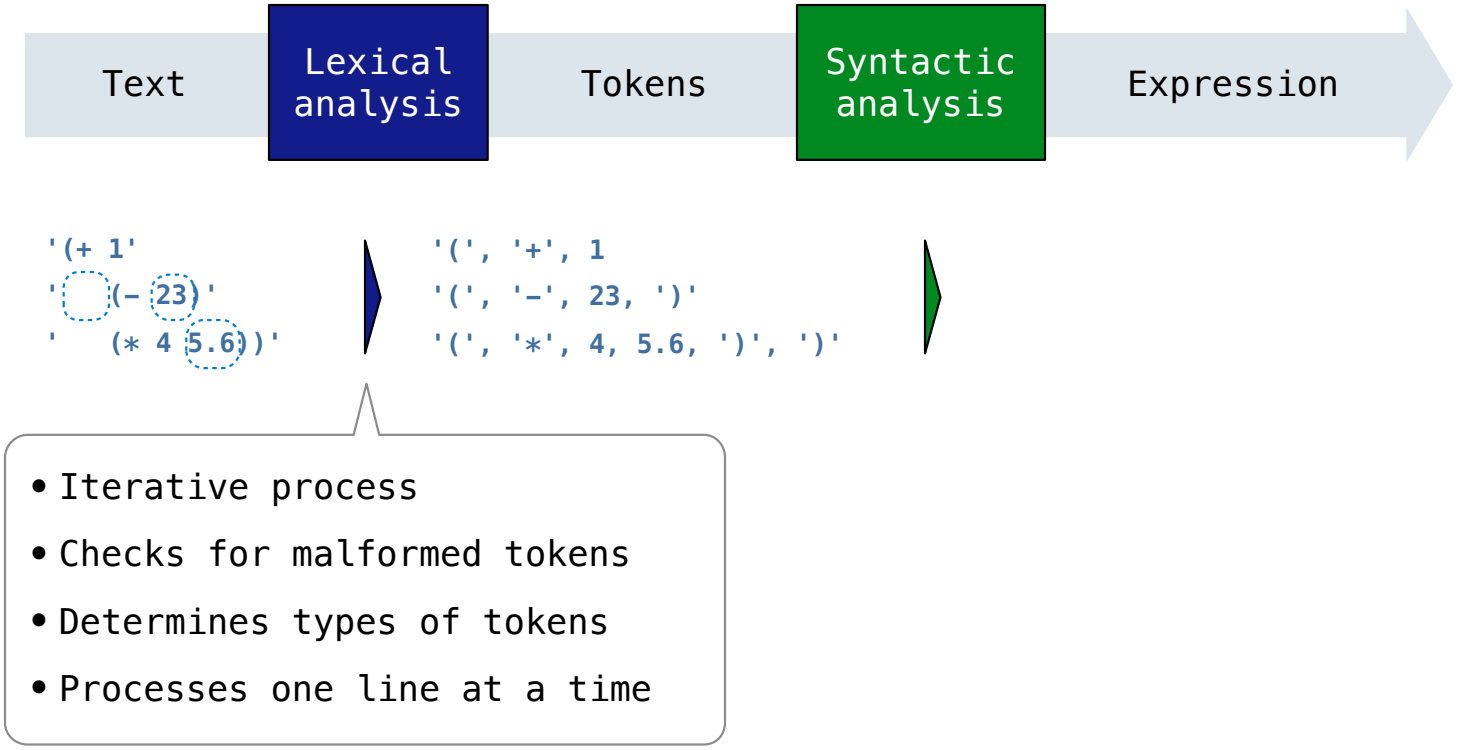

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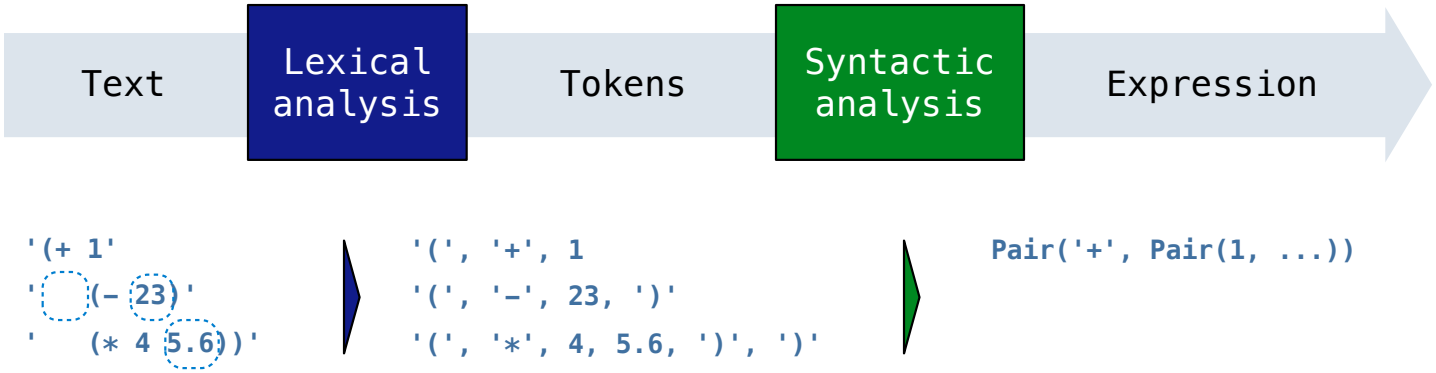

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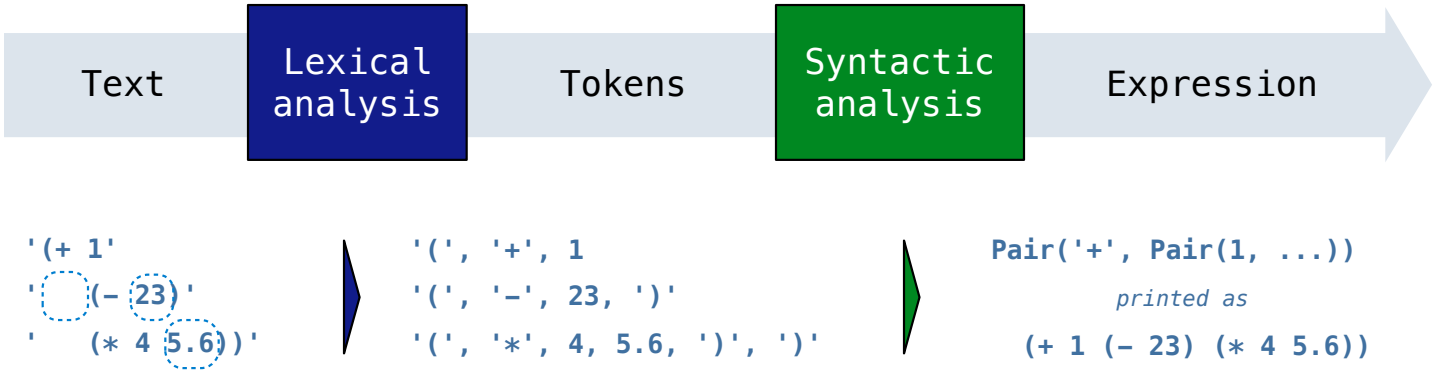

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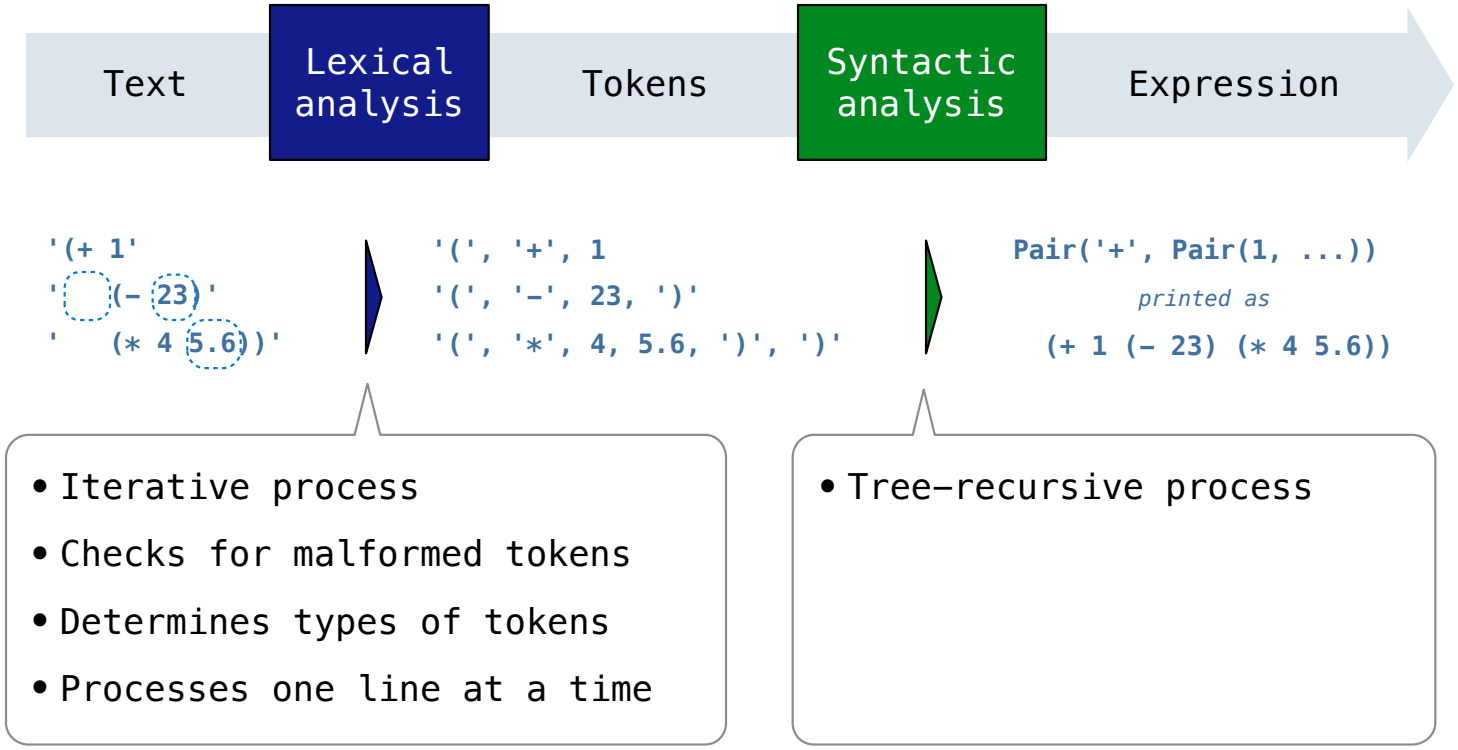

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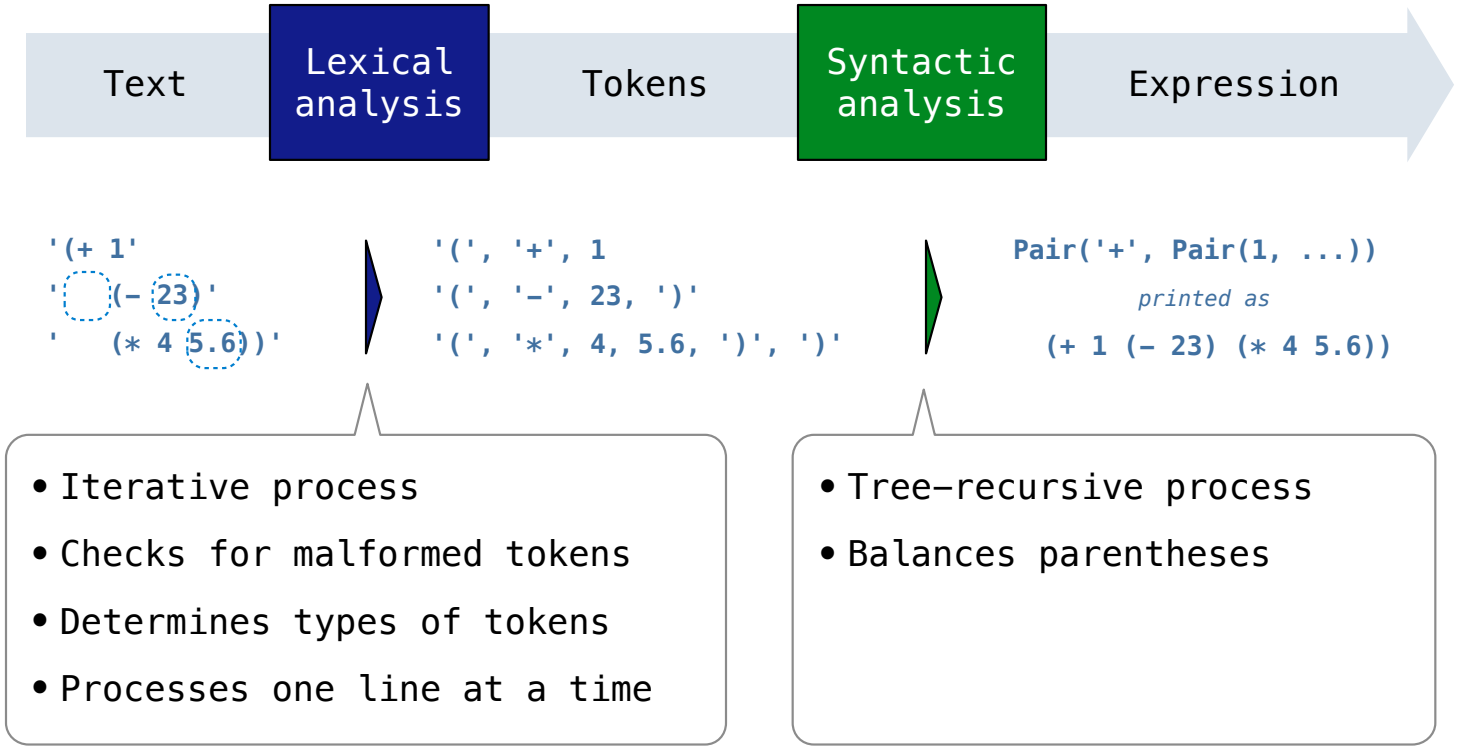

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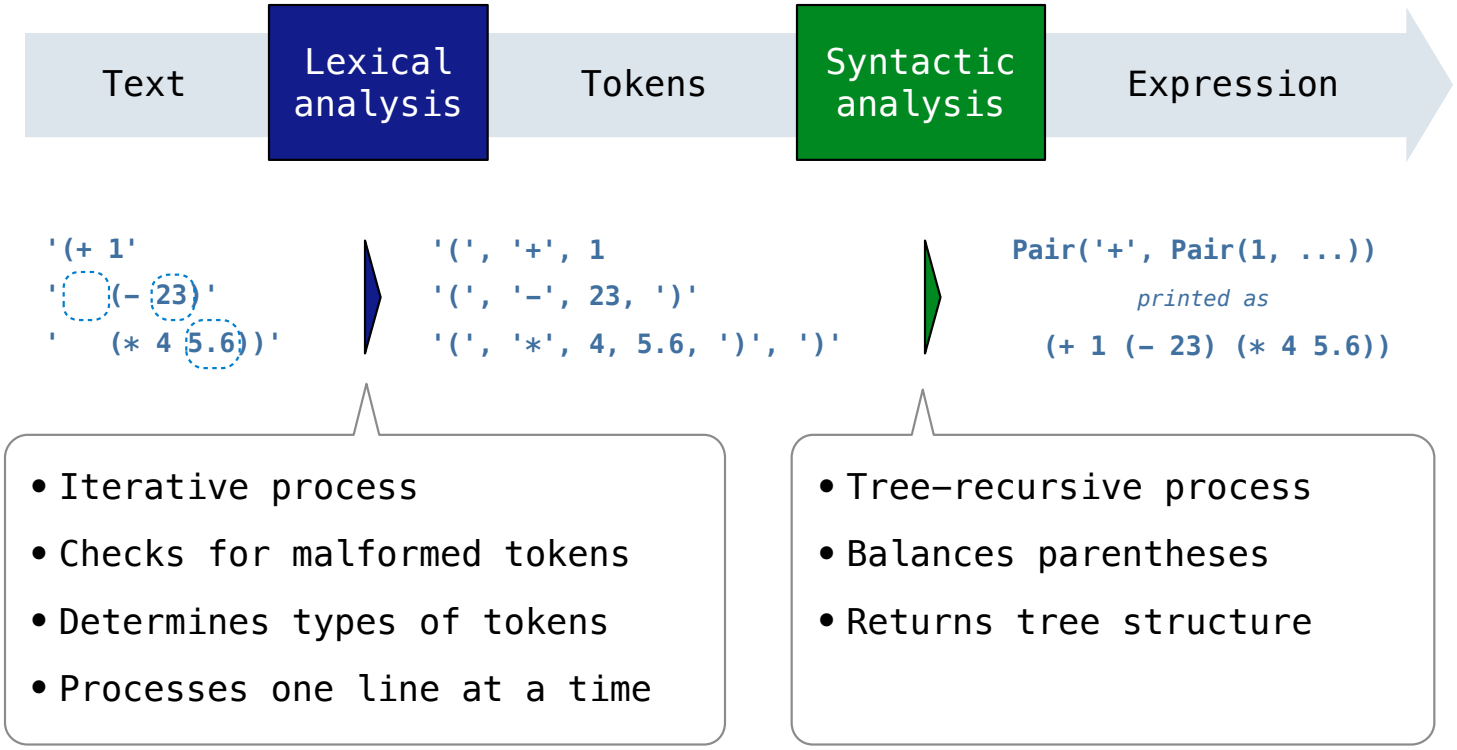

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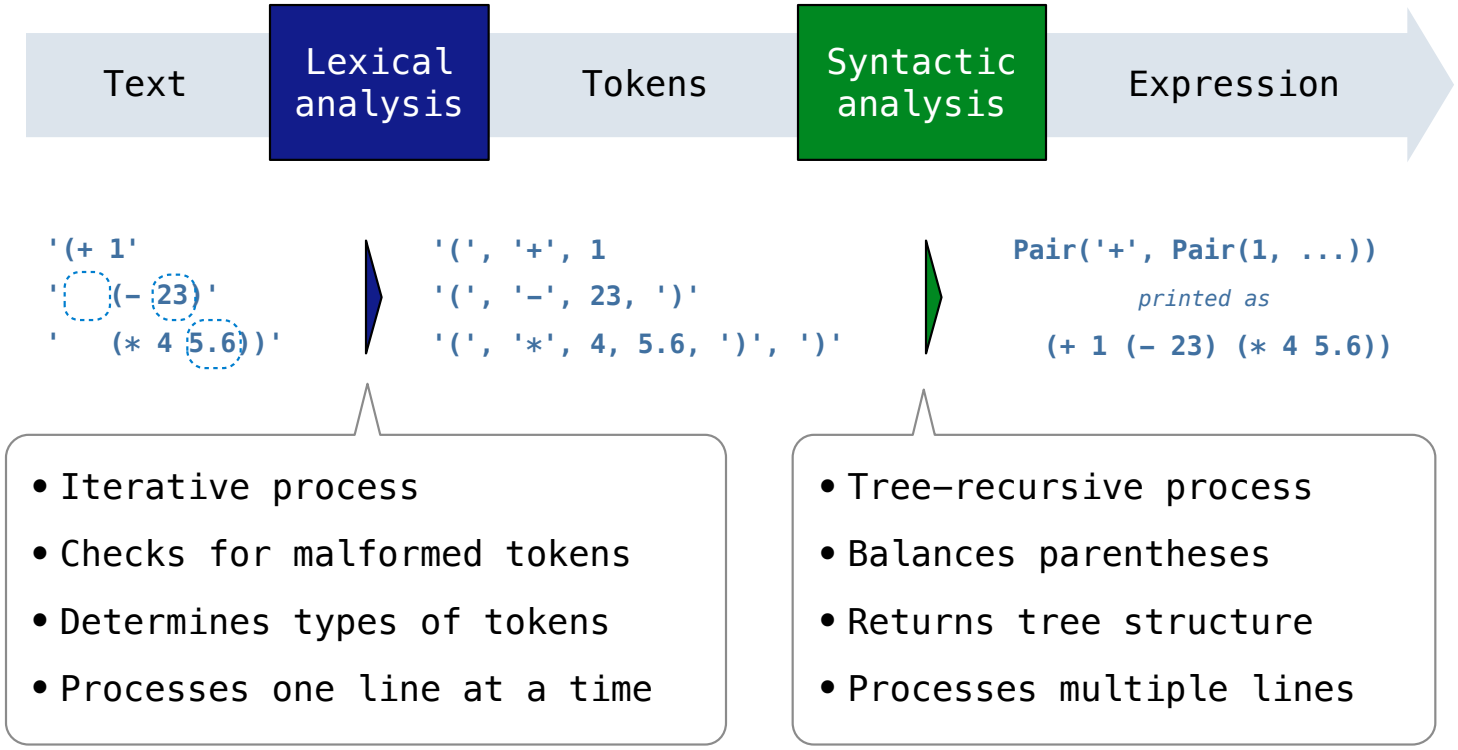

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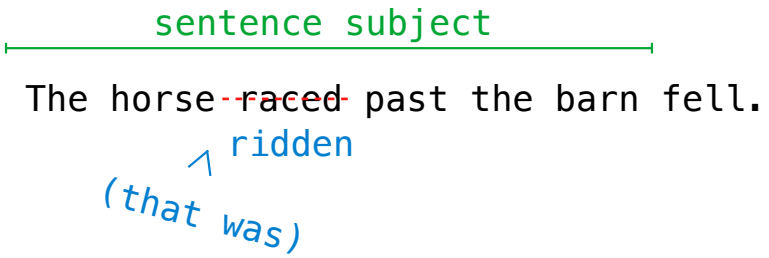

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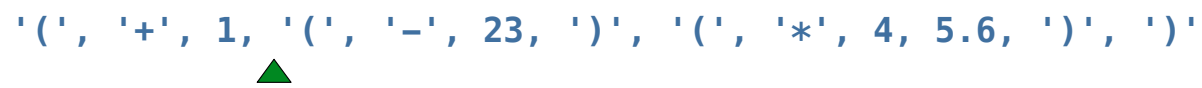

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Syntactic analysis identifies the hierarchical structure of an expression, which may be nested

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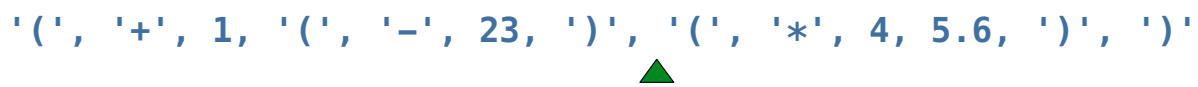

Base case: symbols and numbers

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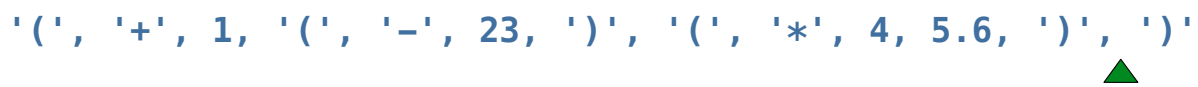

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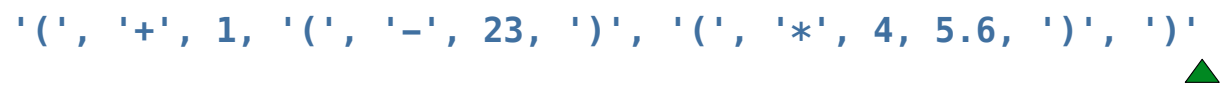

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(Demo)

Calculator

(Demo)

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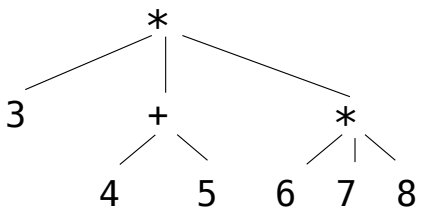

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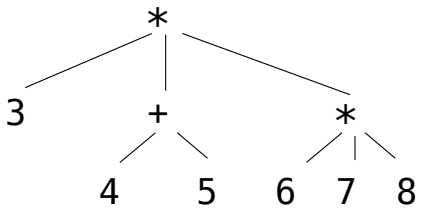

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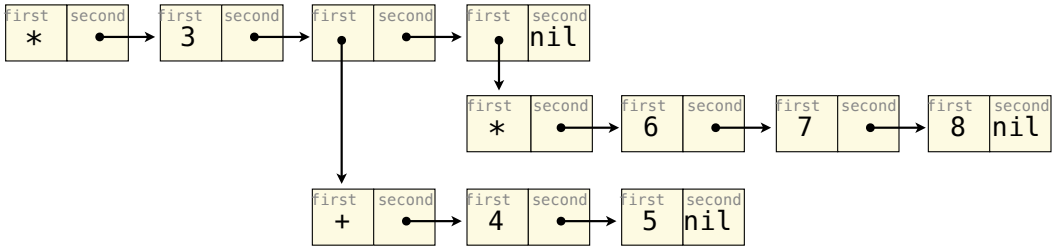

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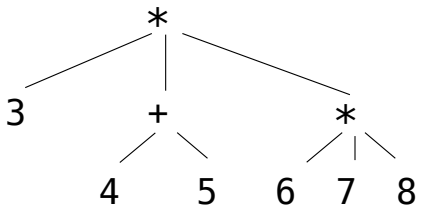

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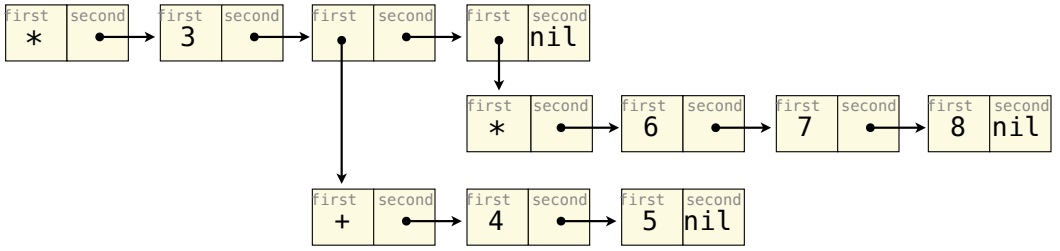

http://xuanji.appspot.com/js-scheme-stk/index.html

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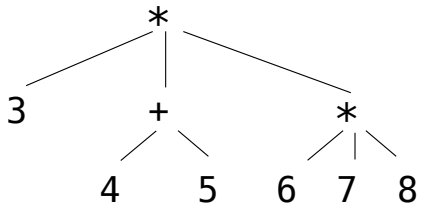

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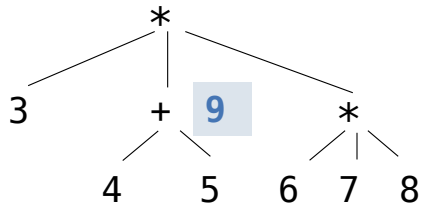

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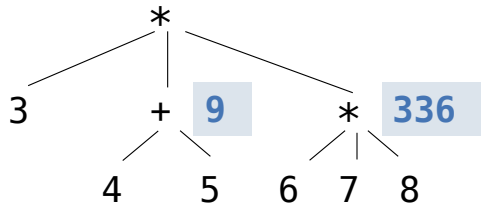

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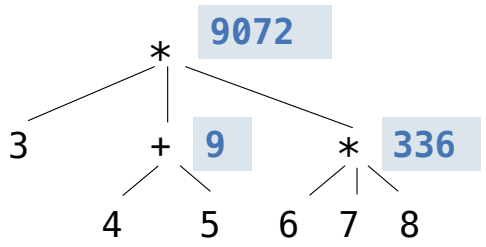

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A Scheme list of numbers

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+:

Sum of the arguments

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```
def calc_apply(operator, args):
    if operator == '+':
        return reduce(add, args, 0)
    elif operator == '-':
        ...
    elif operator == '*':
        ...
    elif operator == '/':
        ...
    else:
        raise TypeError
```

Language Semantics

+:
Sum of the arguments
-:
...
...

Applying Built-in Operators

The apply function applies some operation to a (Scheme) list of argument values.

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(Demo)

Interactive Interpreters

Read-Eval-Print Loop

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