61A Lecture 1

Wednesday, August 24, 2016

Welcome to CS 61A!

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I'm John DeNero
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I'm John DeNero

How to contact John:

denero@berkeley.edu

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piazza.com/berkeley/fall2016/cs61a

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denero@berkeley.edu

piazza.com/berkeley/fall2016/cs61a

John's office hours:

781 Soda

Monday & Wednesday 11am – 12pm

By appointment: denero.org/meet

The 61A Community

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45 undergraduate student instructors / teaching assistants (TAs):
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- Teach lab & discussion sections

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1,500+ fellow students make CS 61A unique

Parts of the Course

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Lecture: Videos posted to cs61a.org before each live lecture

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Lab section: The most important part of this course (*next week*)

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Weekly homework assignments, three exams, & four programming projects

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Lots of optional special events to help you complete all this work

An Introduction to Computer Science

What is Computer Science?

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The study of
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What problems can be solved using computation,

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Different types of languages: Scheme & SQL

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Different types of languages: Scheme & SQL

A challenging course that will demand a lot of you

Alternatives to CS 61A

CS 10: The Beauty and Joy of Computing

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Designed for students without prior experience

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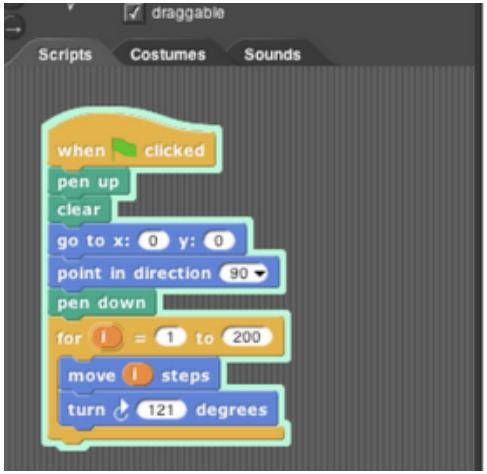

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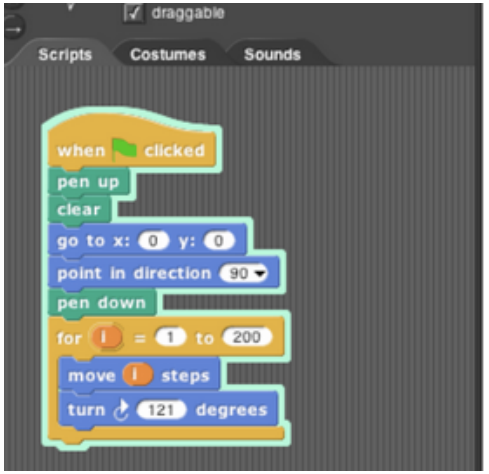

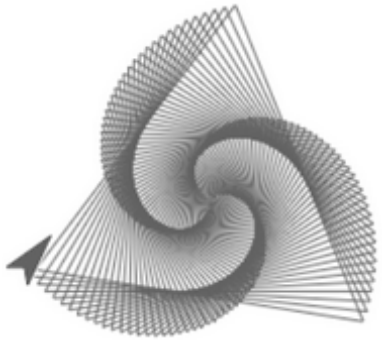

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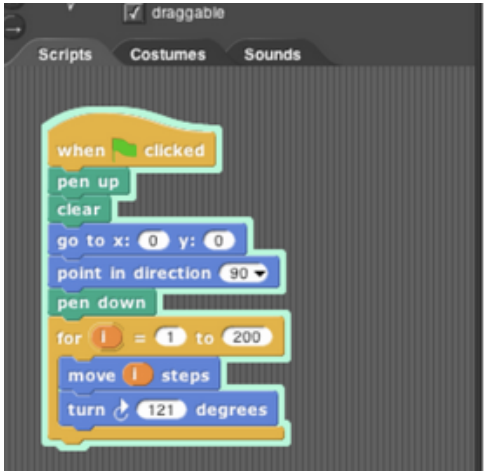
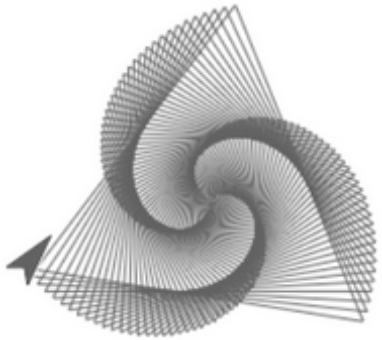
bjc





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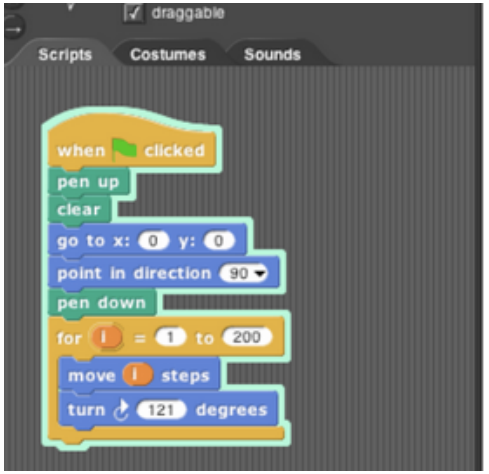

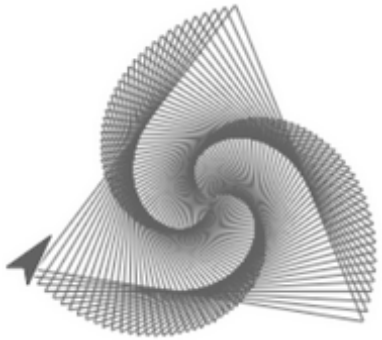

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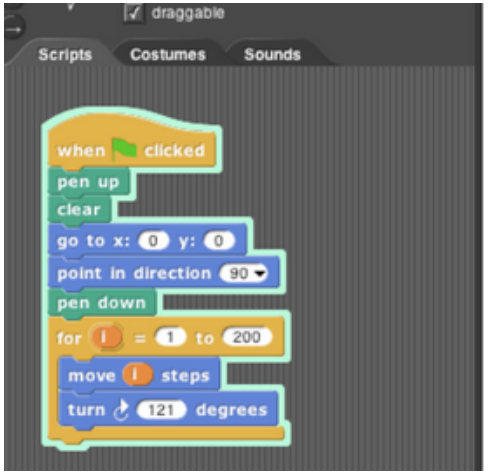
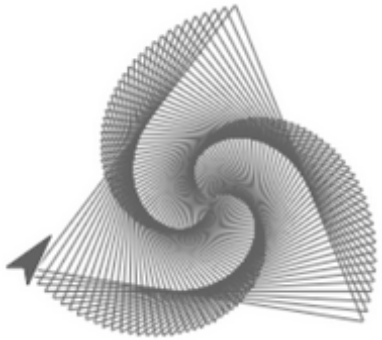
More info: cs10.org





Data Science 8: Foundations of Data Science

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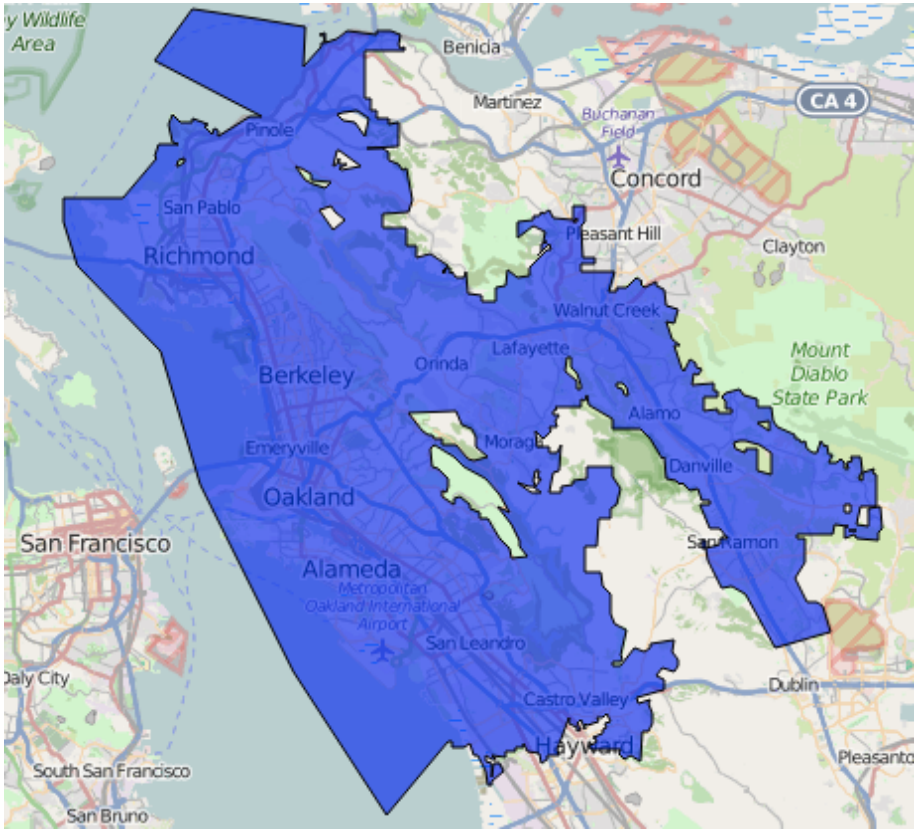

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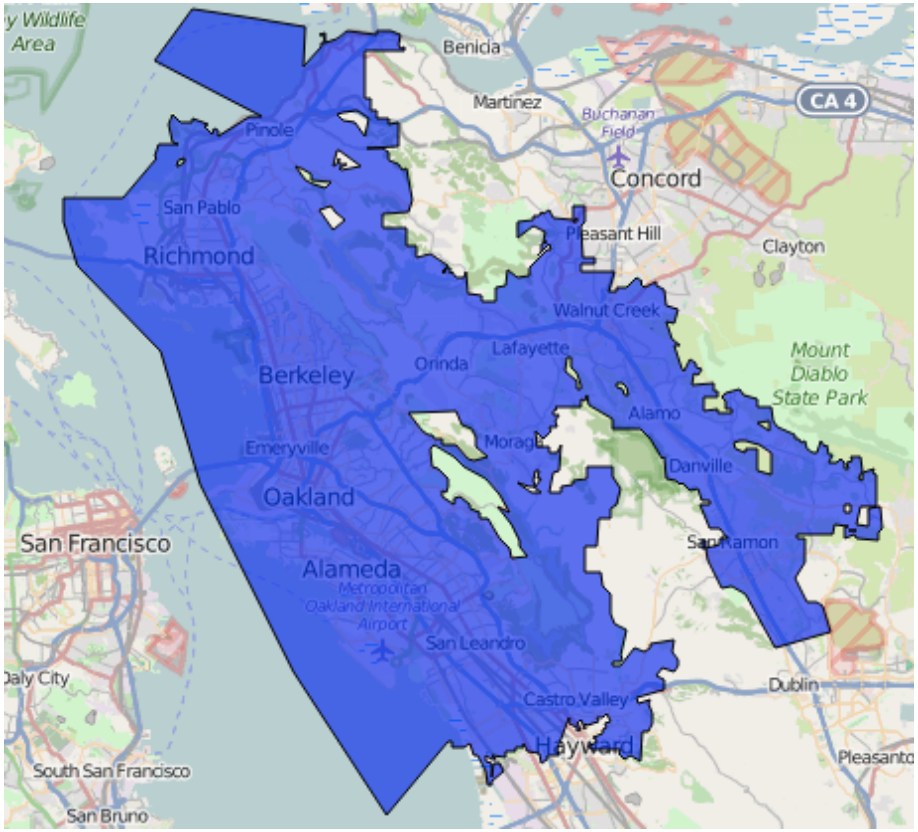

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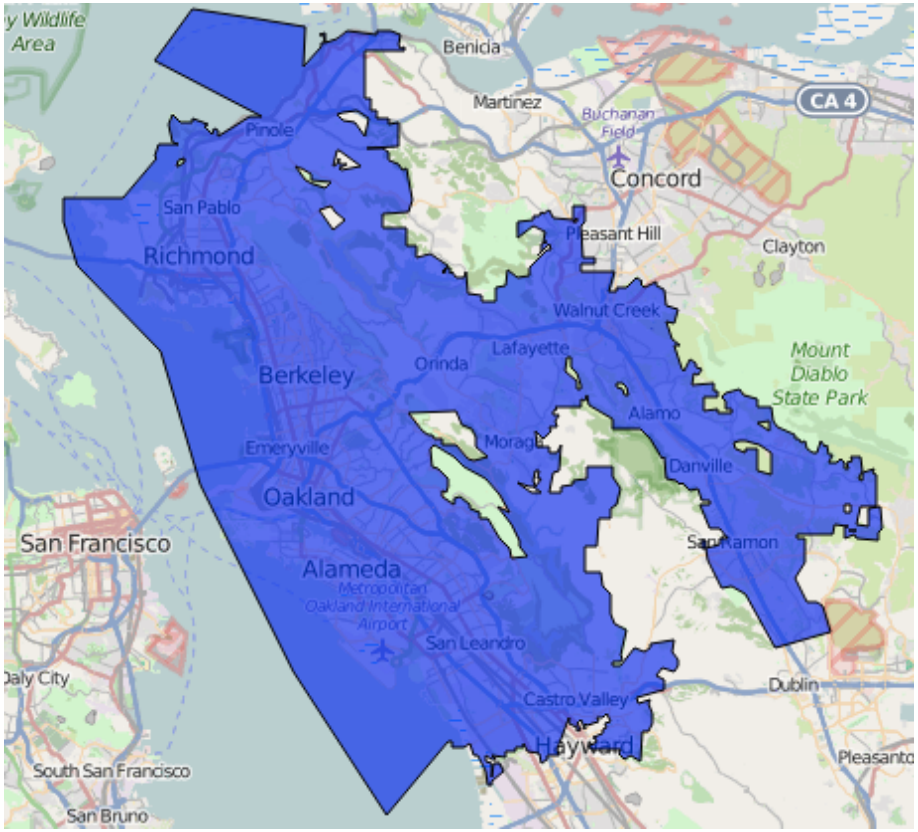

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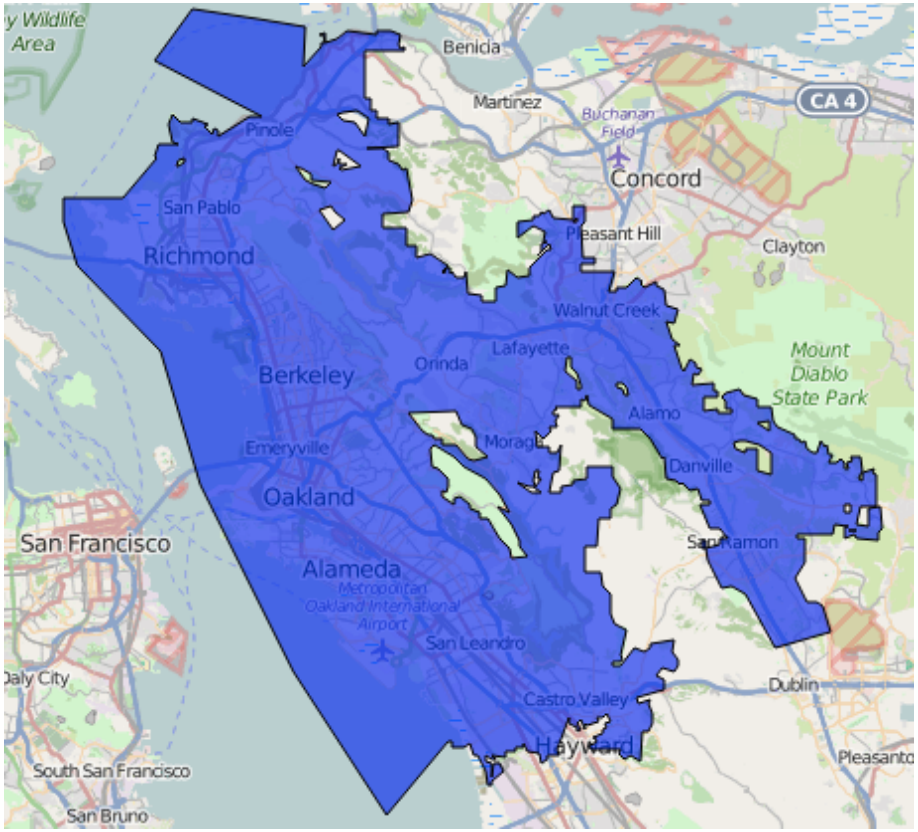

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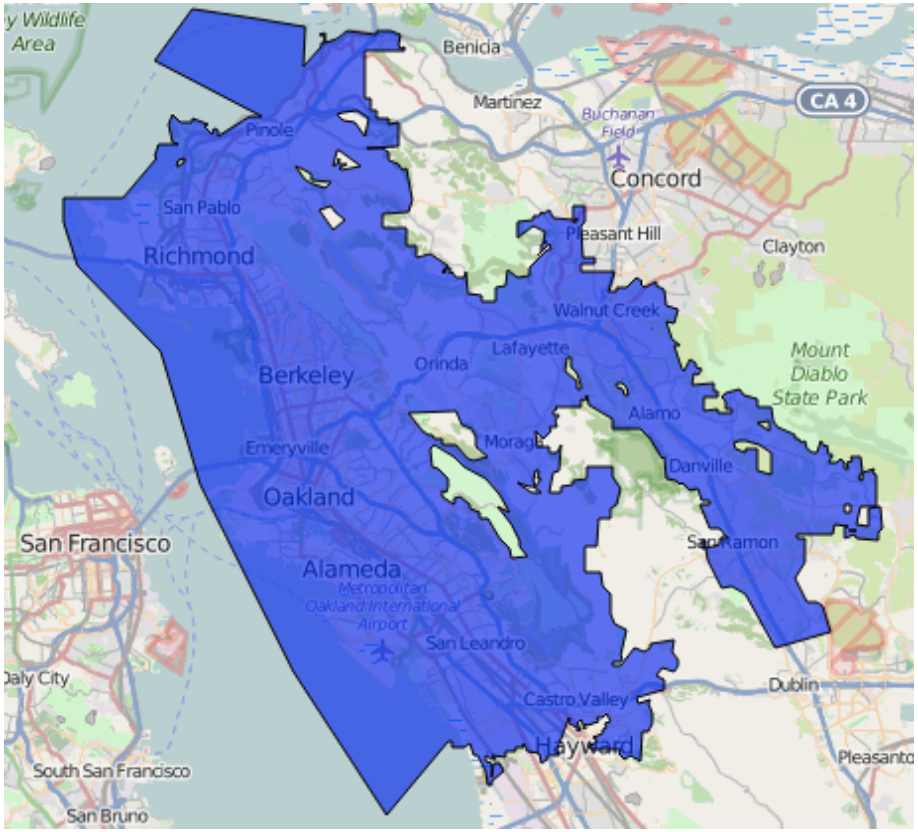

Course Policies

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Learning

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Details...

http://cs61a.org/articles/about.html

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- One simple rule: Don’t share your code, except with your partner

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Build good habits now

Expressions

Types of expressions

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An expression describes a computation and evaluates to a value

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$$18 + 69$$

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$$\frac{6}{23}$$

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$$|-1869| \qquad \binom{69}{18}$$

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$7 \bmod 2$

$\sum_{i=1}^{100} i$

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$\binom{69}{18}$

Call Expressions in Python

All expressions can use function call notation

(Demo)

Anatomy of a Call Expression

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```
add     (     2     ,     3     )
```

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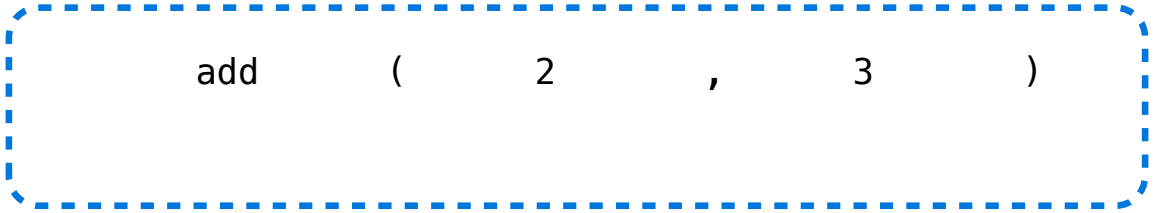

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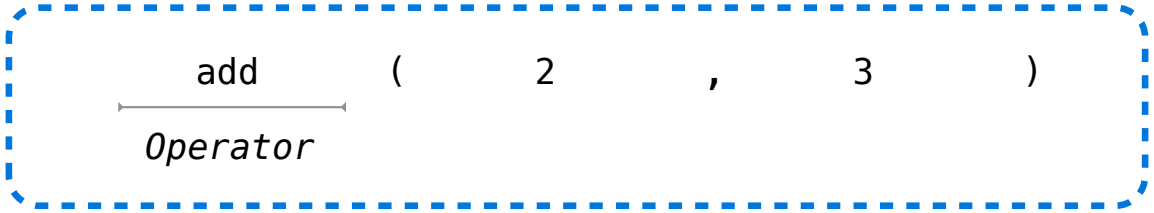

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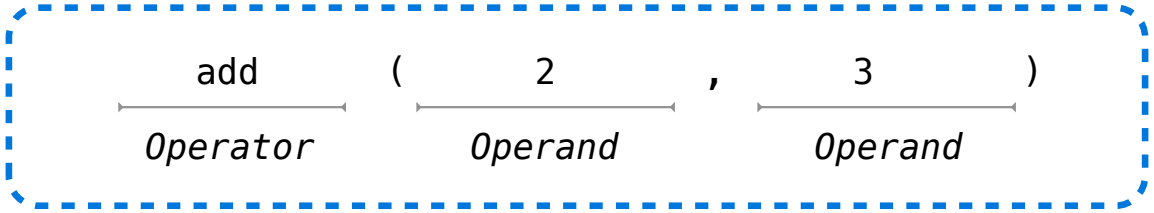
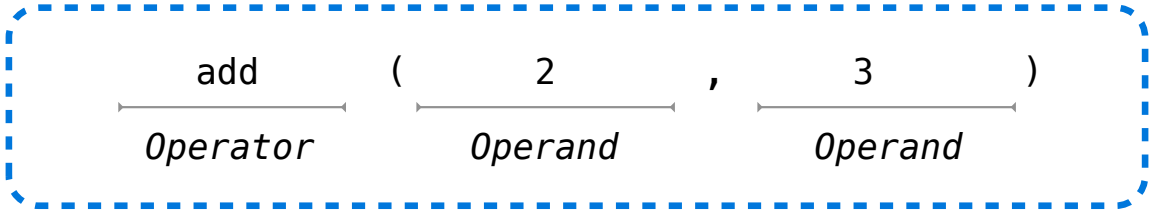
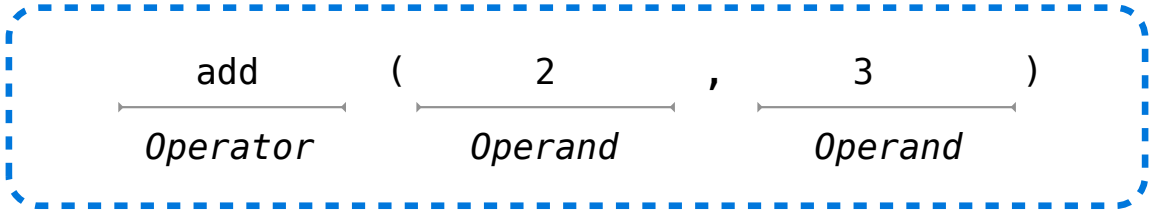


Anatomy of a Call Expression



Operators and operands are also expressions

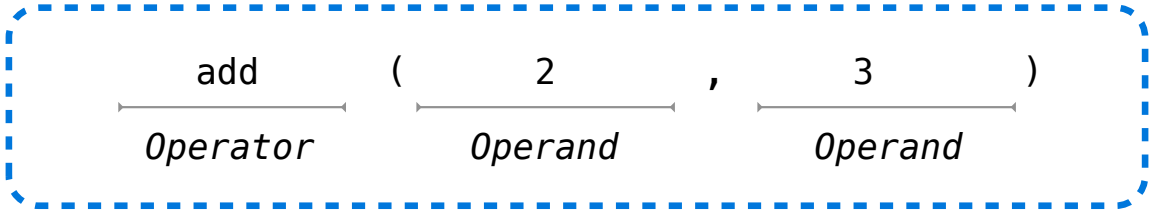
Anatomy of a Call Expression



Operators and operands are also expressions

So they evaluate to values

Anatomy of a Call Expression



Operators and operands are also expressions

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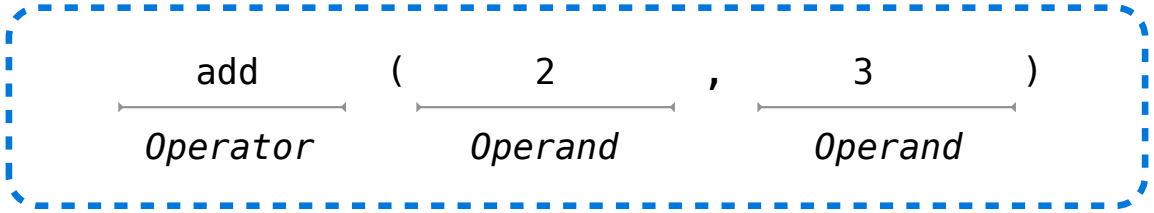
Evaluation procedure for call expressions:

Anatomy of a Call Expression



Operators and operands are also expressions

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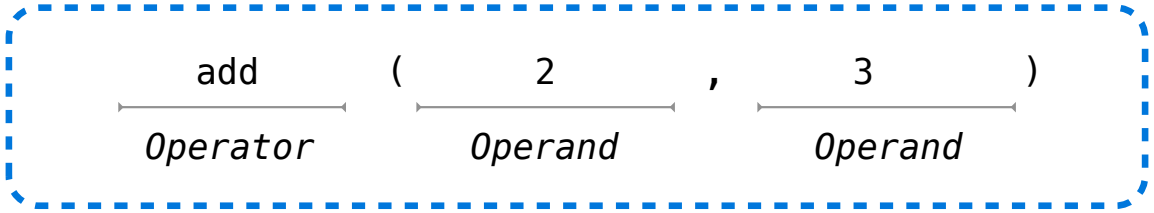
Evaluation procedure for call expressions:

1. Evaluate the operator and then the operand subexpressions

Anatomy of a Call Expression



Operators and operands are also expressions

So they evaluate to values

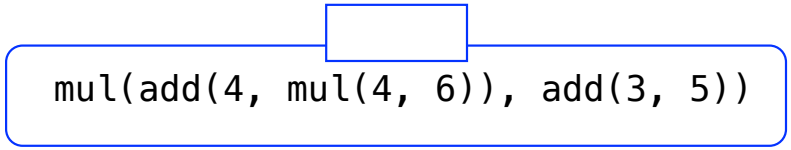
Evaluation procedure for call expressions:

1. Evaluate the operator and then the operand subexpressions
2. Apply the function that is the value of the operator subexpression to the arguments that are the values of the operand subexpression

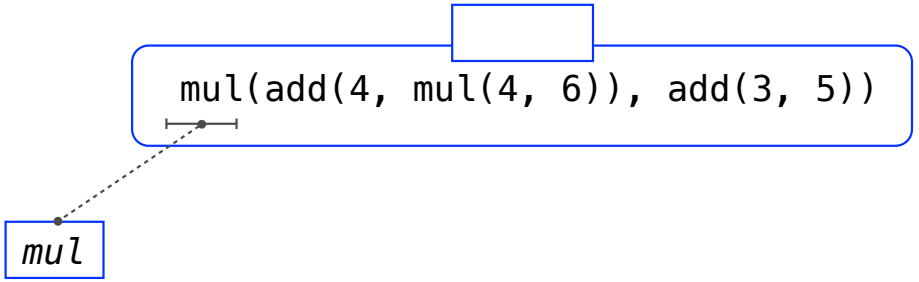
Evaluating Nested Expressions

```
mul(add(4, mul(4, 6)), add(3, 5))
```

Evaluating Nested Expressions



Evaluating Nested Expressions



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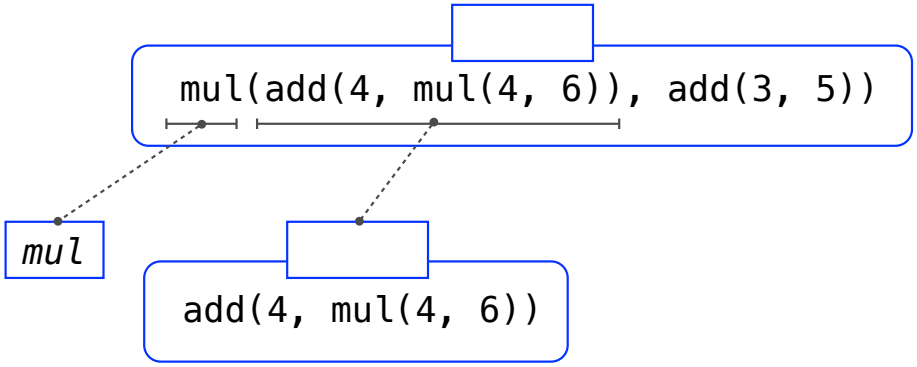

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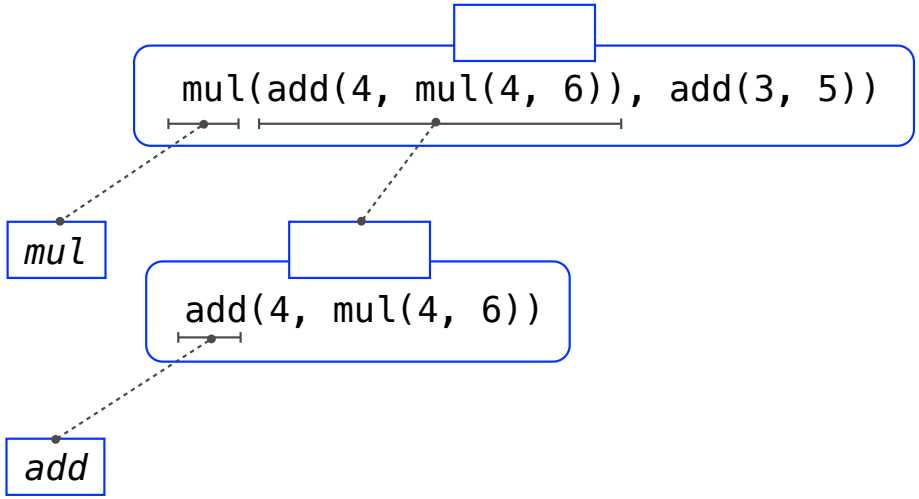

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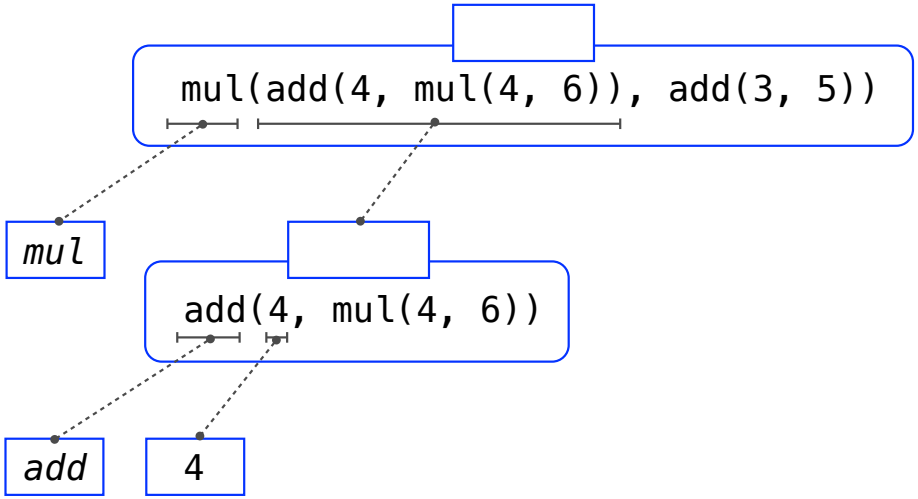

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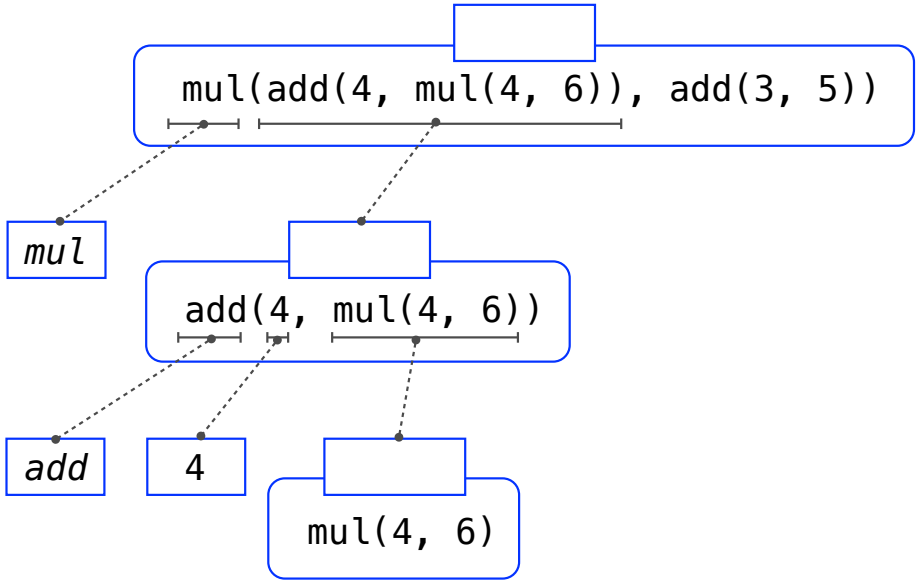

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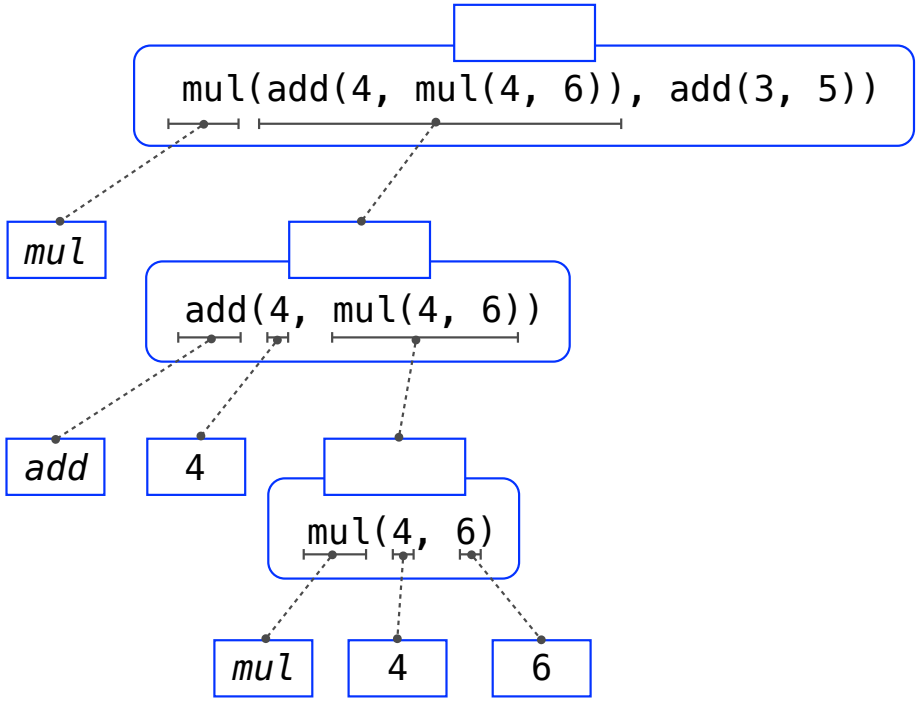

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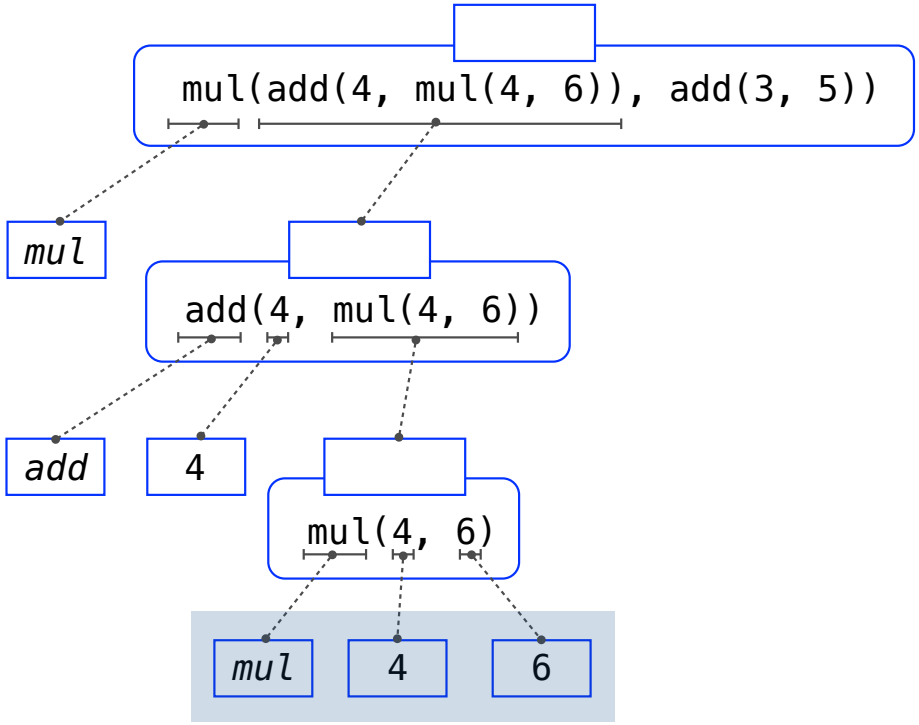

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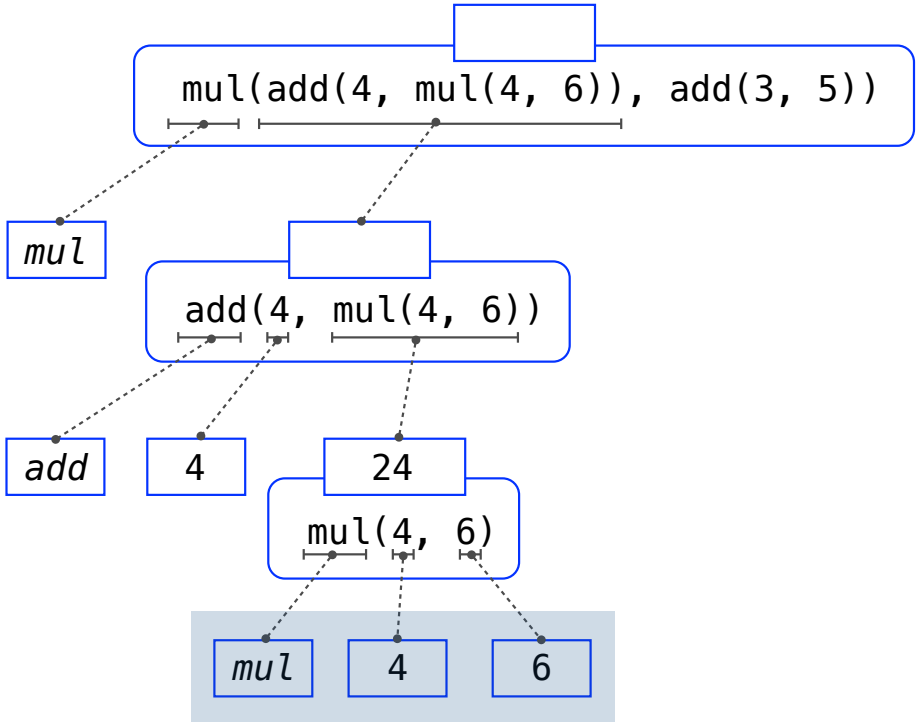

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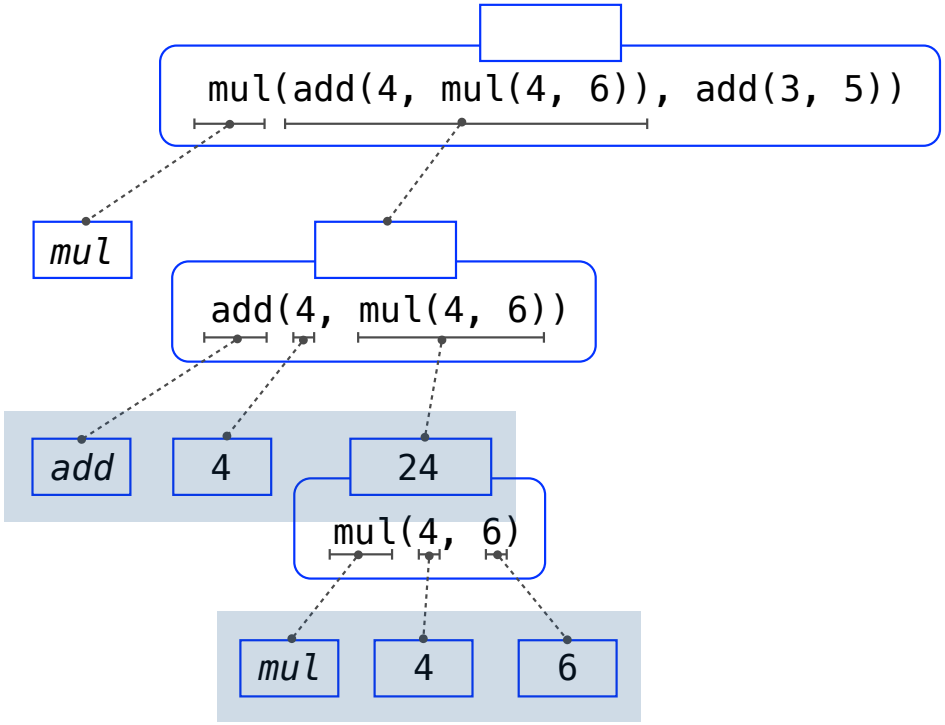

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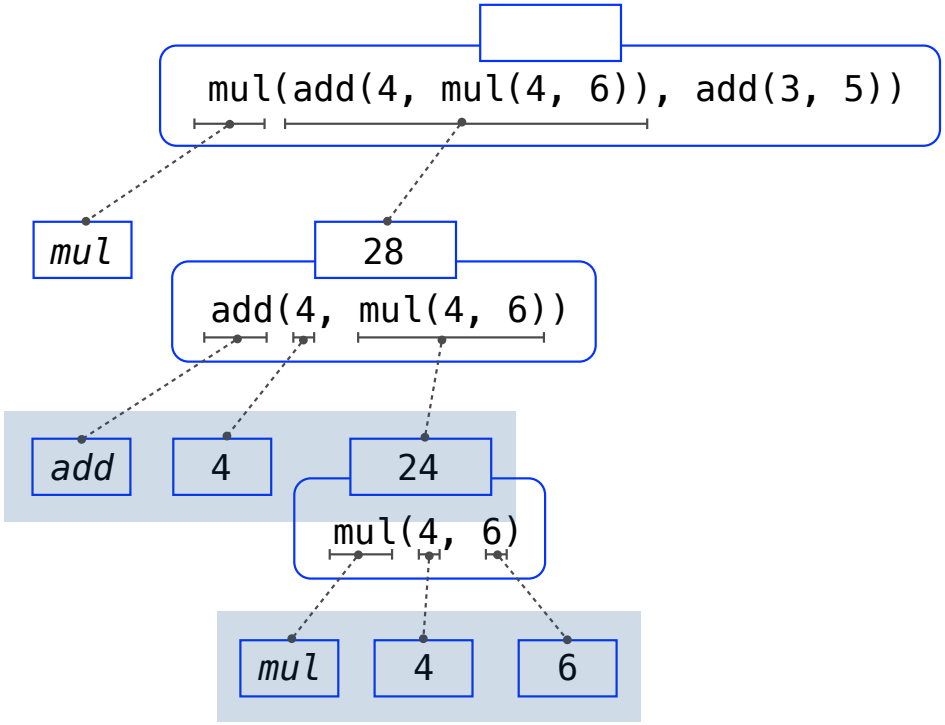

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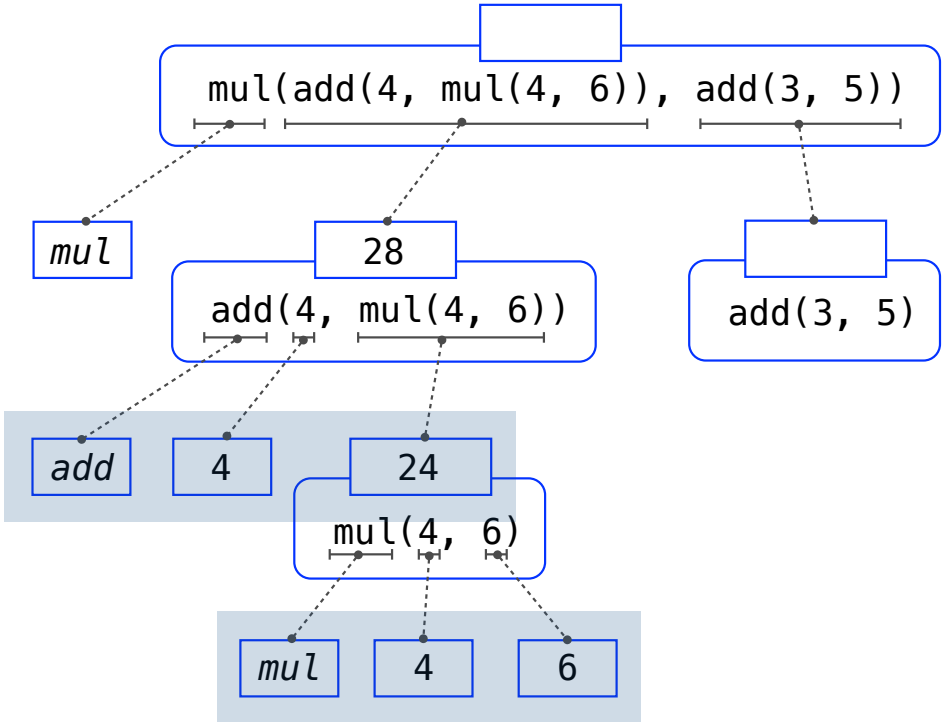

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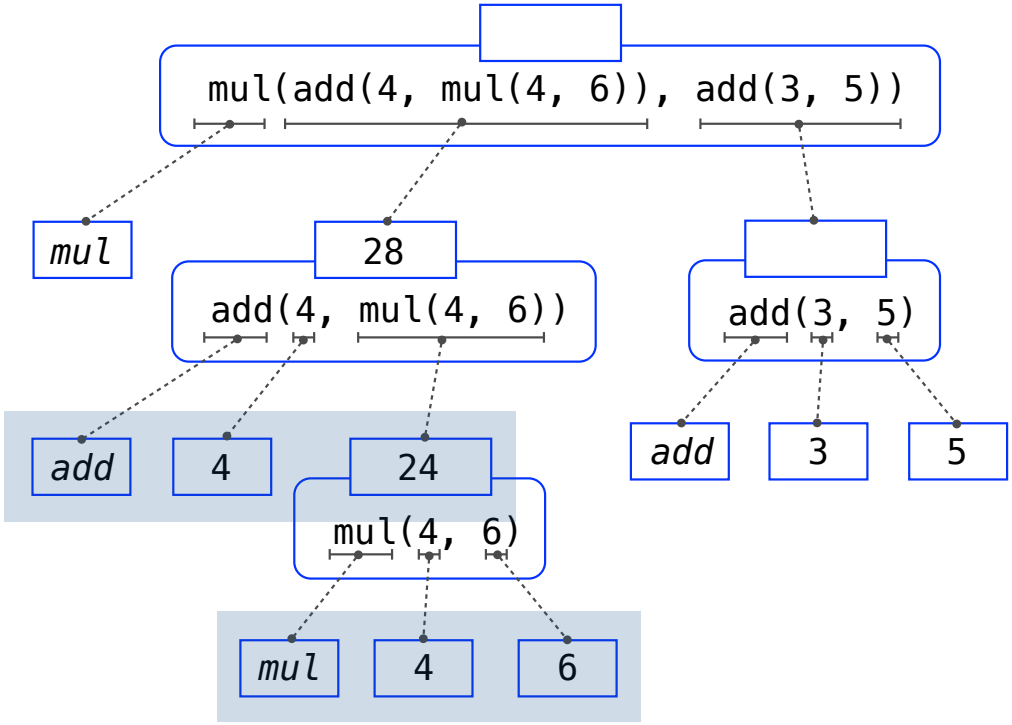

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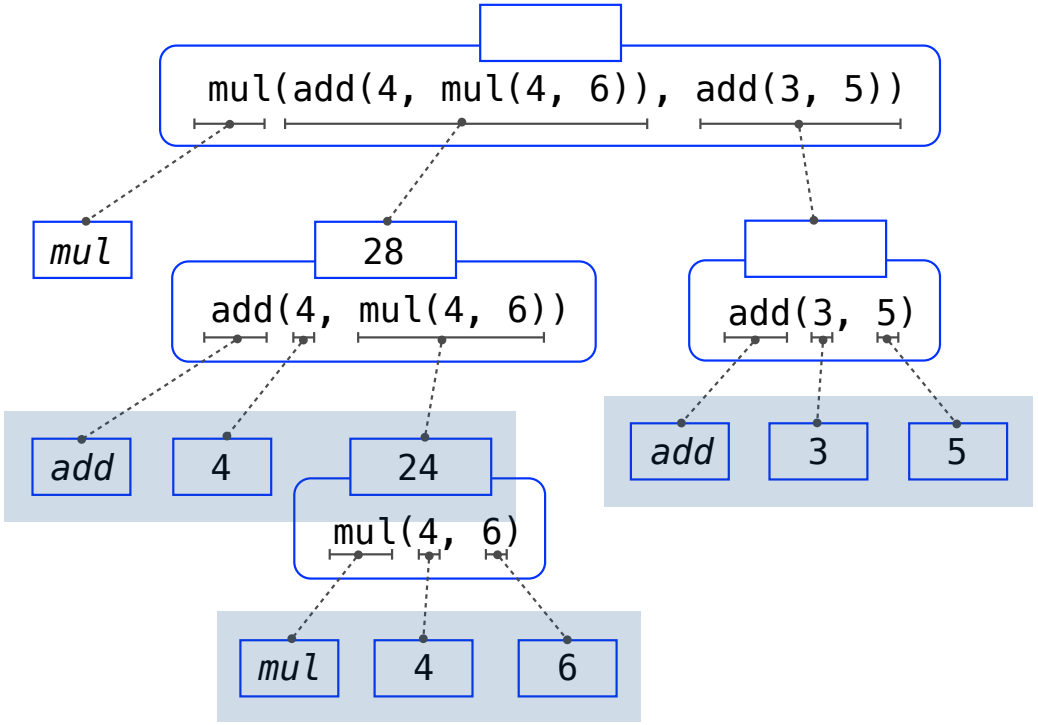

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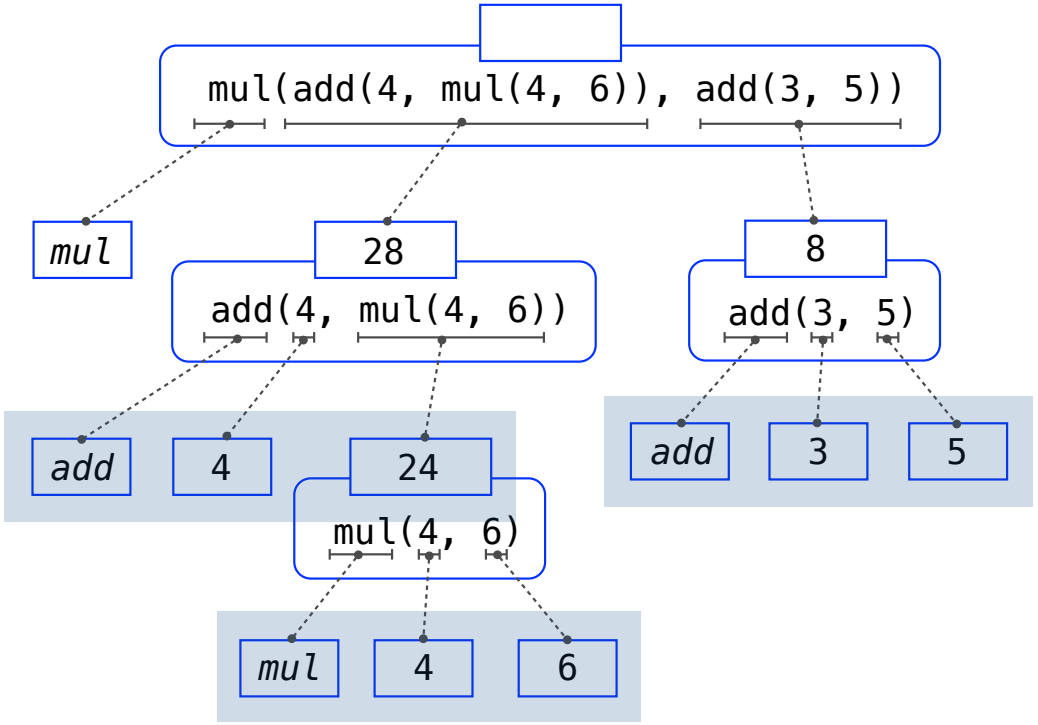

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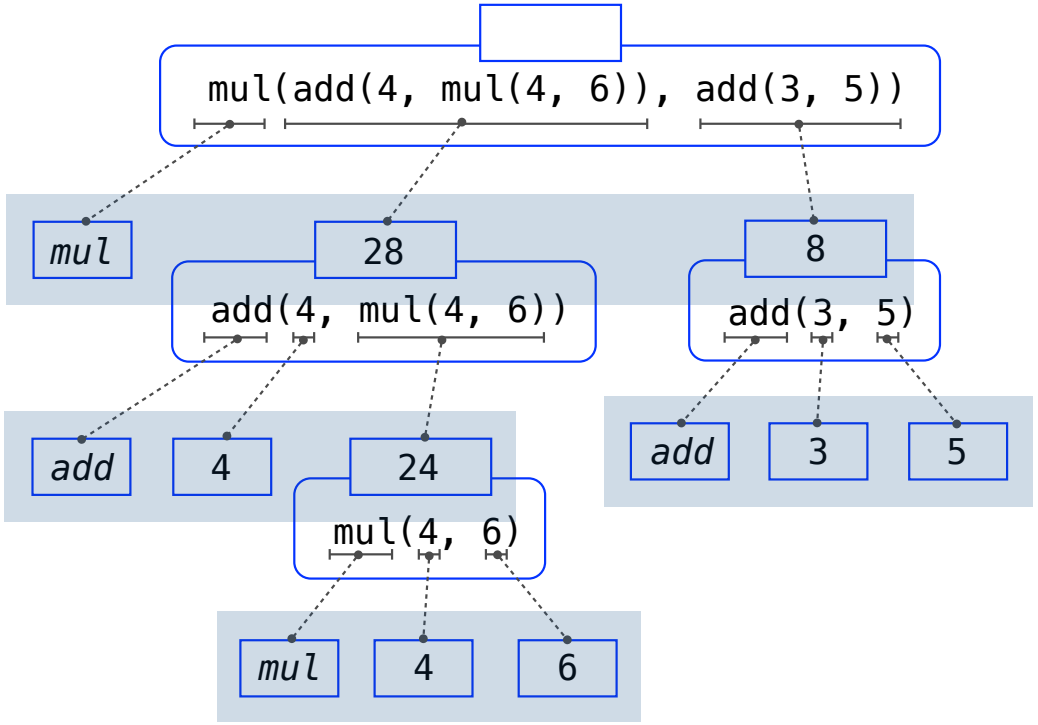

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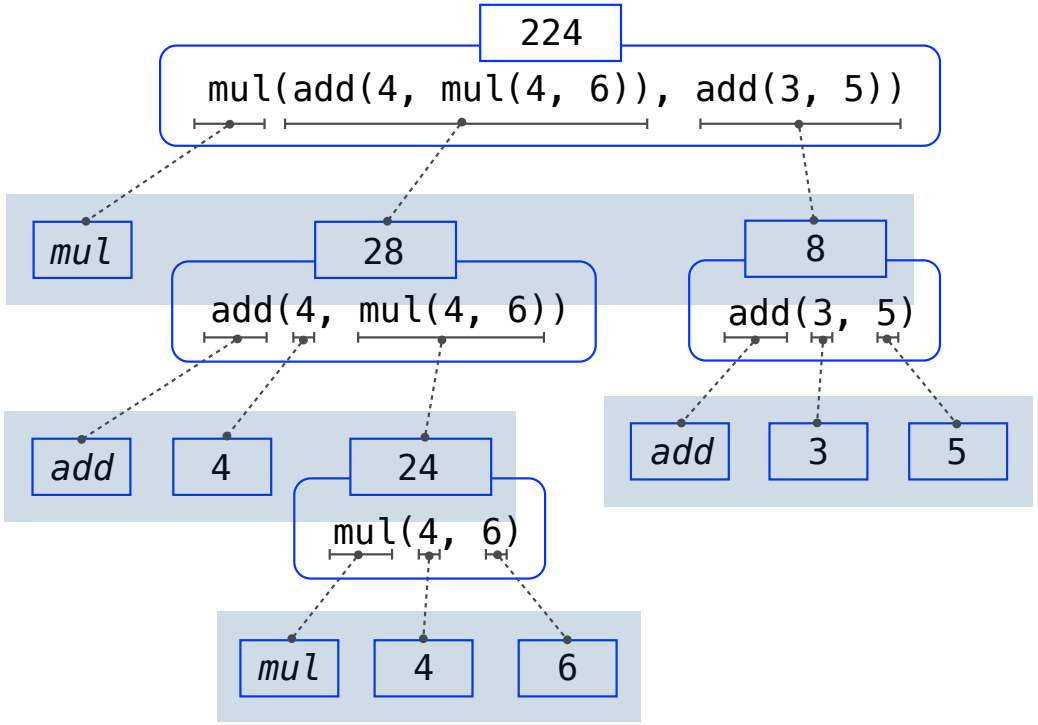

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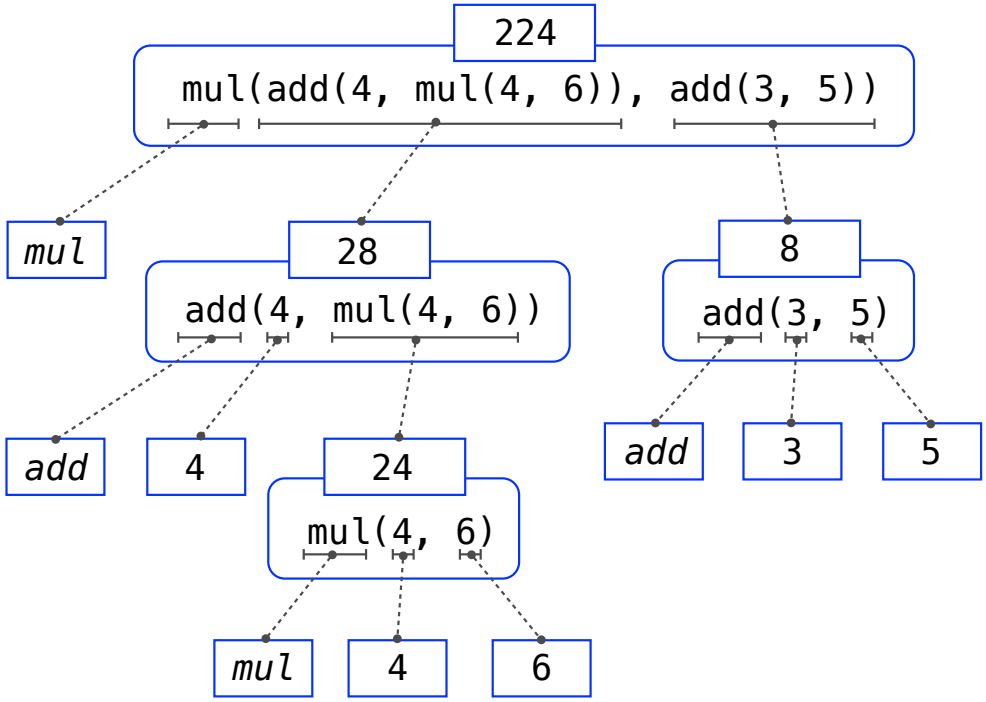

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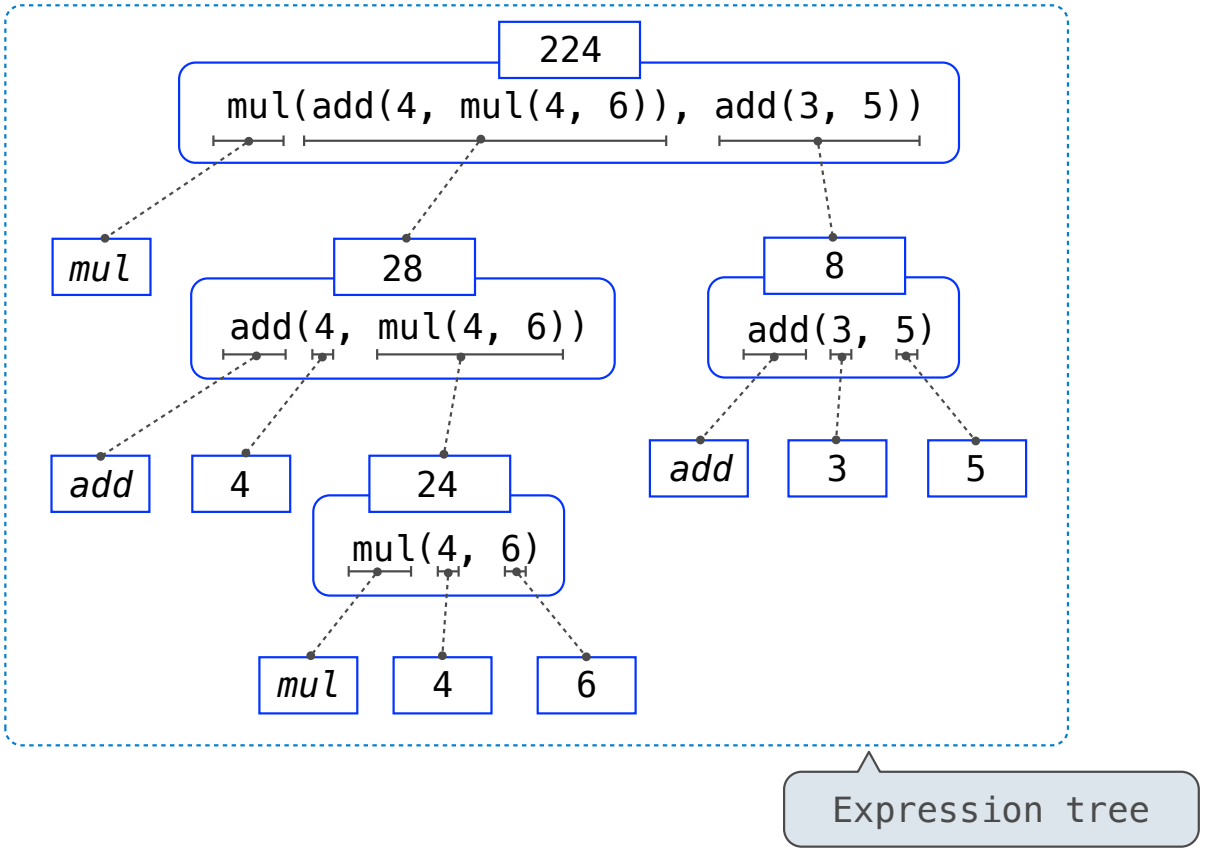

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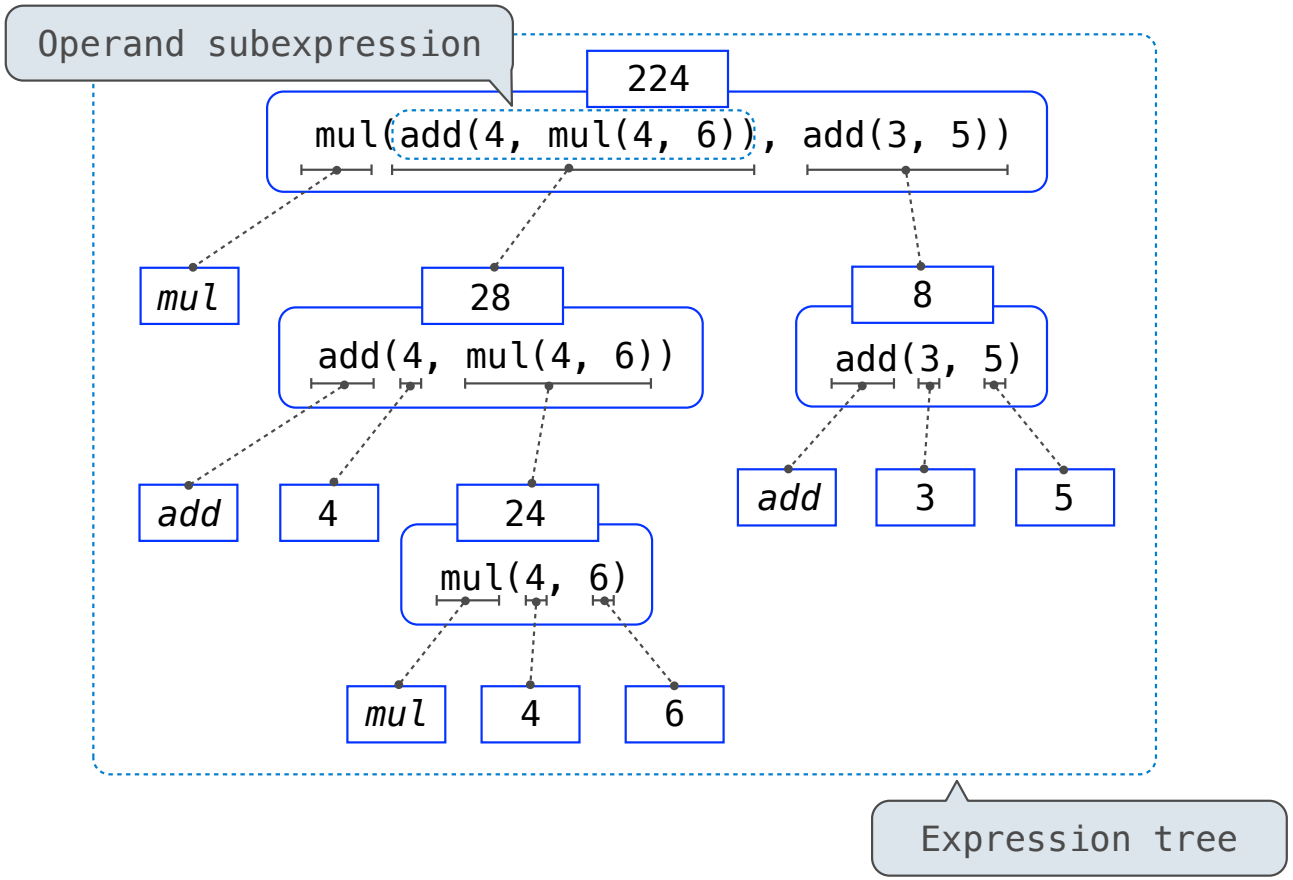

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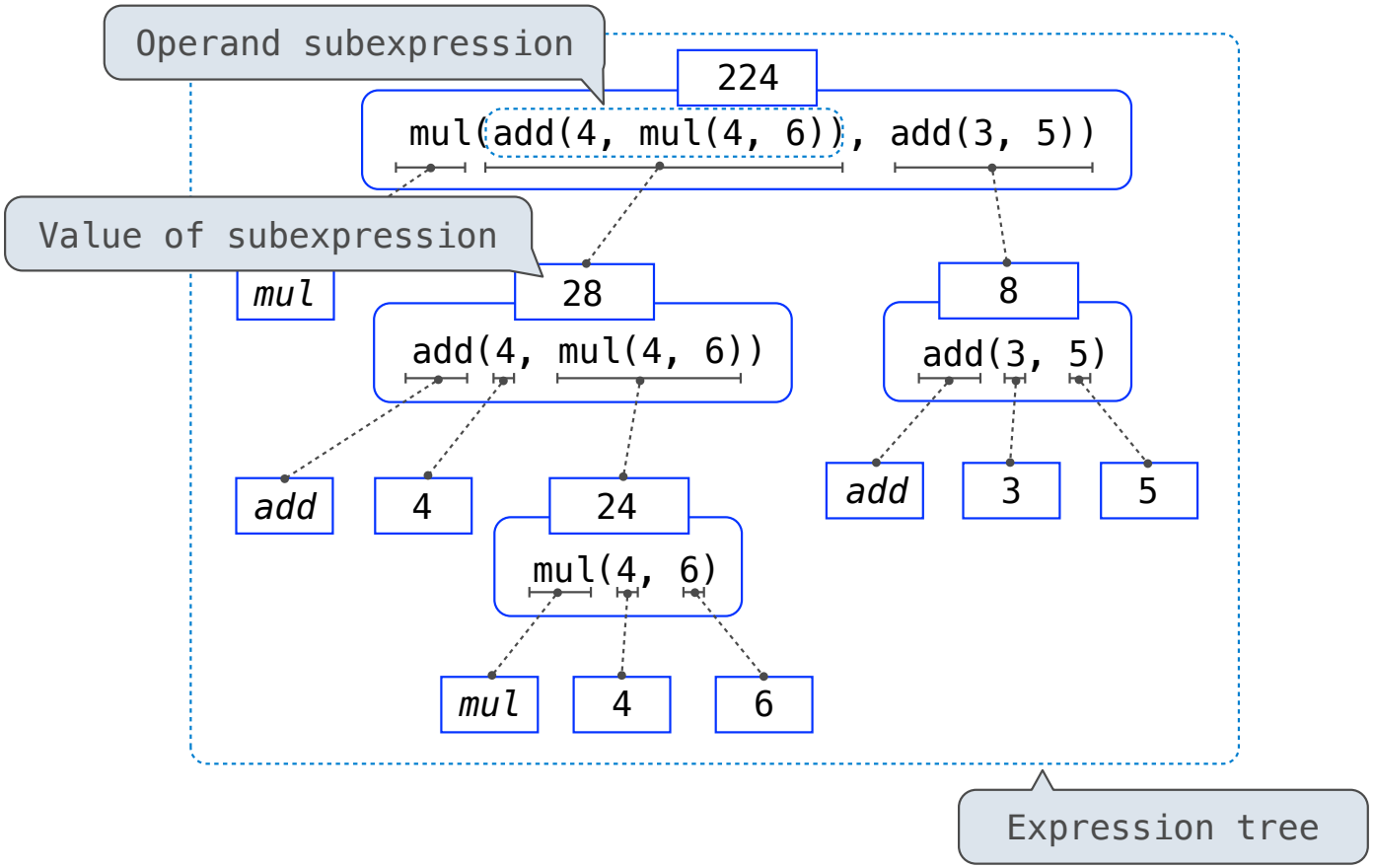

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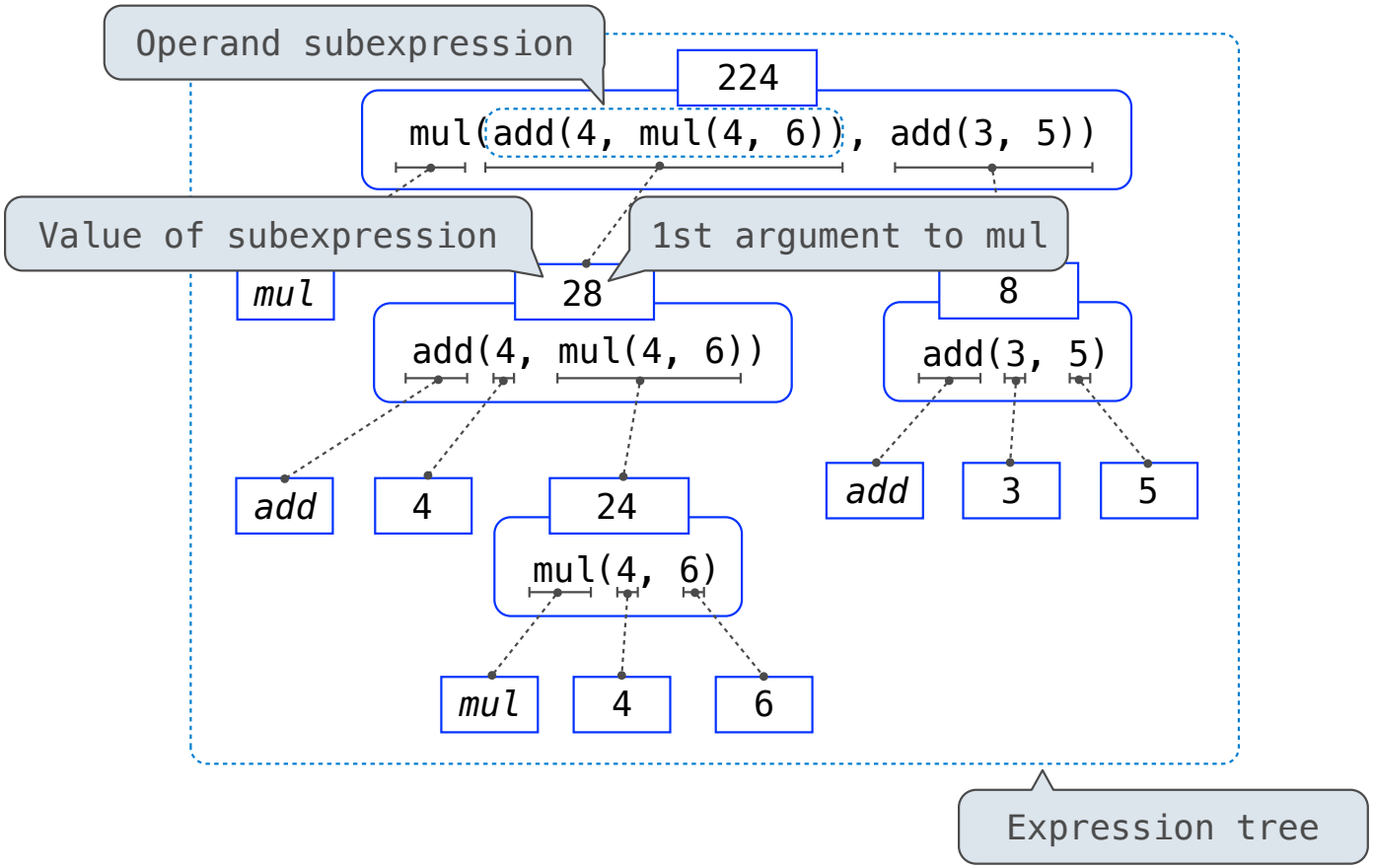

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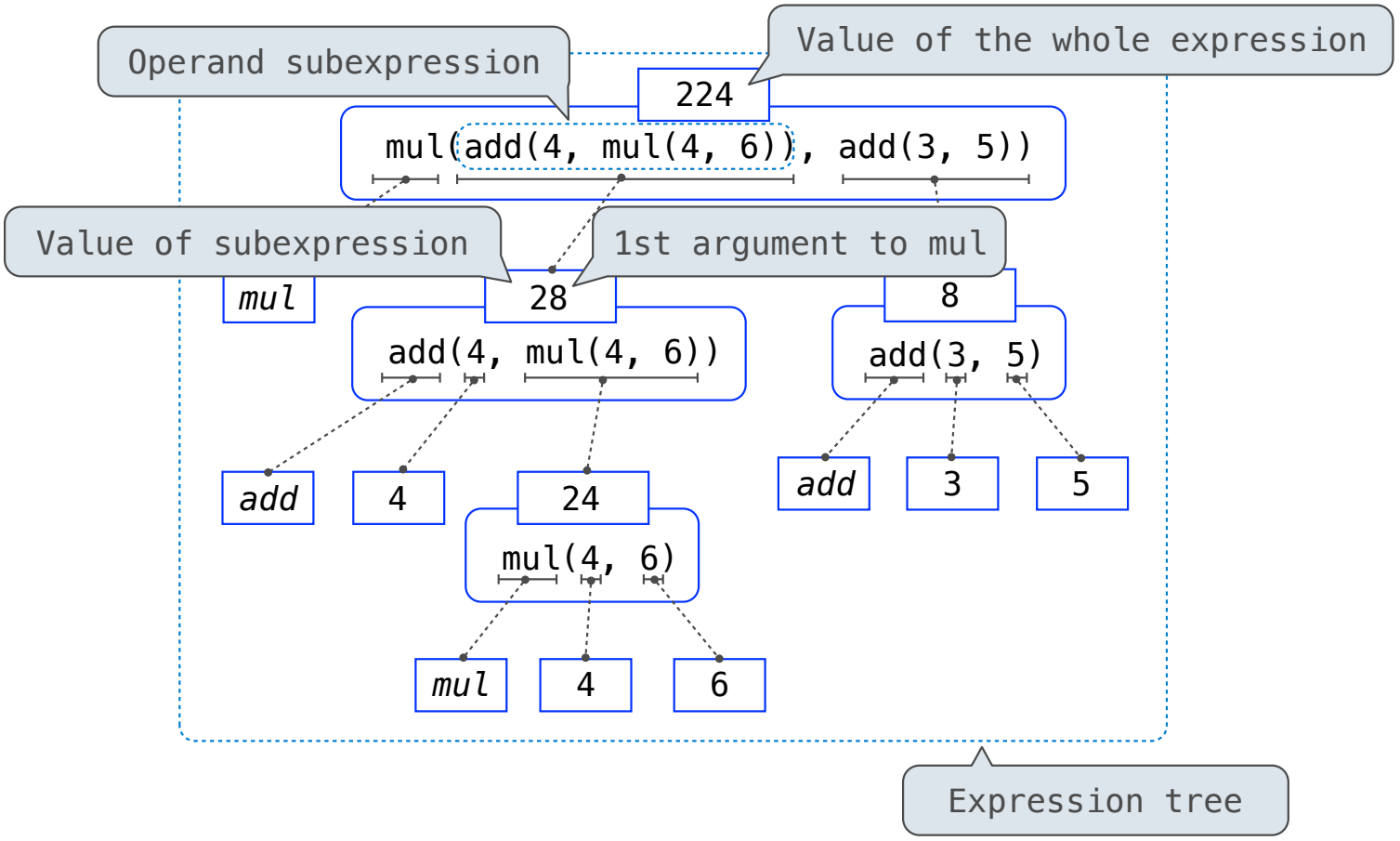

Functions, Objects, and Interpreters

(Demo)