JSDN:

Closures

(part 2)

A Closure in Action (Setup)

```
var createIncrementer = function () {
  var counter = 0;
  return function () {
    counter = counter + 1;
    return counter;
  }
}
var inc = createIncrementer();
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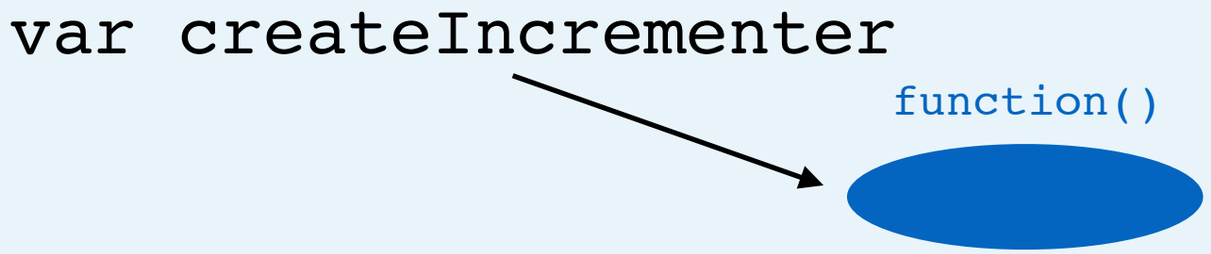

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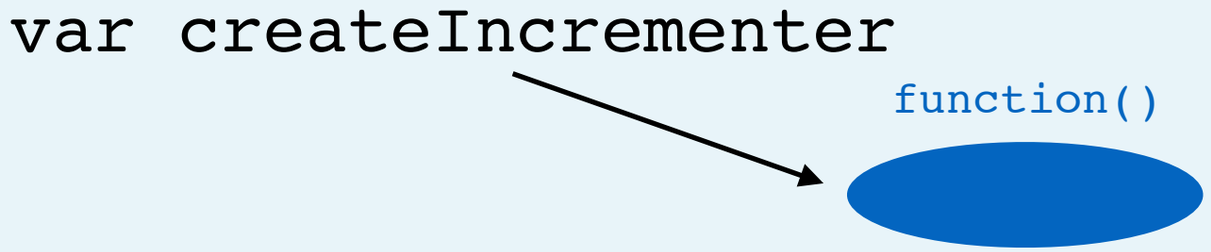

a. Assignment

A Closure in Action (Setup)

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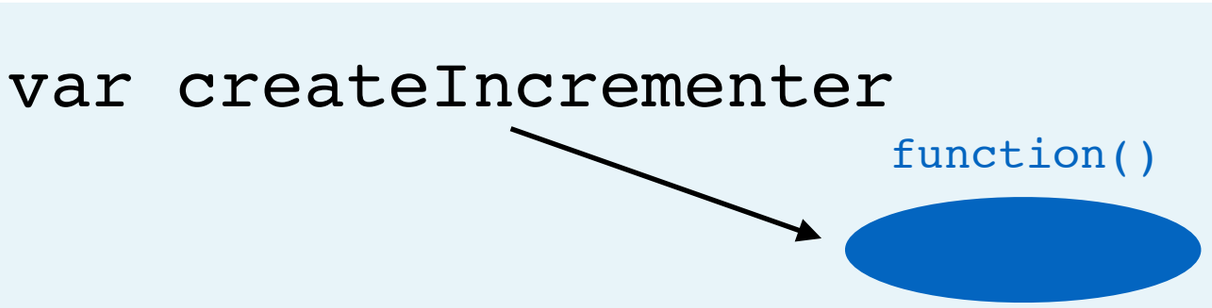
a. Assignment
a. (Evaluate right side) Call function



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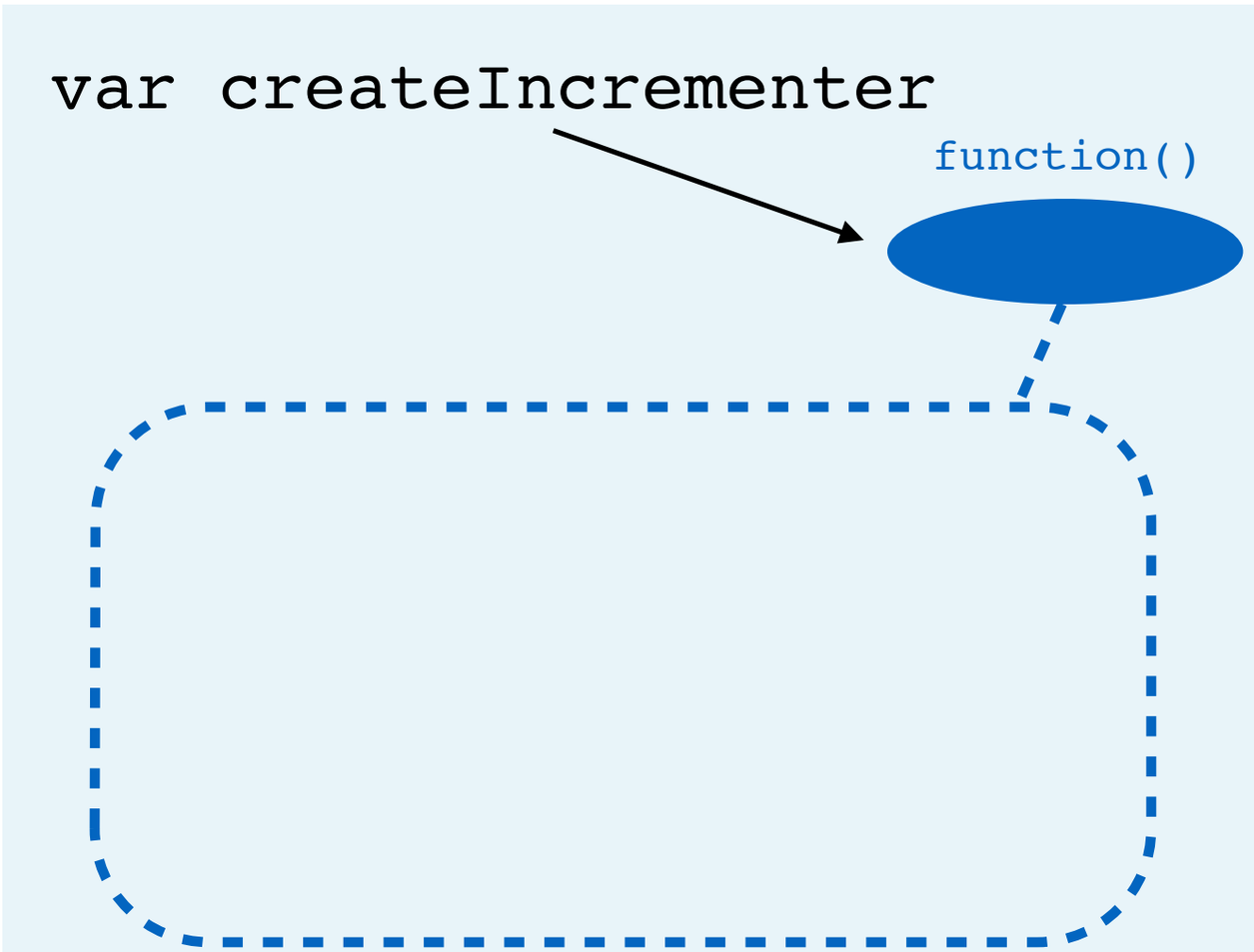
a. Assignment
   a. (Evaluate right side) Call function
   a. Create scope



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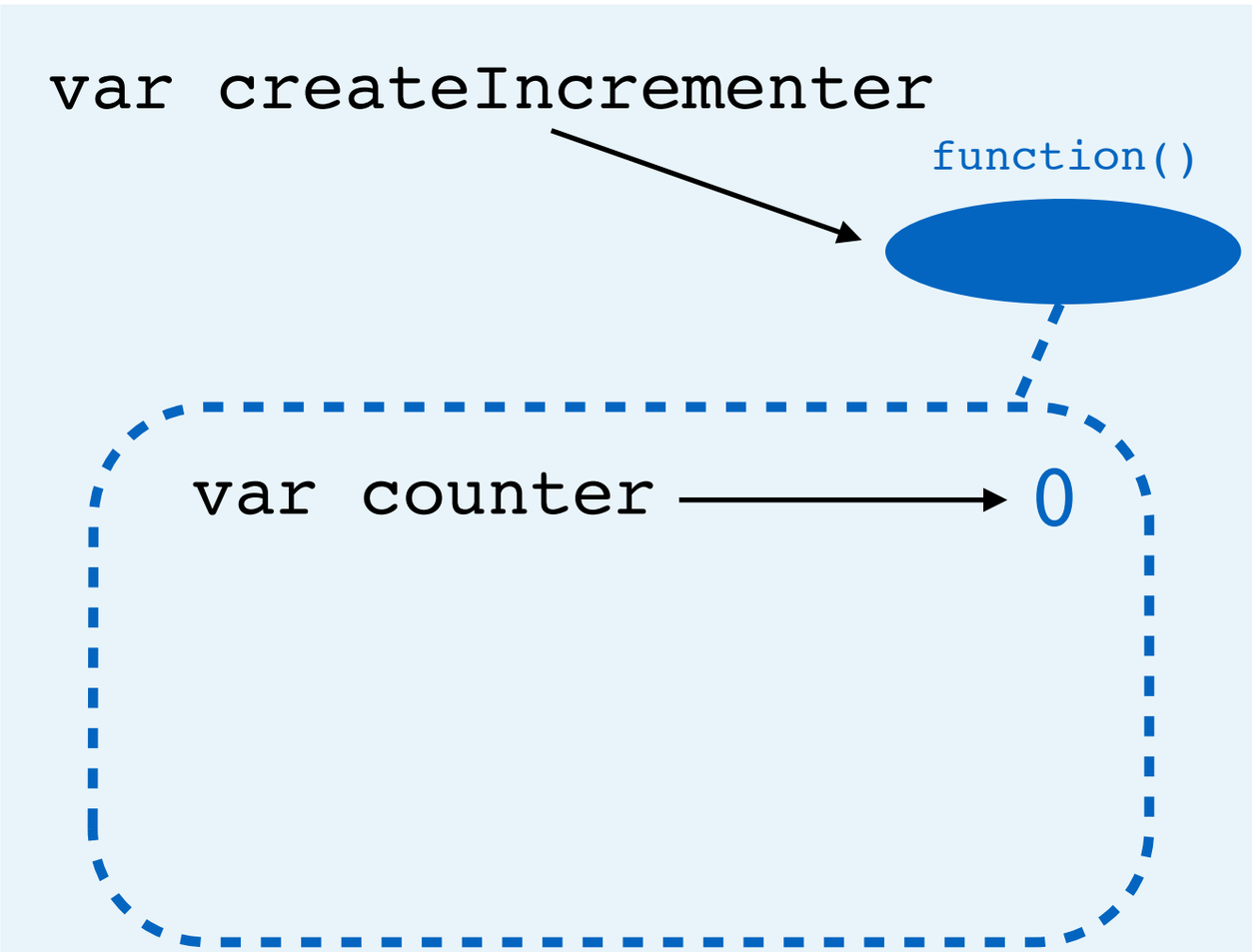
a. Assignment
   a. (Evaluate right side) Call function
      a. Create scope
      b. Assignment (steps ommitted)



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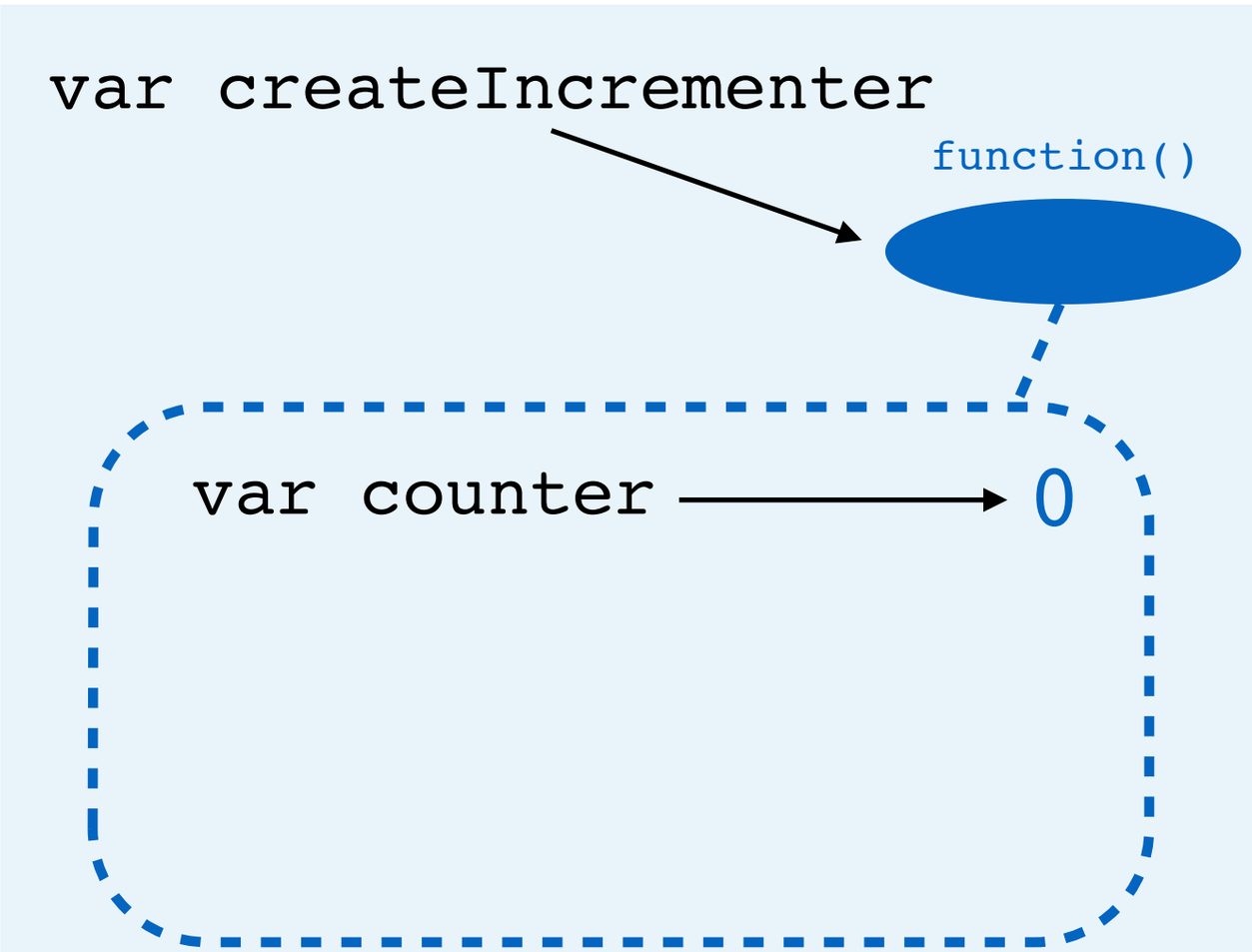
a. Assignment
   a. (Evaluate right side) Call function
      a. Create scope
      b. Assignment (steps ommitted)
      c. Return statement



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a. Assignment
   a. (Evaluate right side) Call function
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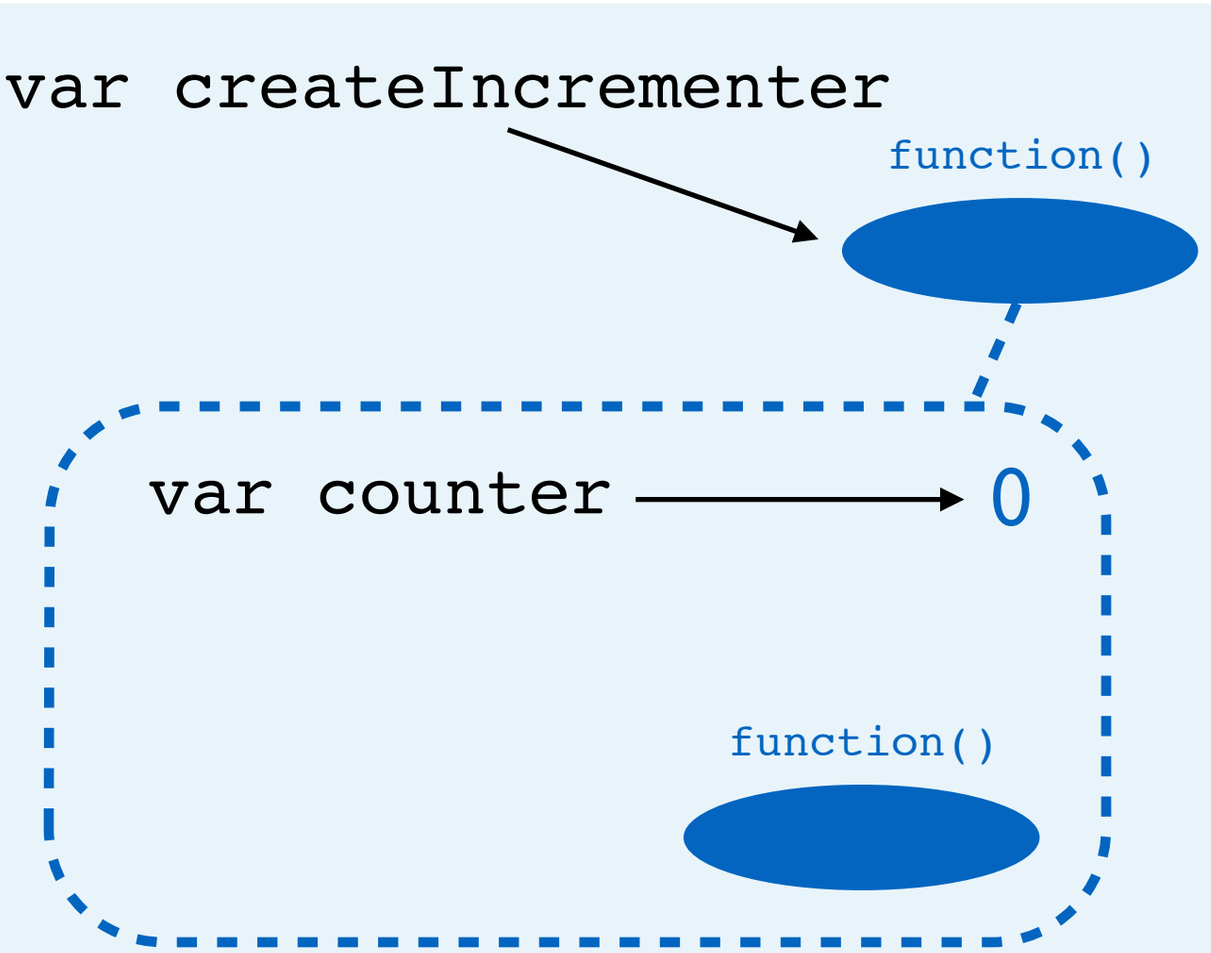
      c. Return statement
         a. Create function



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a. Assignment
   a. (Evaluate right side) Call function
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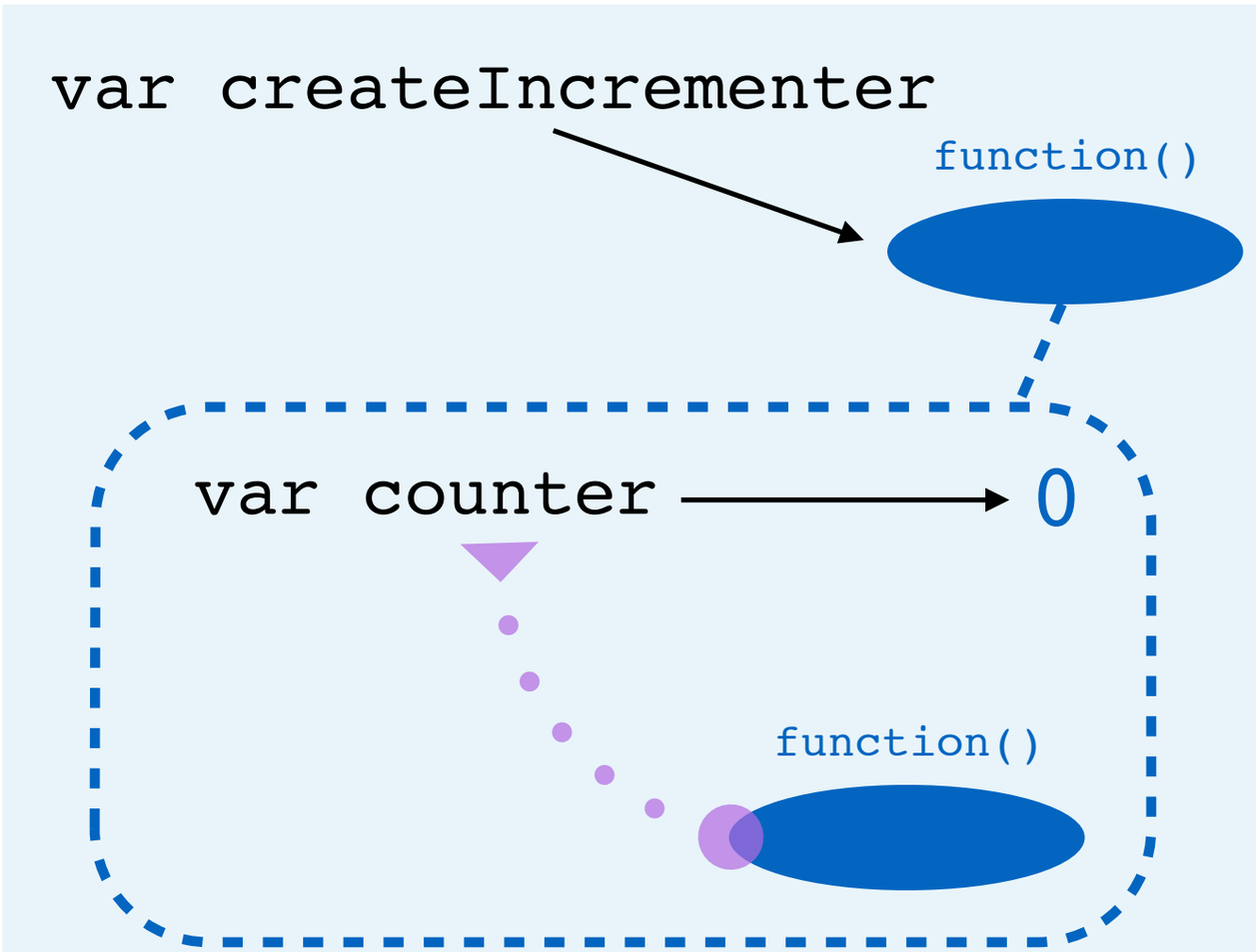
      c. Return statement
         a. Create function
            a. Create closure (var counter)



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   a. (Evaluate right side) Call function
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      c. Return statement
         a. Create function
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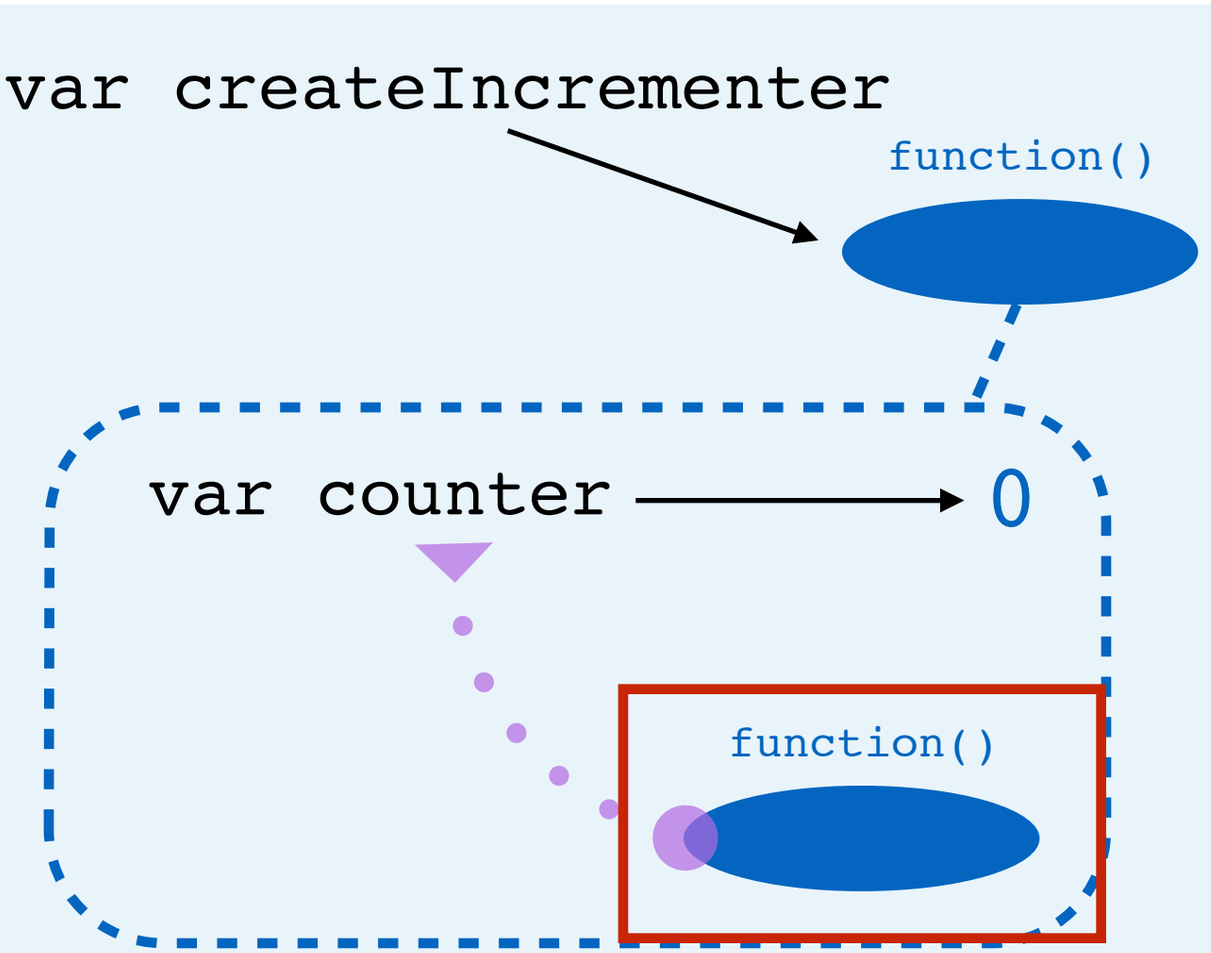
         b. Mark as return value



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   a. (Evaluate right side) Call function
      a. Create scope
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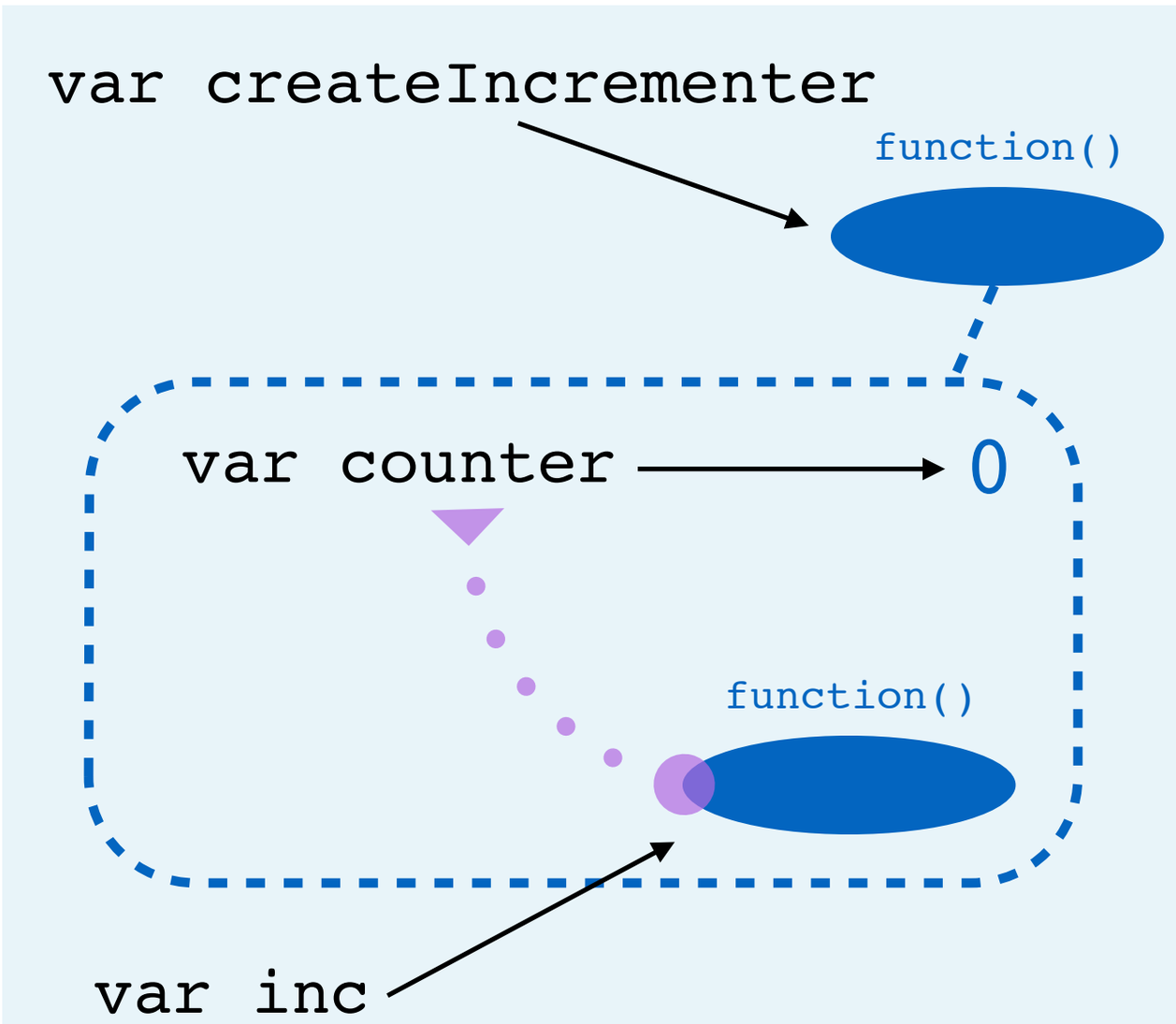
      c. Return statement
         a. Create function
            a. Create closure (var counter)
         b. Mark as return value
   b. Create var, point to value



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      c. Return statement
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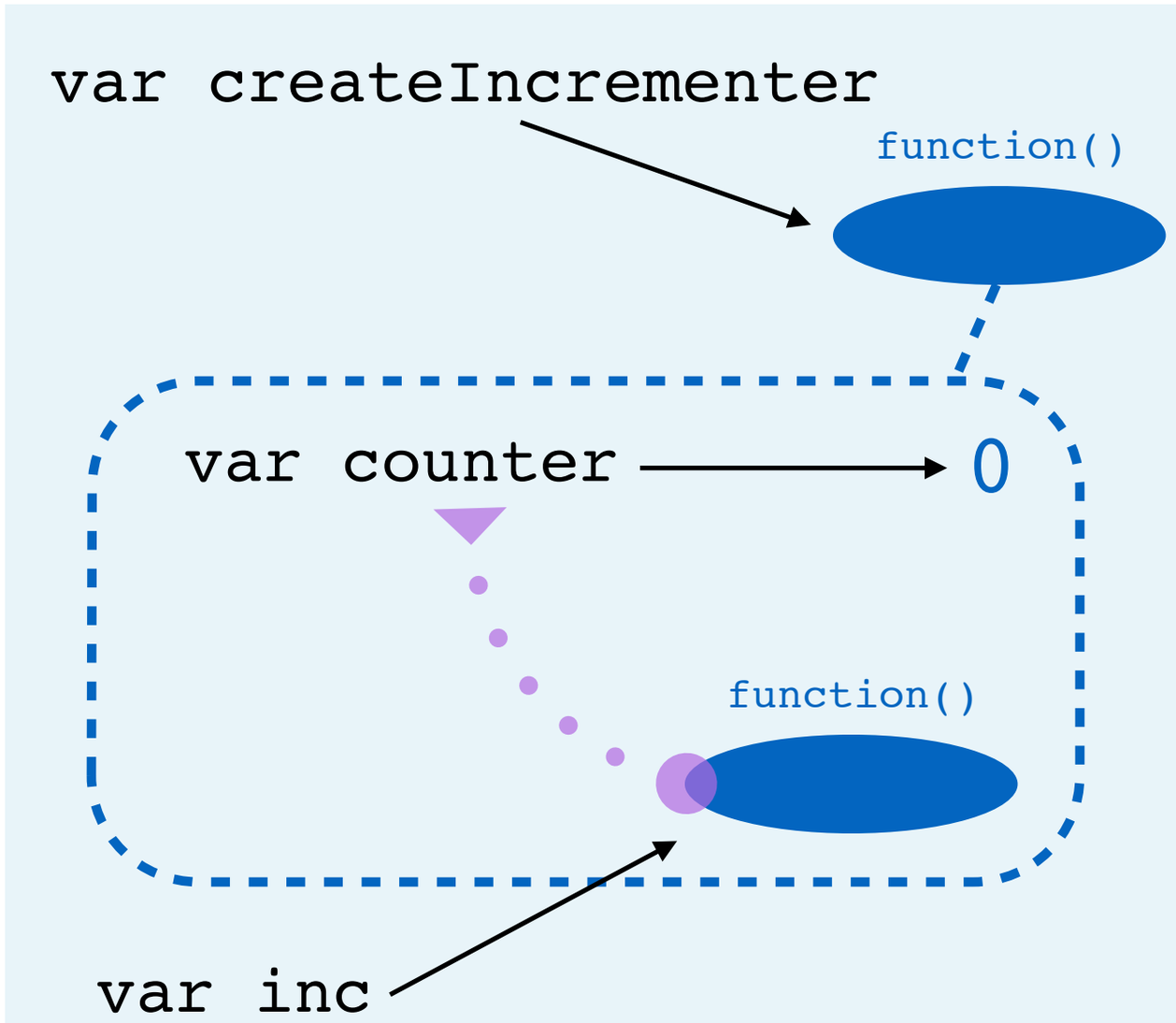
            a. Create closure (var counter)
         b. Mark as return value
   b. Create var, point to value

All done!



A Closure in Action (Usage)

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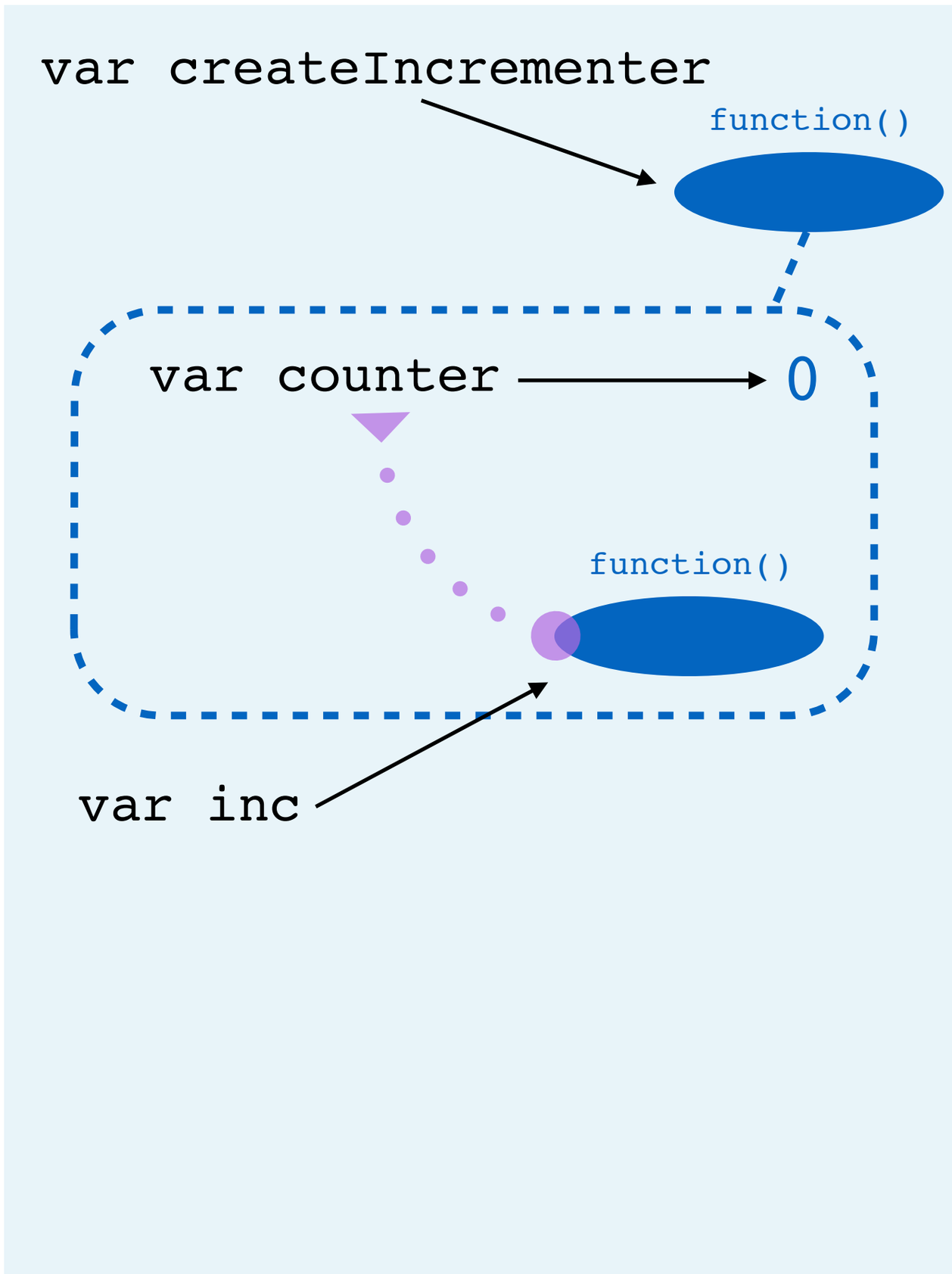

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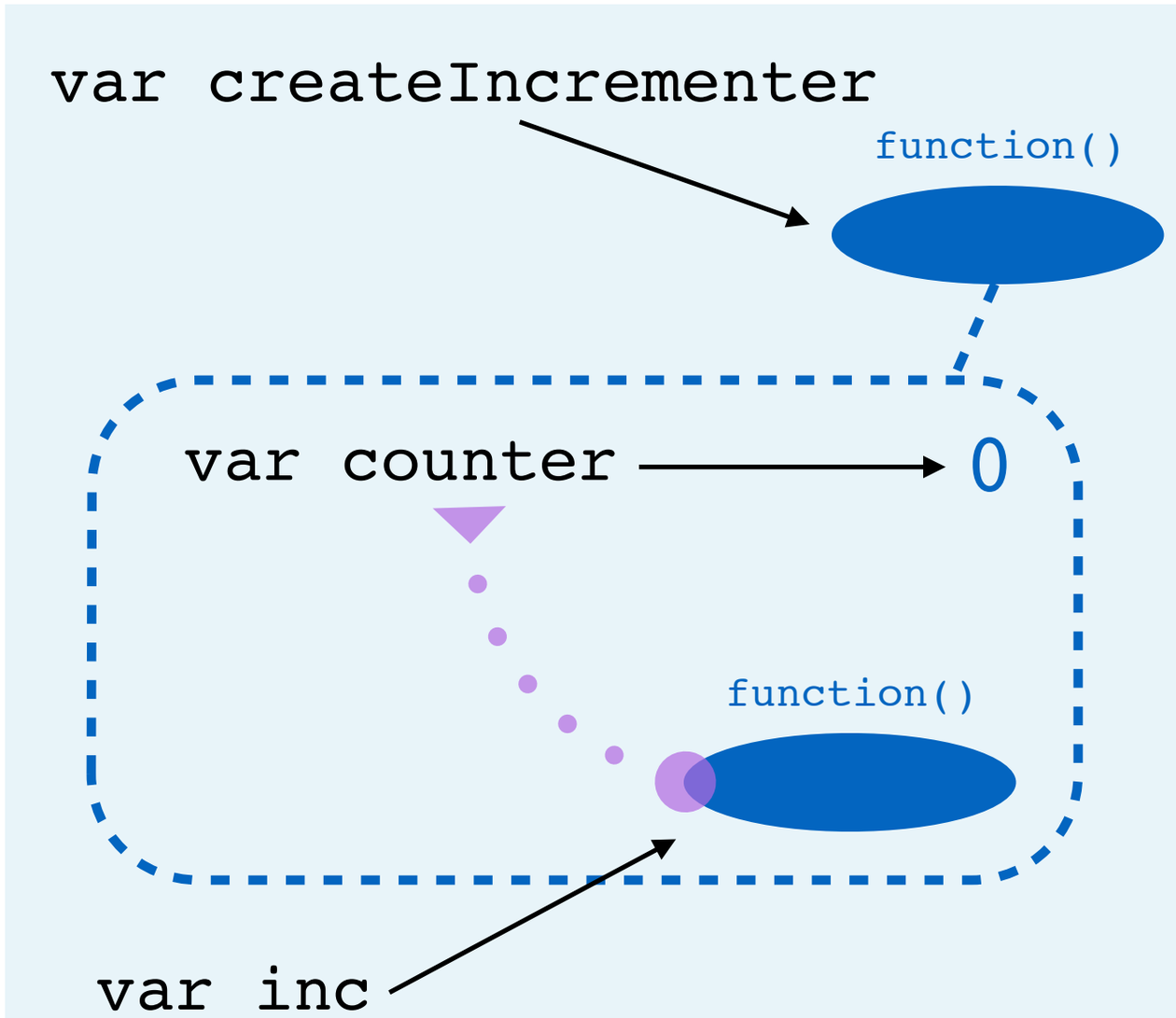
a. Assignment



A Closure in Action (Usage)

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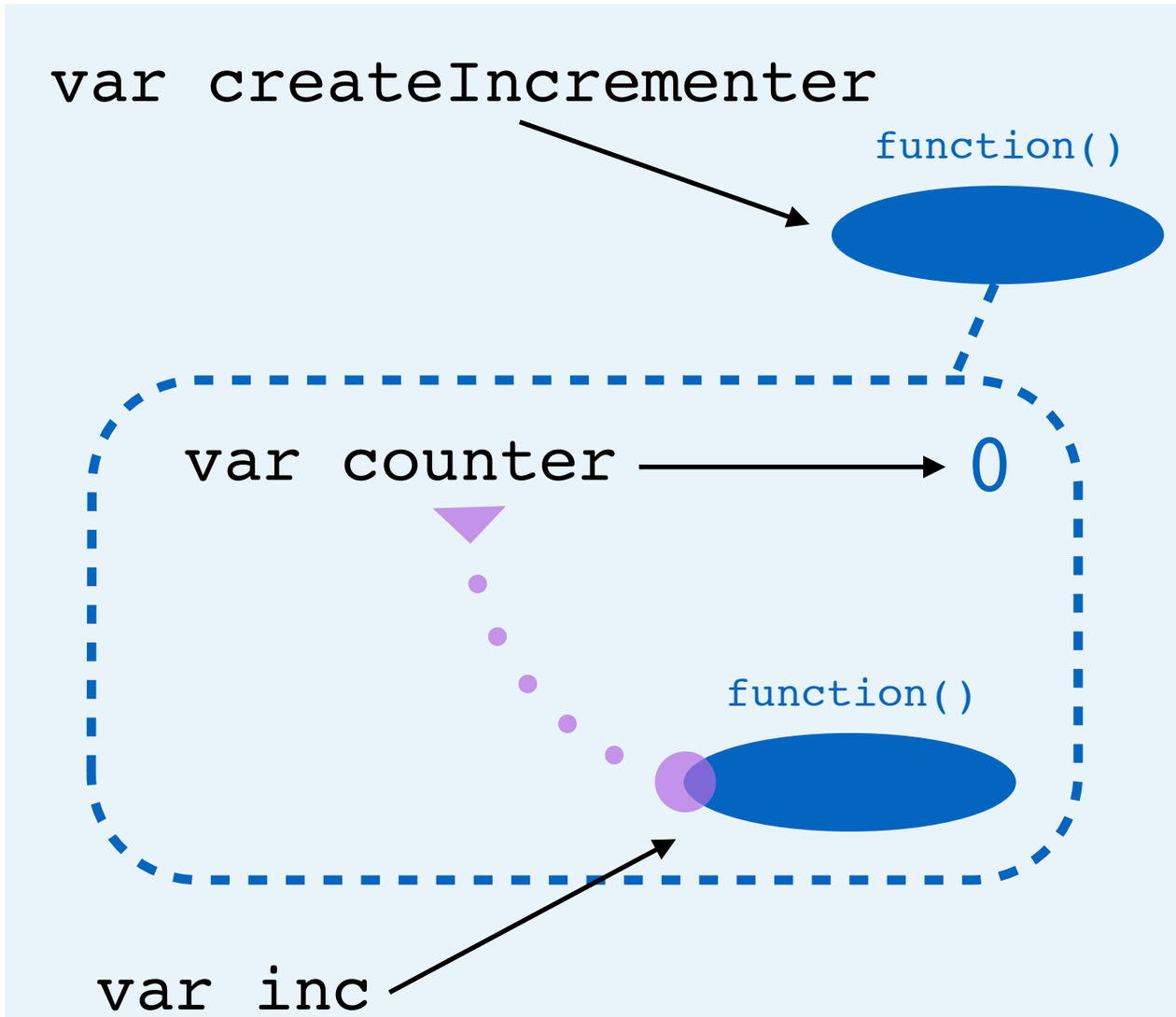
   a. (Evaluate right side) Call function



A Closure in Action (Usage)

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```
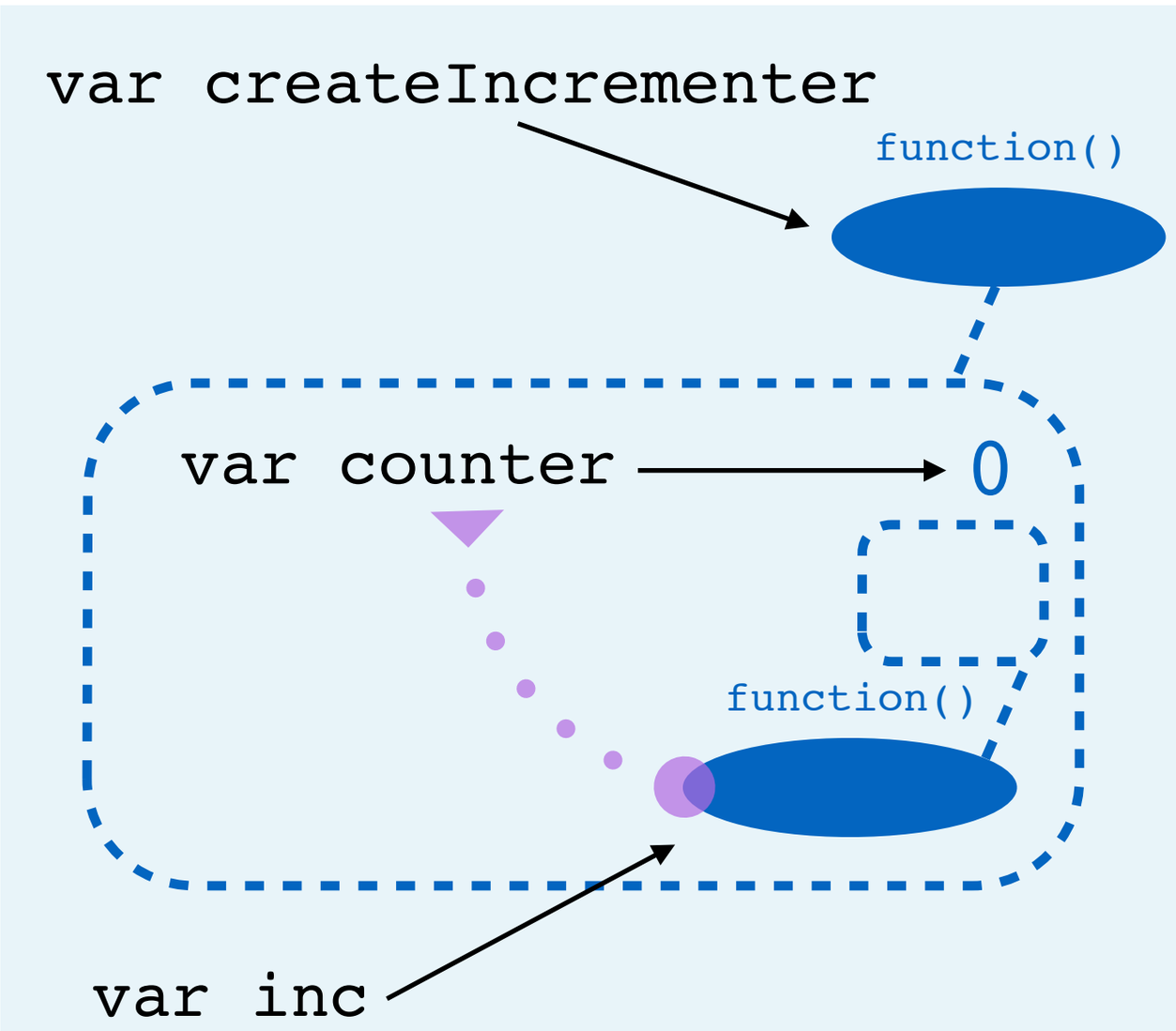

a. Assignment
   a. (Evaluate right side) Call function
      a. Create scope



A Closure in Action (Usage)

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a. Assignment
   a. (Evaluate right side) Call function
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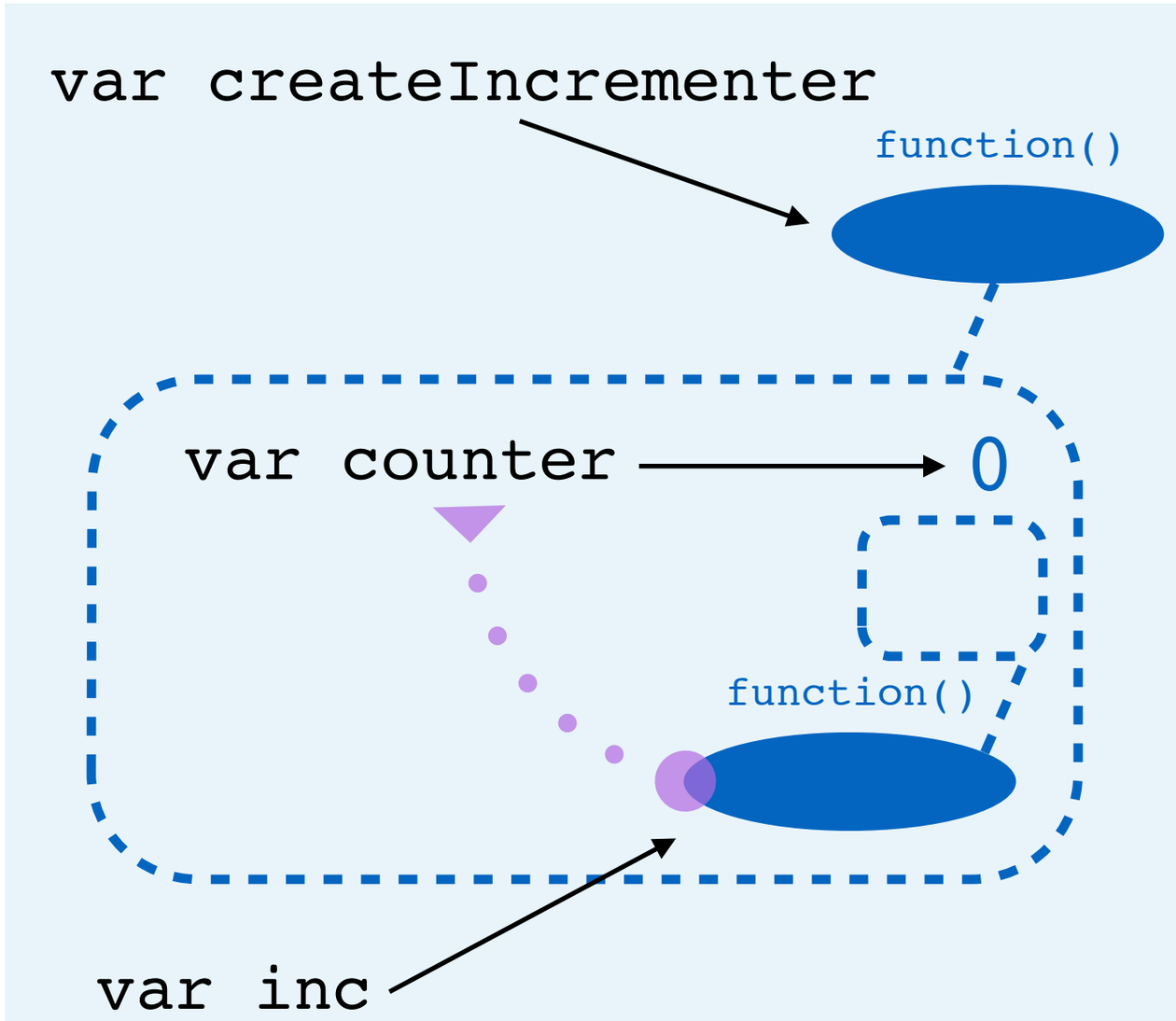
      b. **Re**assignment



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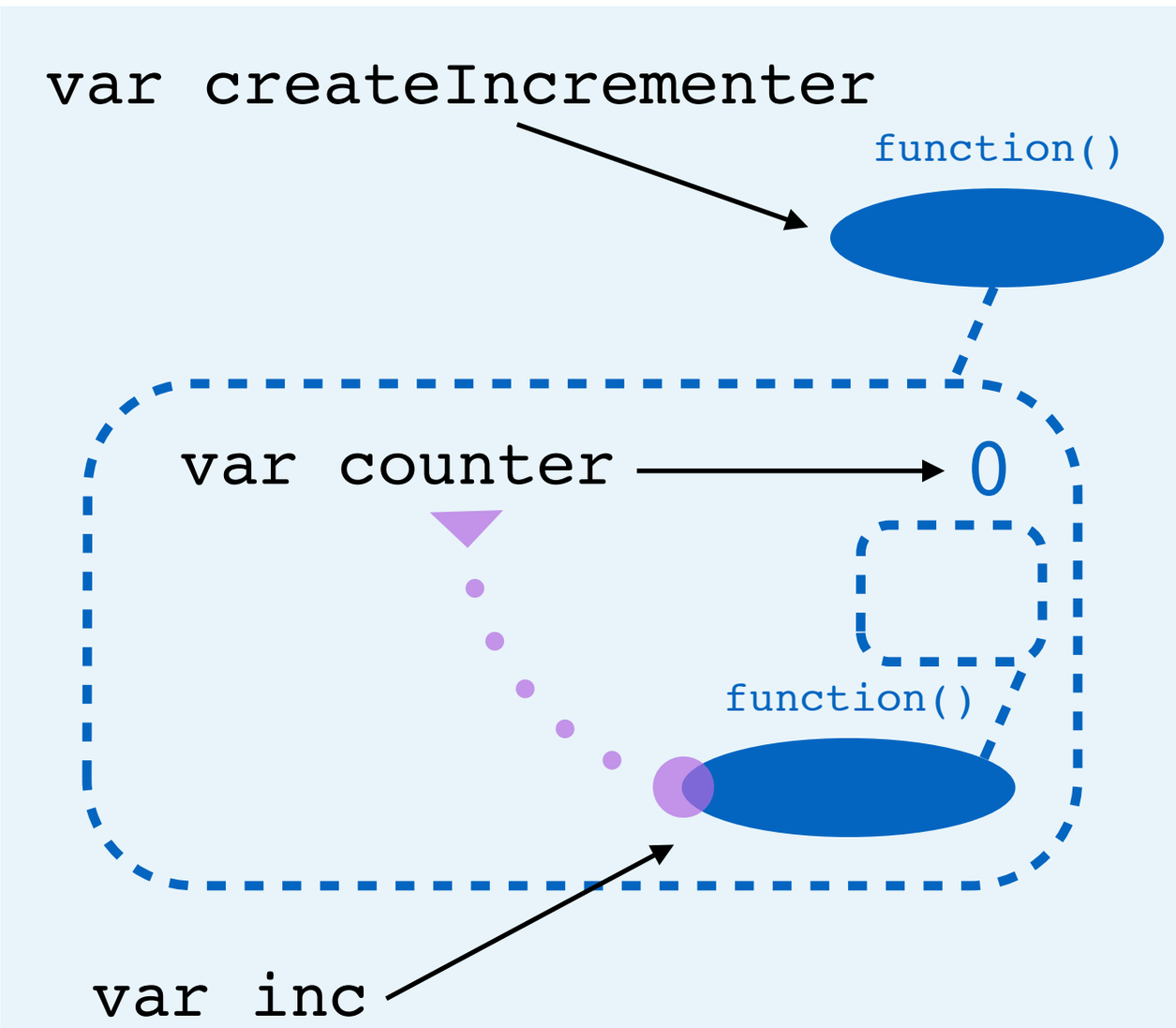
```

a. Assignment
   a. (Evaluate right side) Call function
      a. Create scope
      b. **Re**assignment
         a. Binary Operation (addition)



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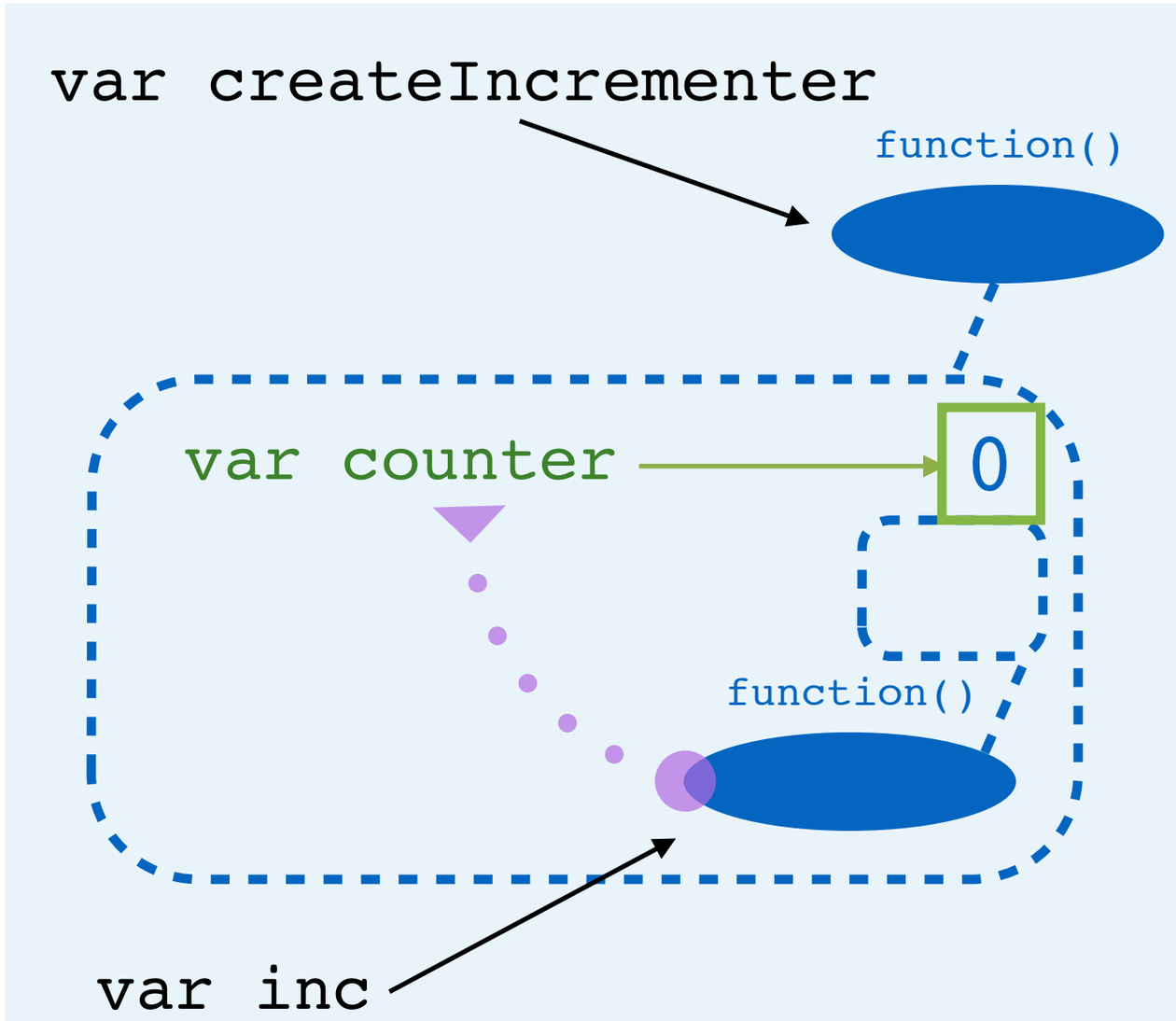
a. Assignment
   a. (Evaluate right side) Call function
      a. Create scope
      b. **Re**assignment
         a. Binary Operation (addition)
            a. Look up value of counter



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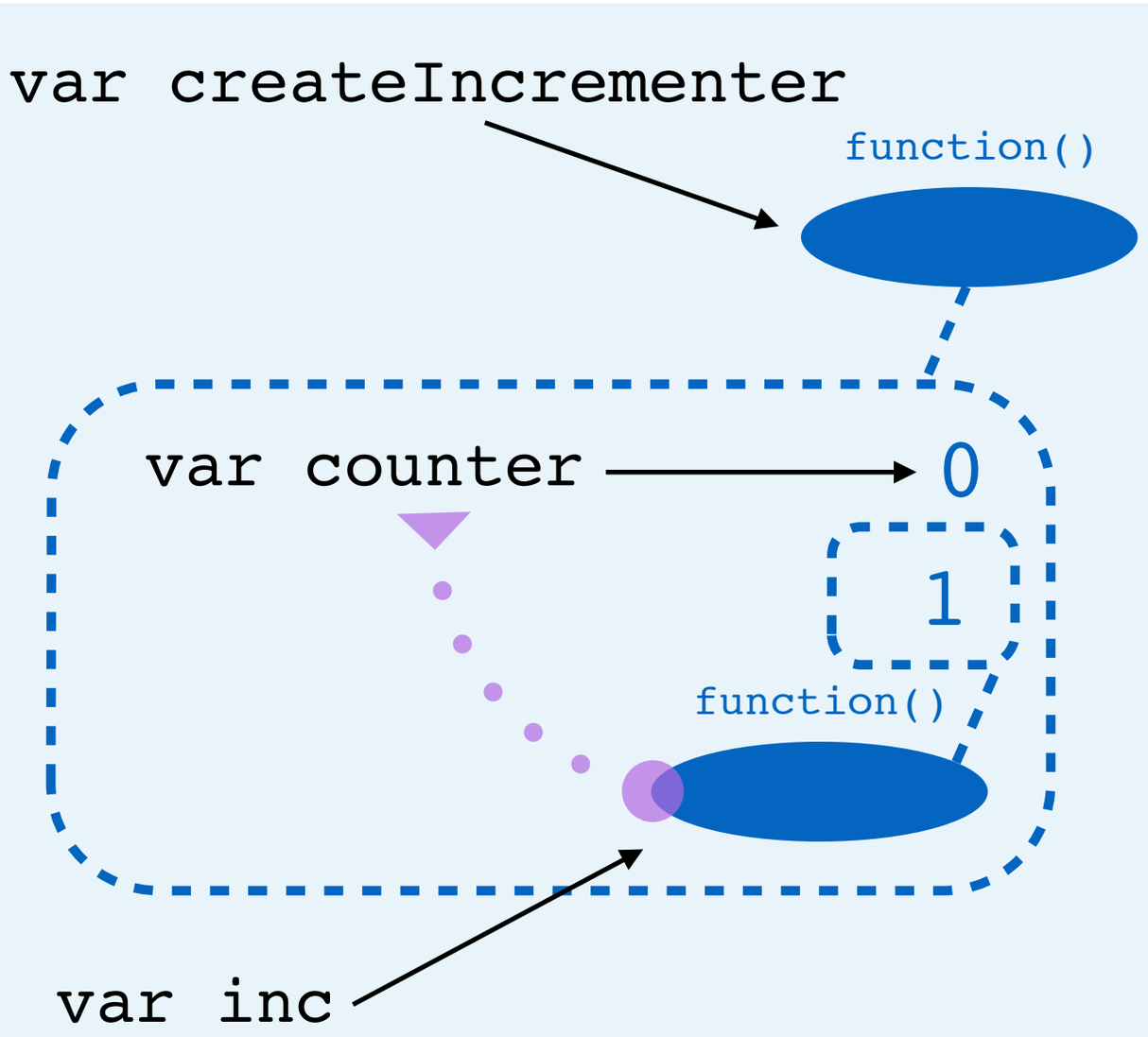
            b. Create value



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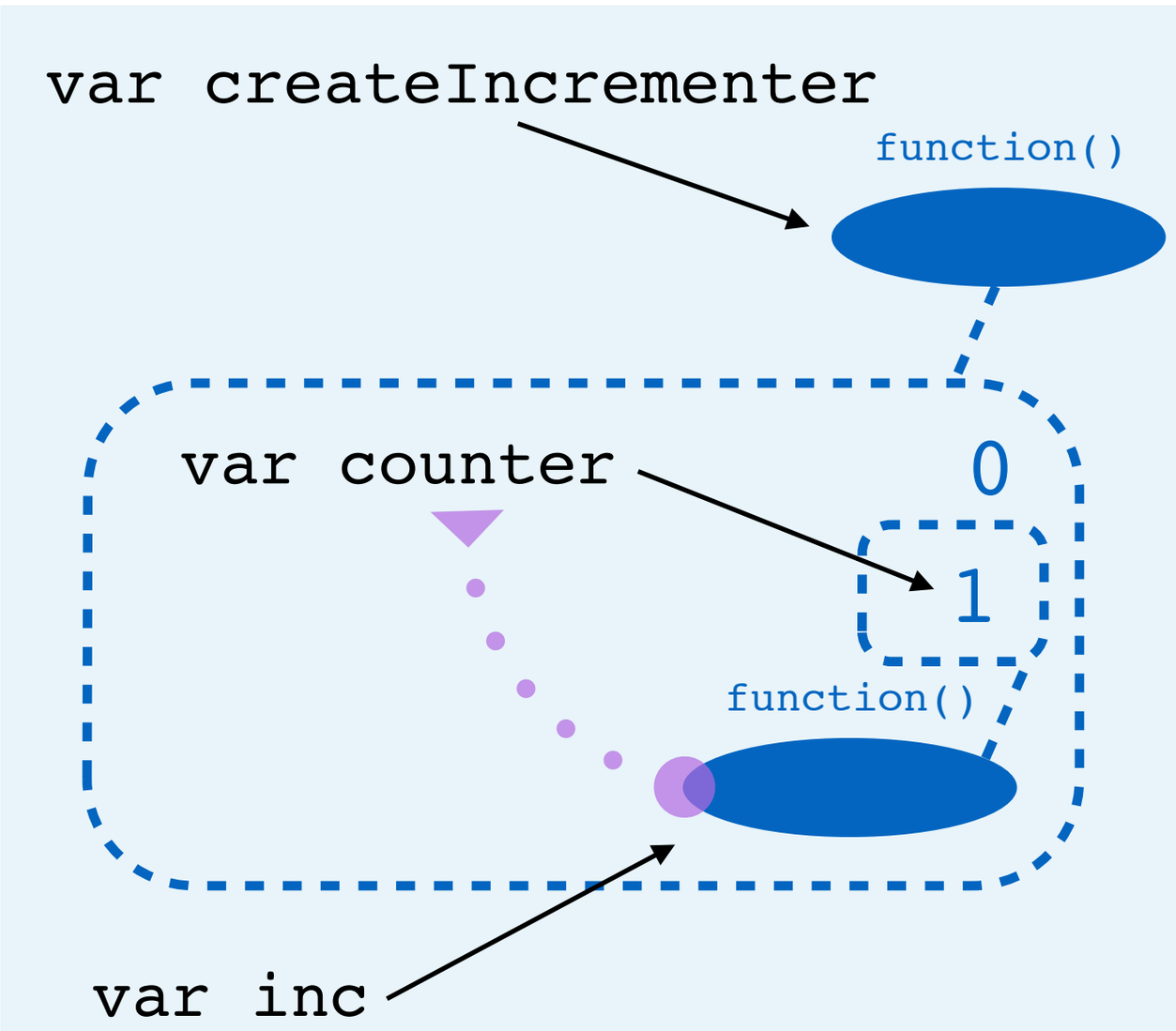
      b. **Re**assignment
         a. Binary Operation (addition)
            a. Look up value of counter
            b. Create value
         b. Set var to point to value



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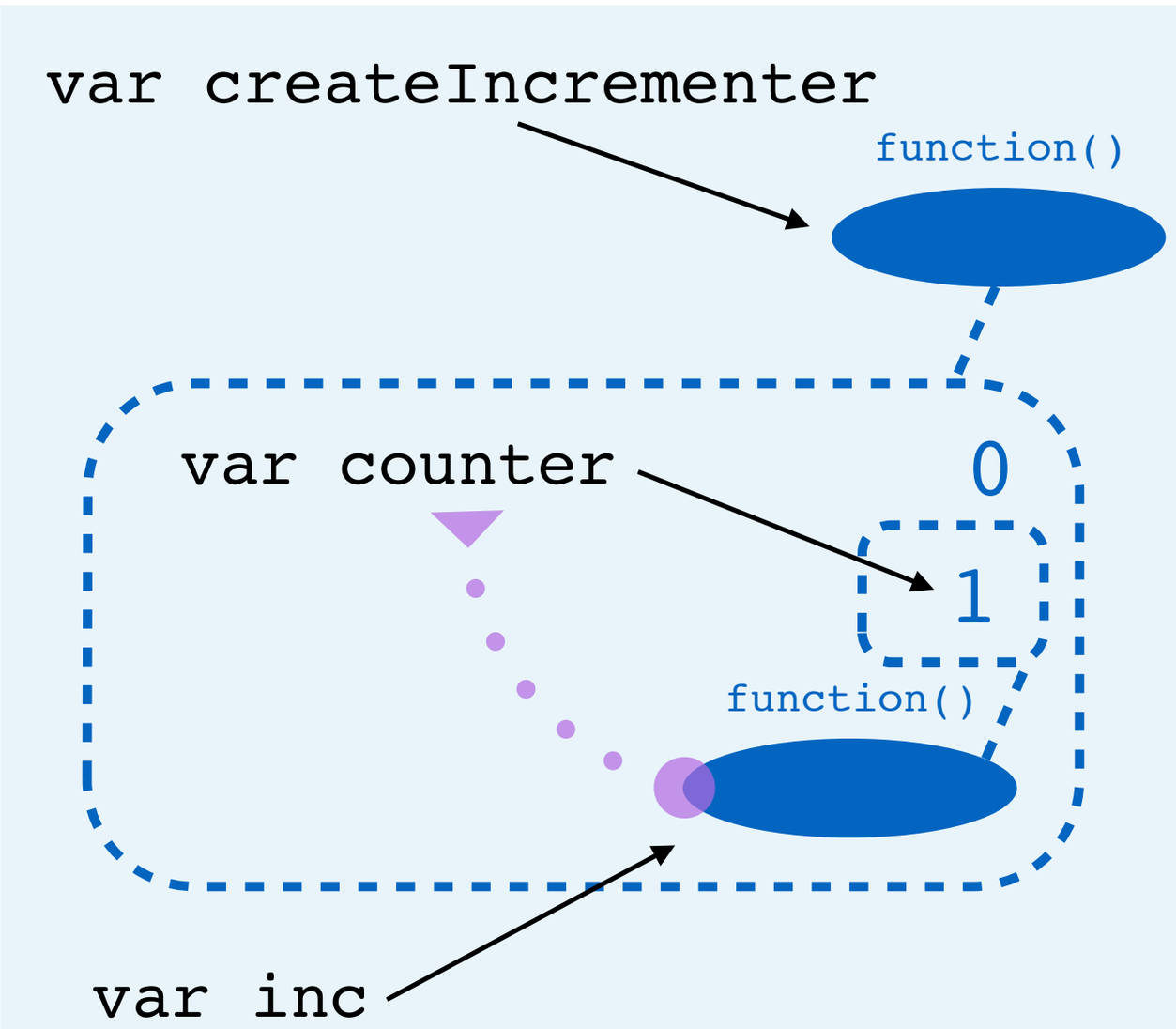
         b. Set var to point to value
      c. Return statement



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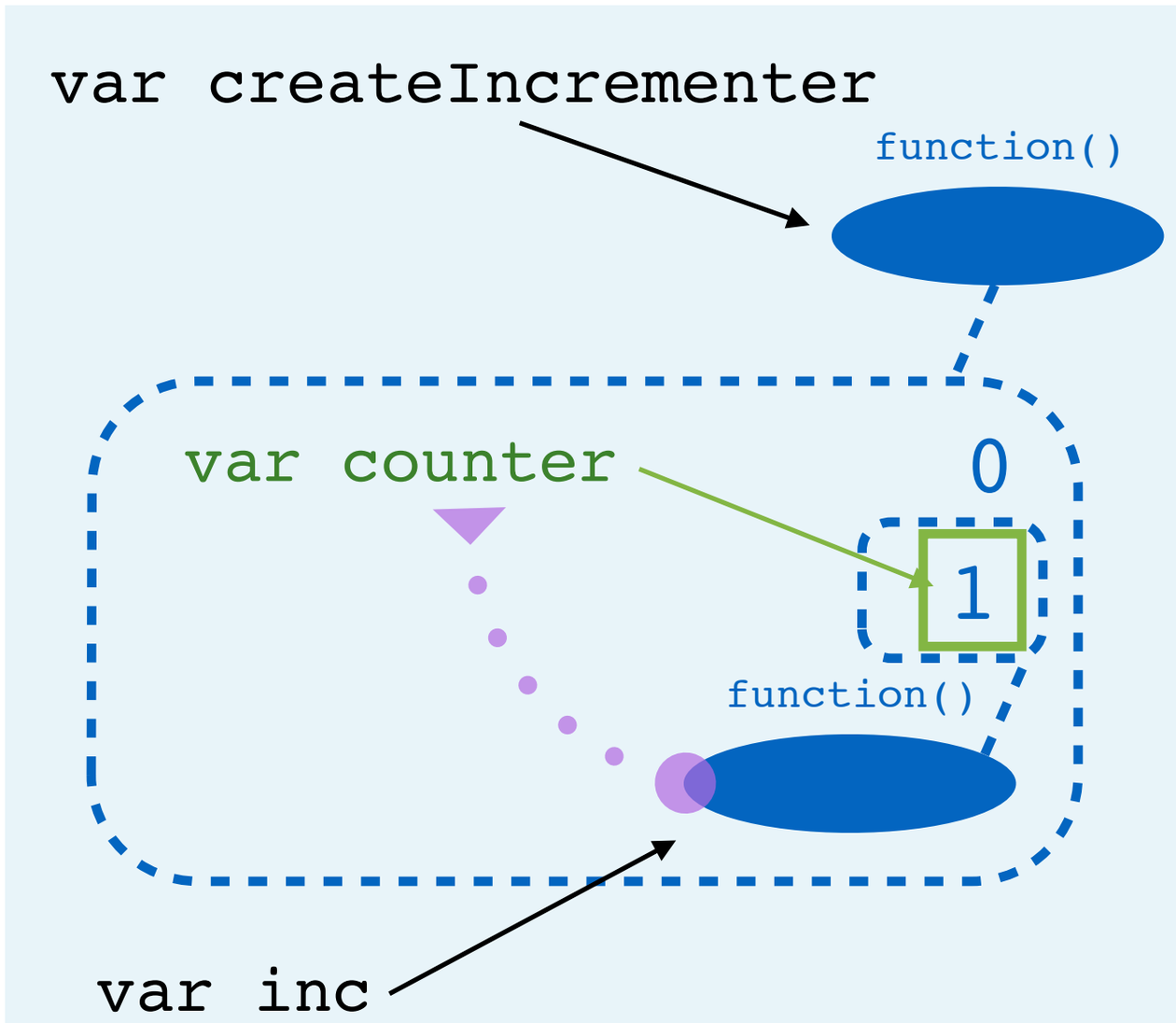
         a. Look up value of counter



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      c. Return statement
         a. Look up value of counter
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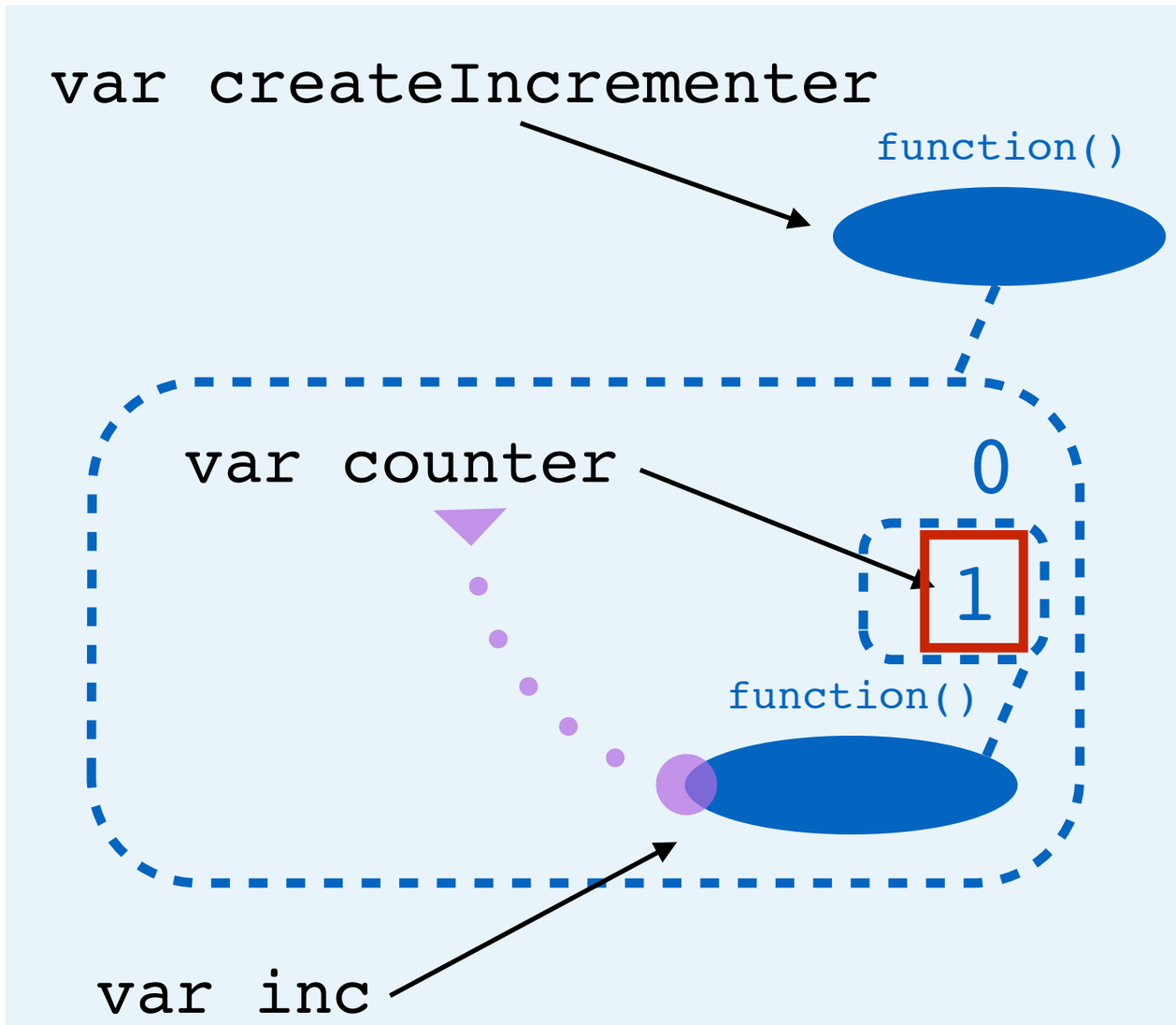

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      b. **Re**assignment
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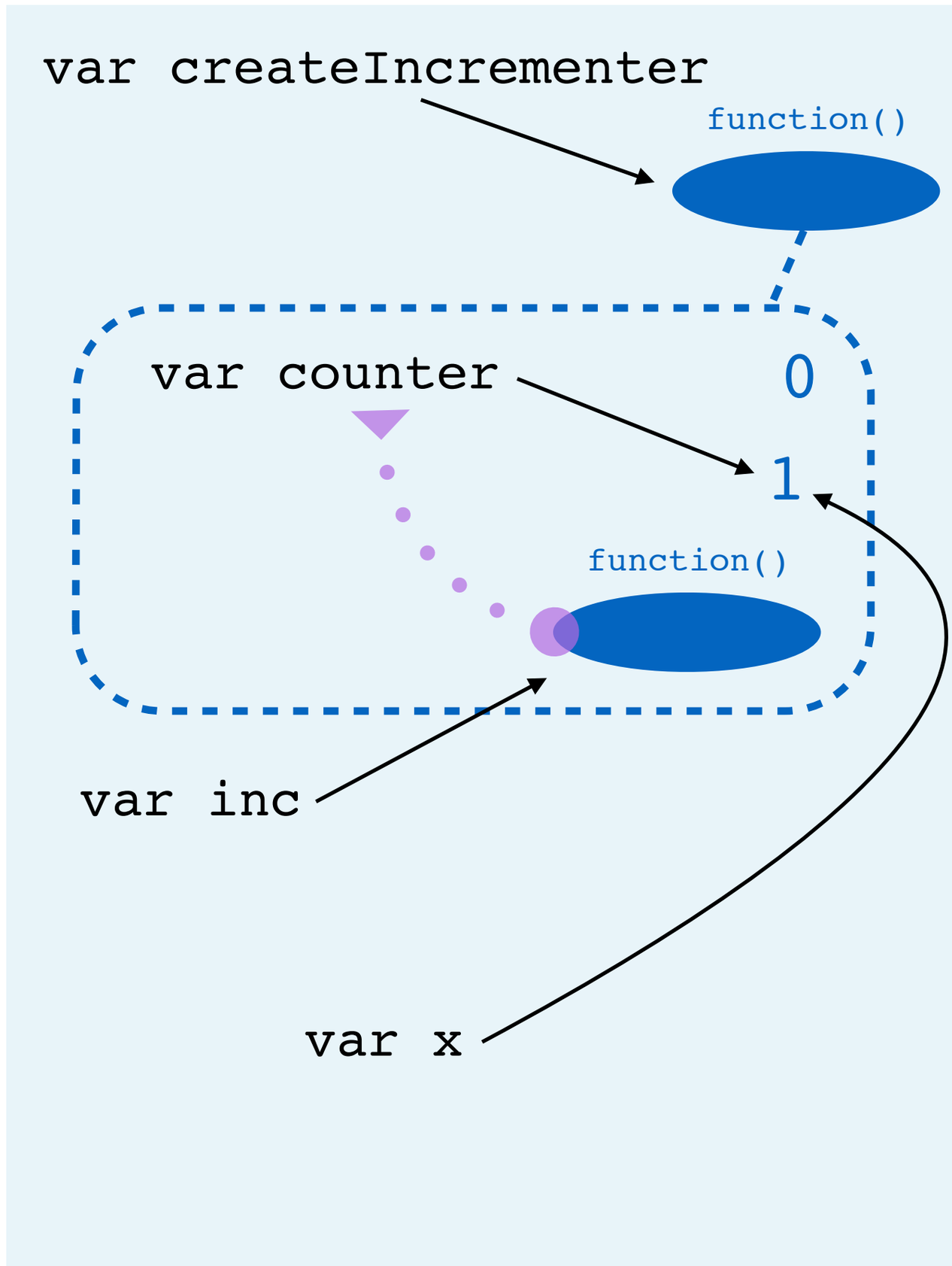
            b. Create value
         b. Set var to point to value
      c. Return statement
         a. Look up value of counter
         b. Mark as return value
   b. Create var, point to value



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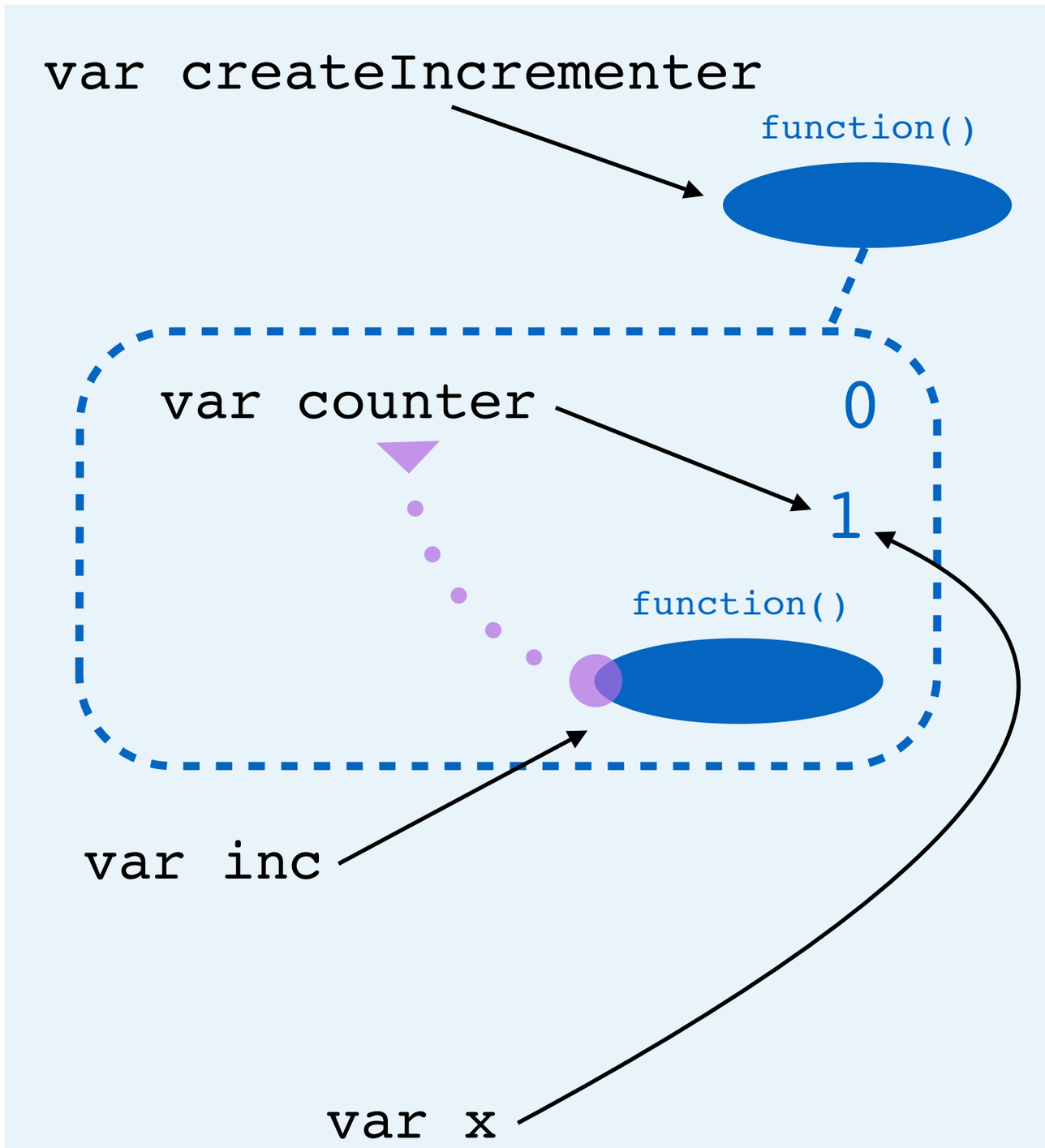
      b. **Re**assignment
         a. Binary Operation (addition)
            a. Look up value of counter
            b. Create value
         b. Set var to point to value
      c. Return statement
         a. Look up value of counter
         b. Mark as return value
   b. Create var, point to value

All done!



Multiple Closure Scopes

```
var createIncrementer = function () {
  var counter = 0;
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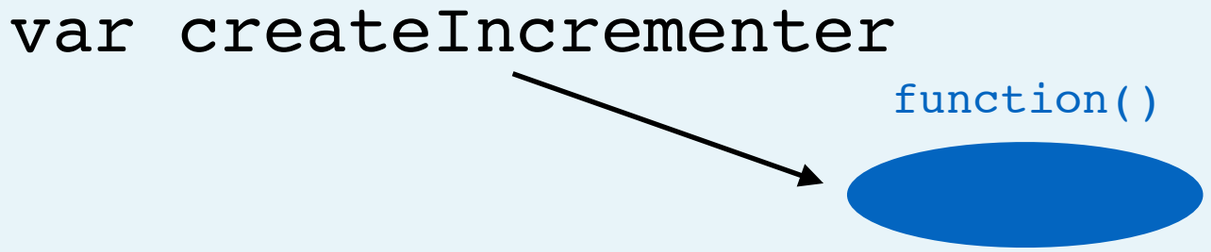
    counter = counter + 1;
    return counter;
  }
}
var incA = createIncrementer();
var incB = createIncrementer();
```



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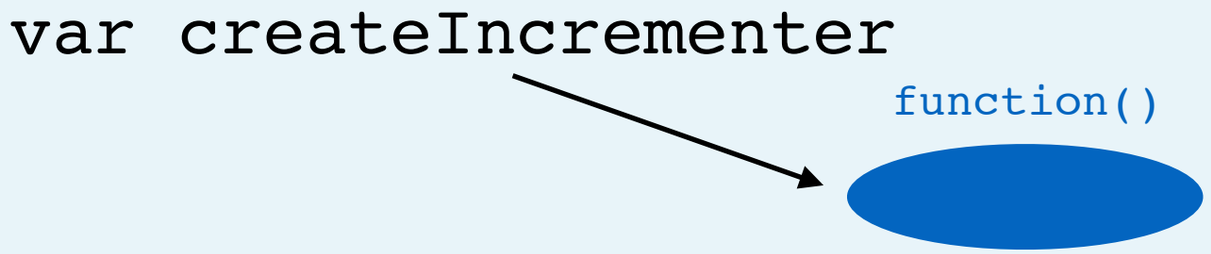

a. Assignment

Multiple Closure Scopes

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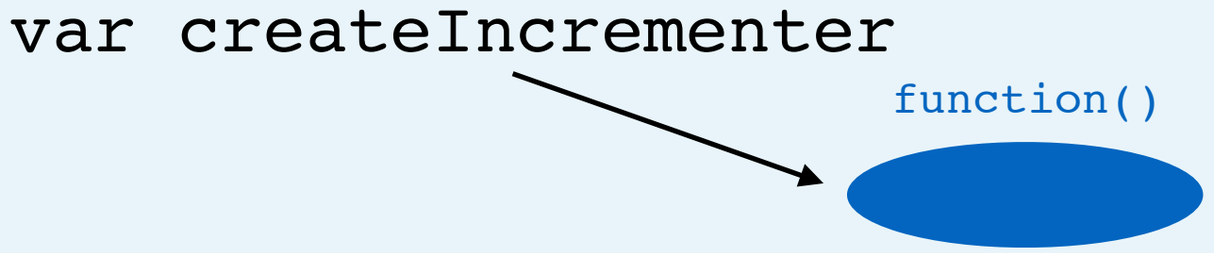

a. Assignment
a. (Evaluate right side) Call function

Multiple Closure Scopes

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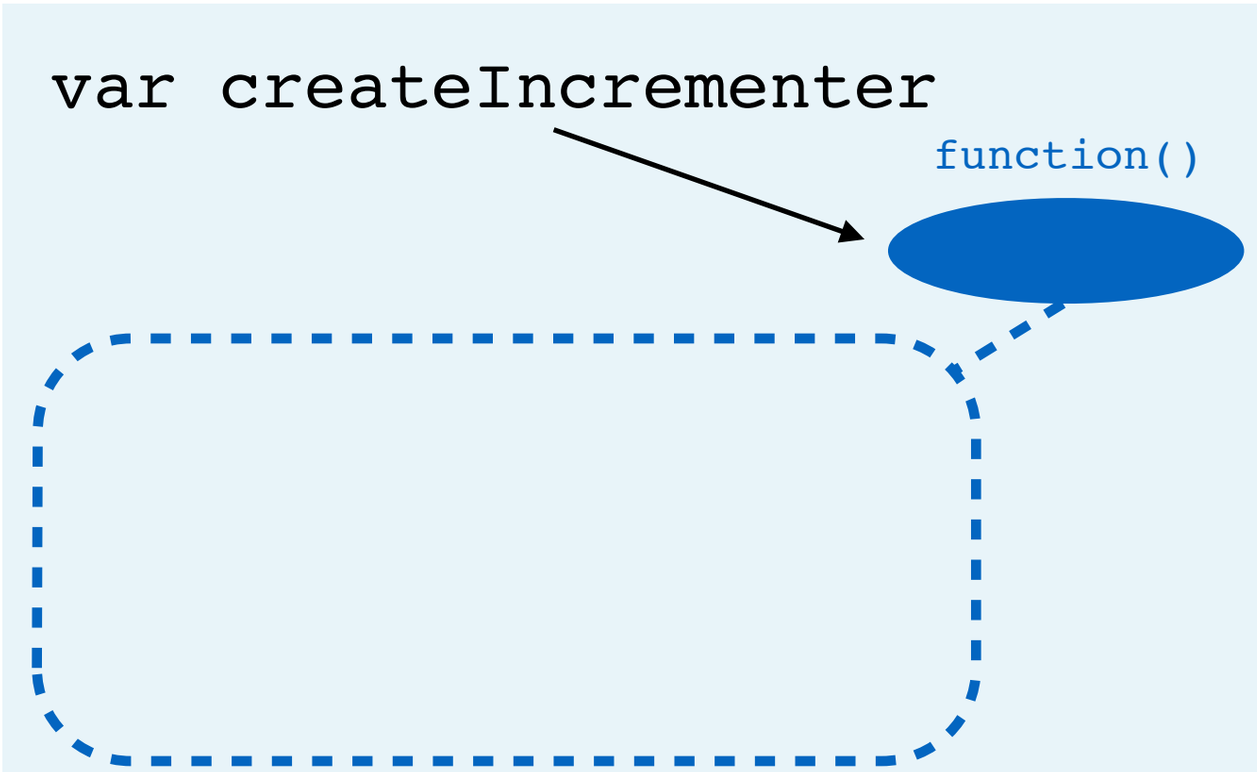
a. Assignment
    a. (Evaluate right side) Call function
        a. Create Scope



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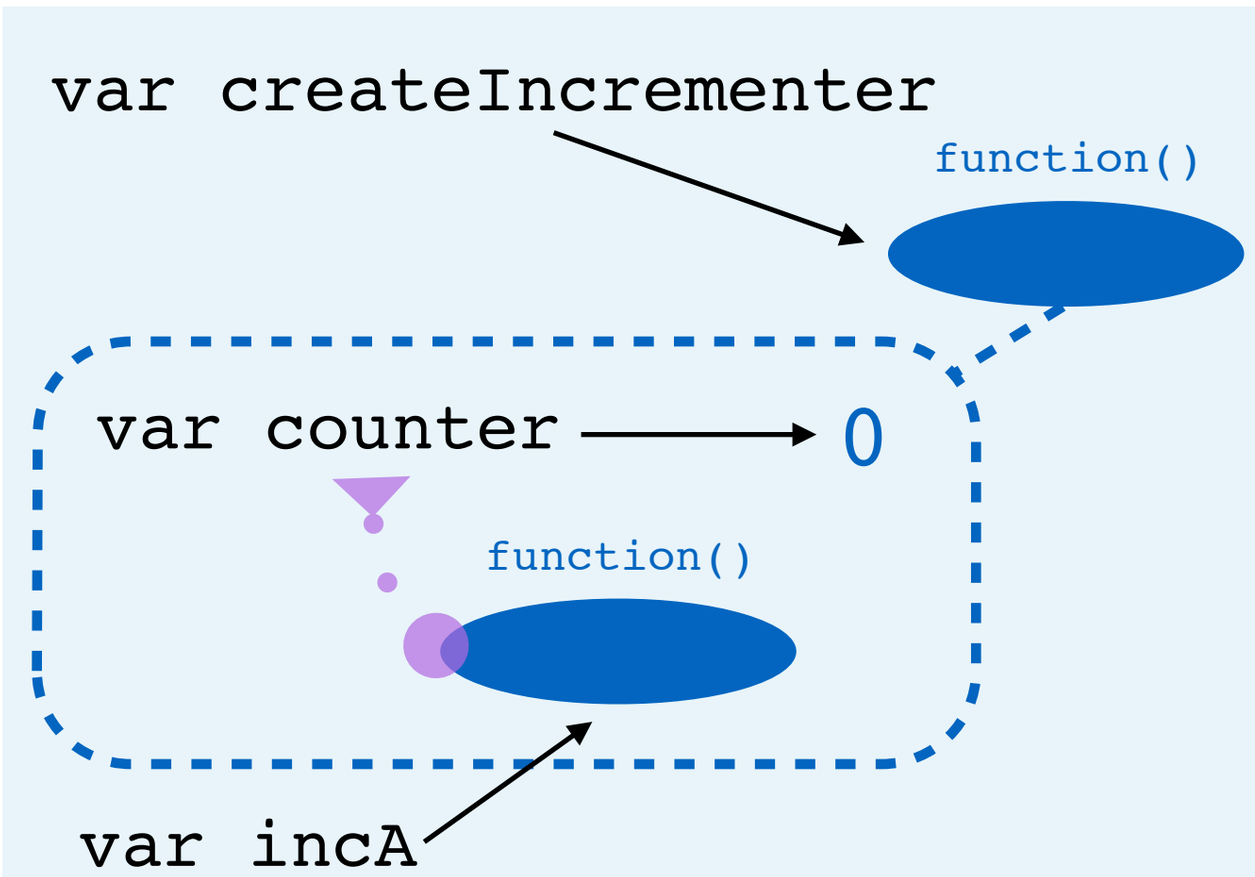
a. Assignment
   a. (Evaluate right side) Call function
      a. Create Scope
      b. Etc.



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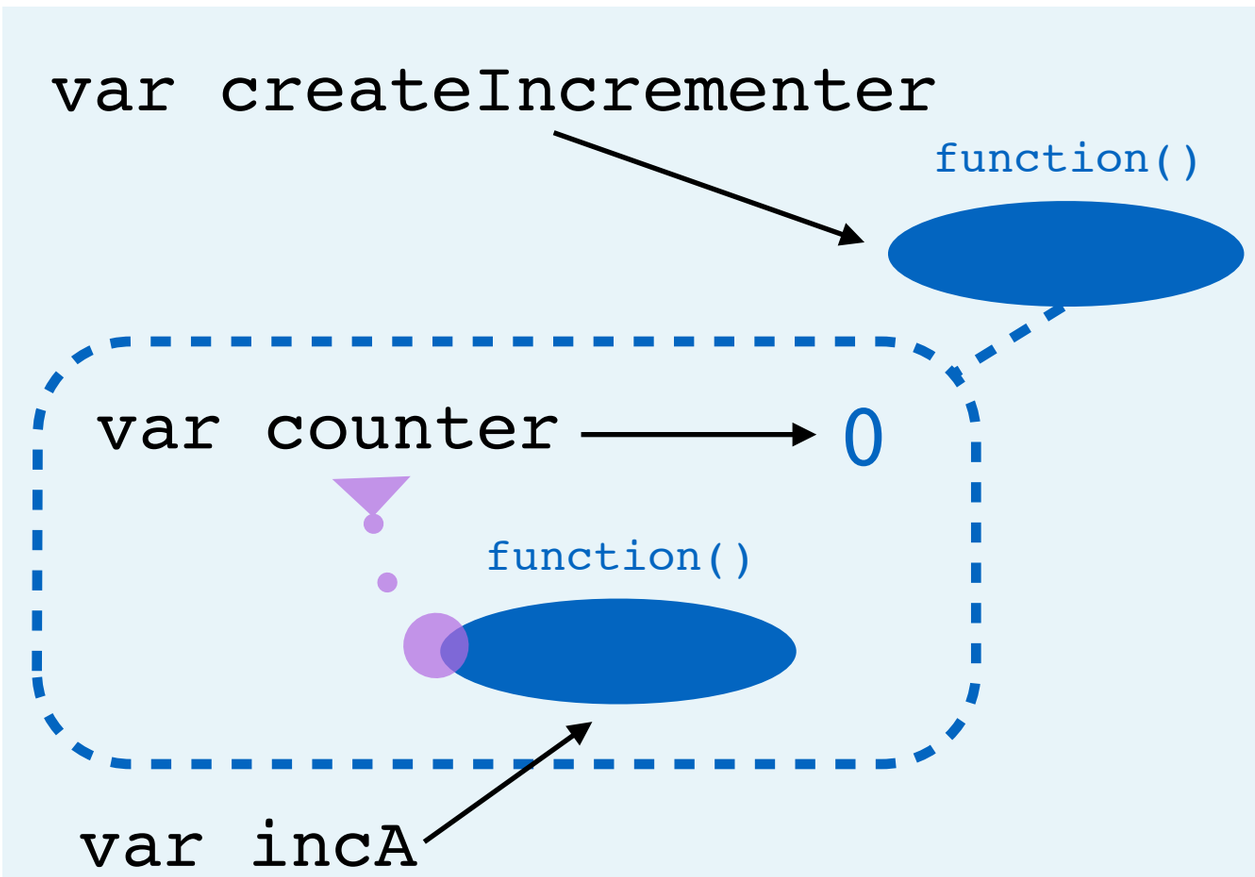
b. Assignment



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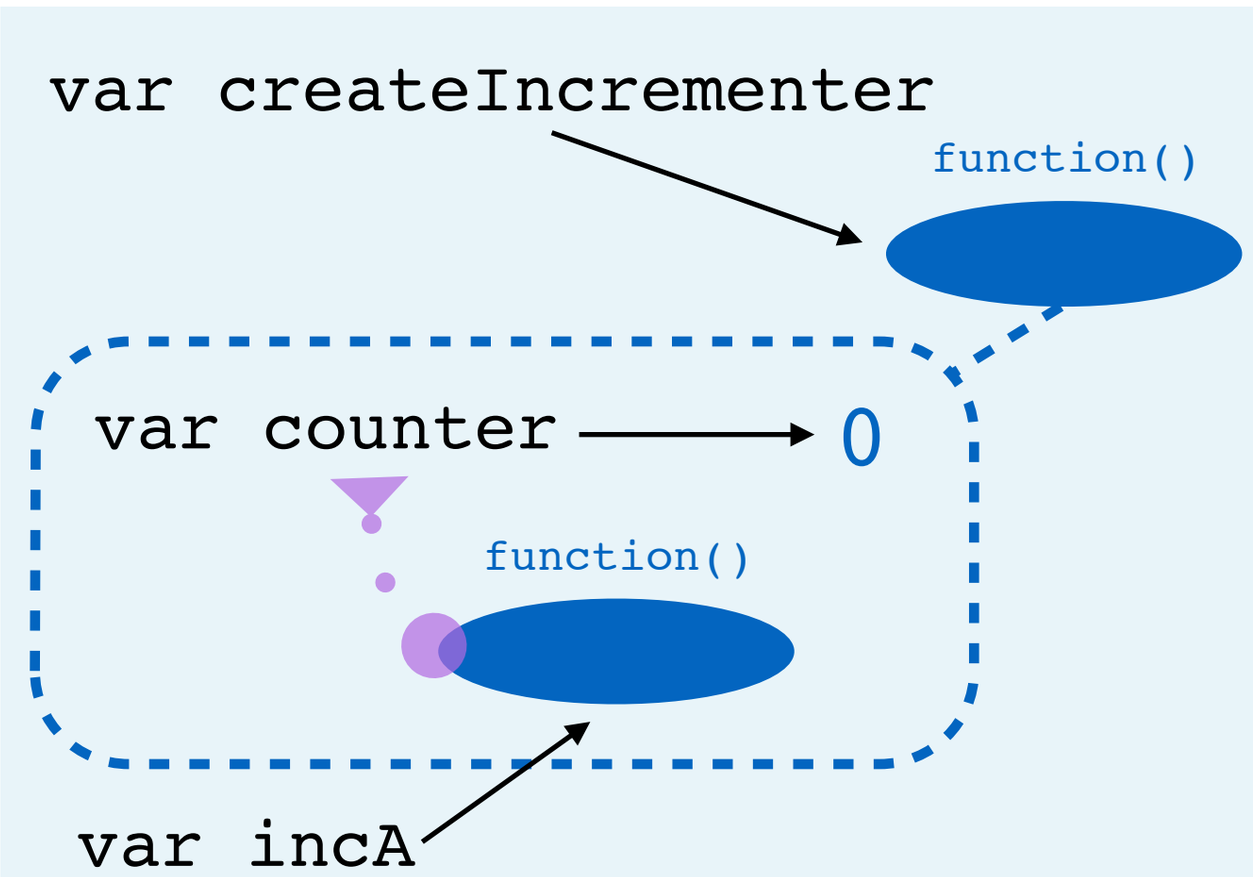

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var incA = createIncrementer();
var incB = createIncrementer();
```
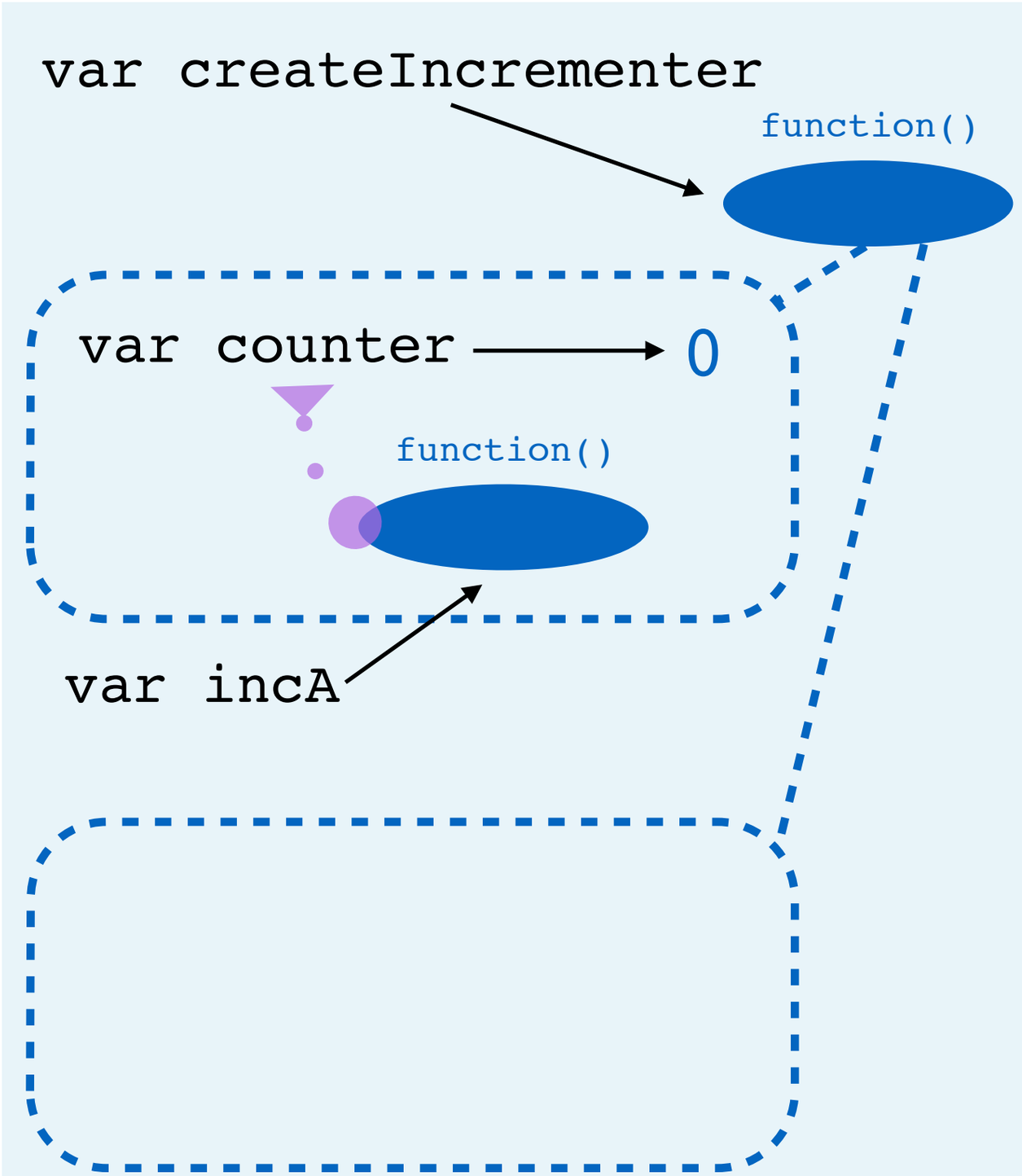

a. Assignment
   a. (Evaluate right side) Call function
      a. Create Scope
      b. Etc.
b. Assignment
   a. (Evaluate right side) Call function
      a. Create Scope



Multiple Closure Scopes

```
var createIncrementer = function () {
  var counter = 0;
  return function () {
    counter = counter + 1;
    return counter;
  }
}
var incA = createIncrementer();
var incB = createIncrementer();
```

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      b. Etc.
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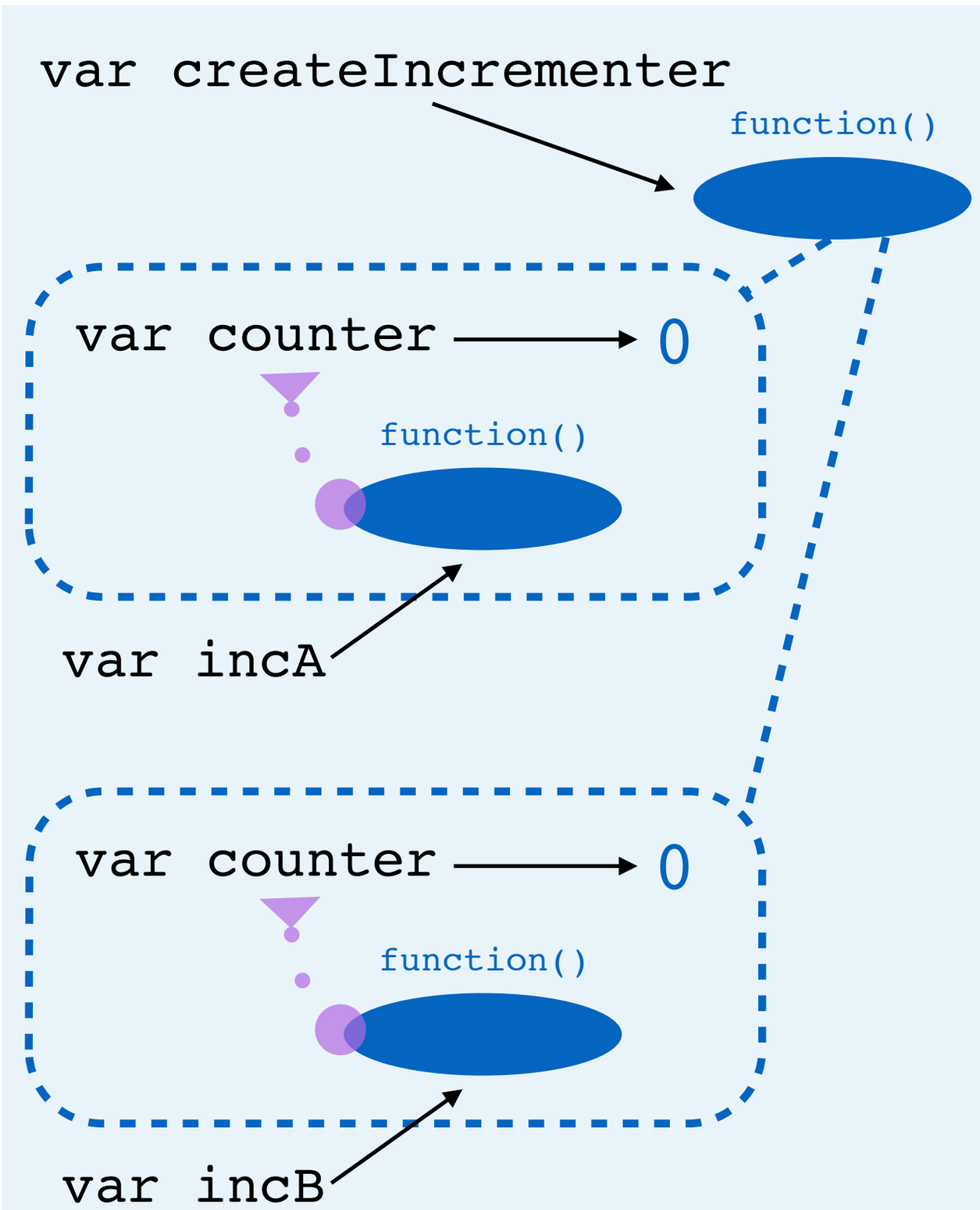

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b. Assignment
   a. (Evaluate right side) Call function
      a. Create Scope
      b. Etc.

```
incA();
incA();
incB();
```

Exercise

How do these function calls update the diagram to the right?