极客大学前端进阶训练营

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前手机淘宝前端负责人

重学前端

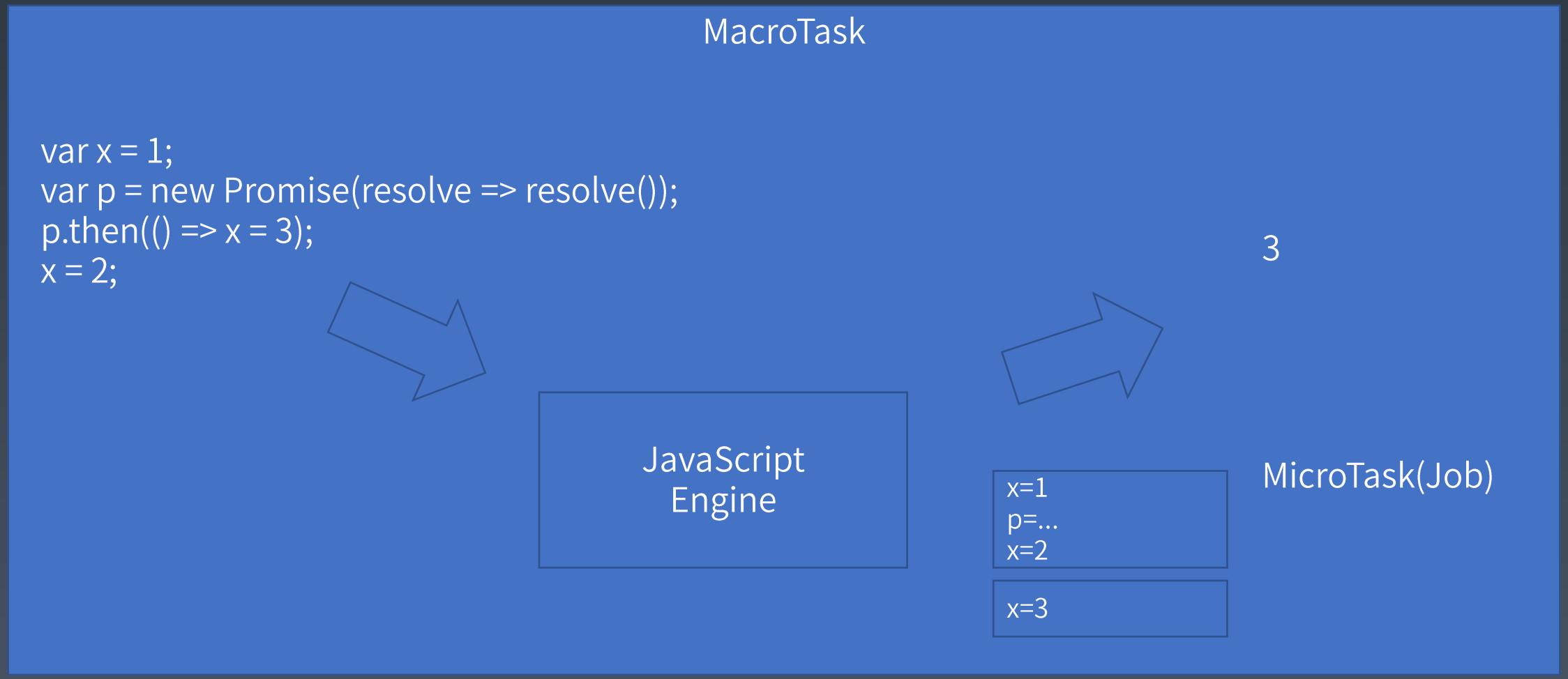
JavaScript结构化程序设计

JS执行粒度（运行时）

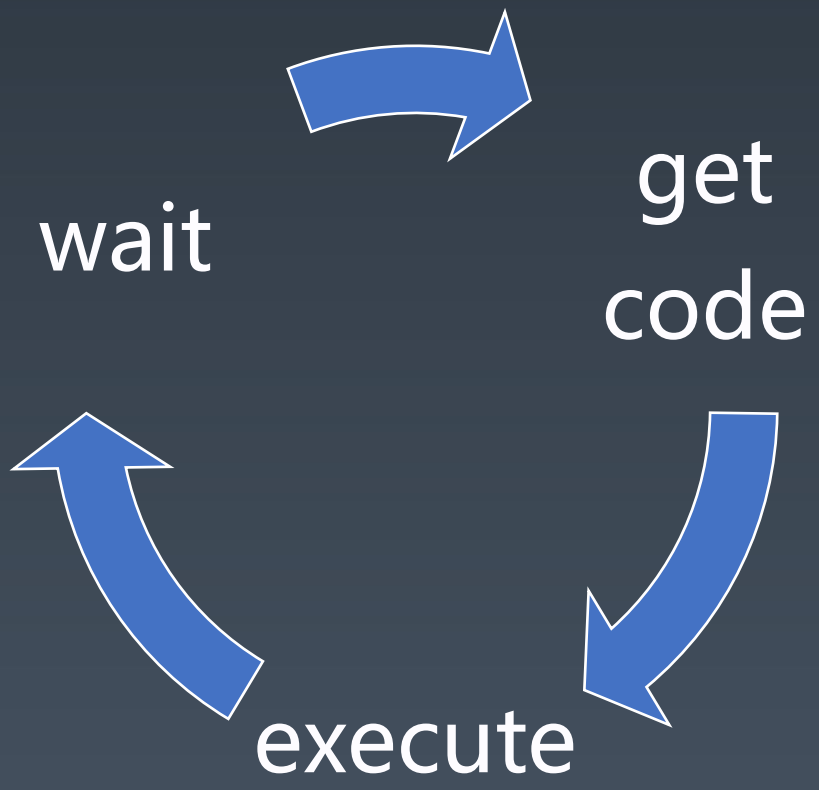
- 宏任务
- 微任务（Promise）
- 函数调用（Execution Context）
- 语句/声明（Completion Record）
- 表达式（Reference）
- 直接量/变量/this ……

宏任务与微任务

宏任务与微任务



事件循环



函数调用

函数调用

```
import {foo} from "foo.js"
var i = 0;
console.log(i);
foo();
console.log(i);
i++;
```

```
function foo(){
    console.log(i);
}
export foo;
```

函数调用

```
var i = 0;
console.log(i);
console.log(i);
console.log(i);
i++;
```

函数调用

```
import {foo} from "foo.js";
var i = 0;
console.log(i);
foo();
console.log(i);
i++;
```

```
import {foo2} from "foo.js";
var x = 1;
function foo(){
    console.log(x);
    foo2();
    console.log(x);
}
export foo;
```

```
var y = 2;
function foo2(){
    console.log(y);
}
export foo2;
```

函数调用

```
var i = 0;
console.log(i);
console.log(x);
console.log(y);
console.log(x);
console.log(i);
i++;
```

函数调用

i:0

x:1

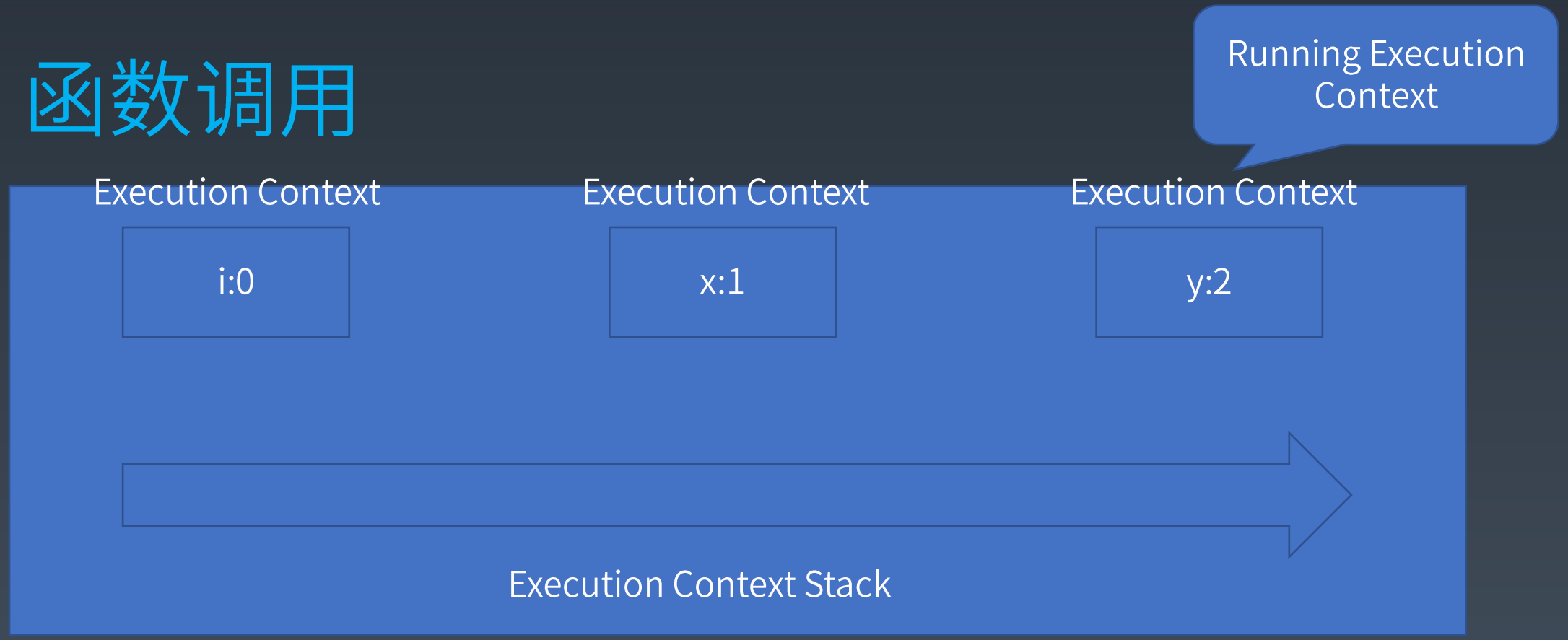
y:2

```
var i = 0;
console.log(i);



console.log(i);
i++;
```

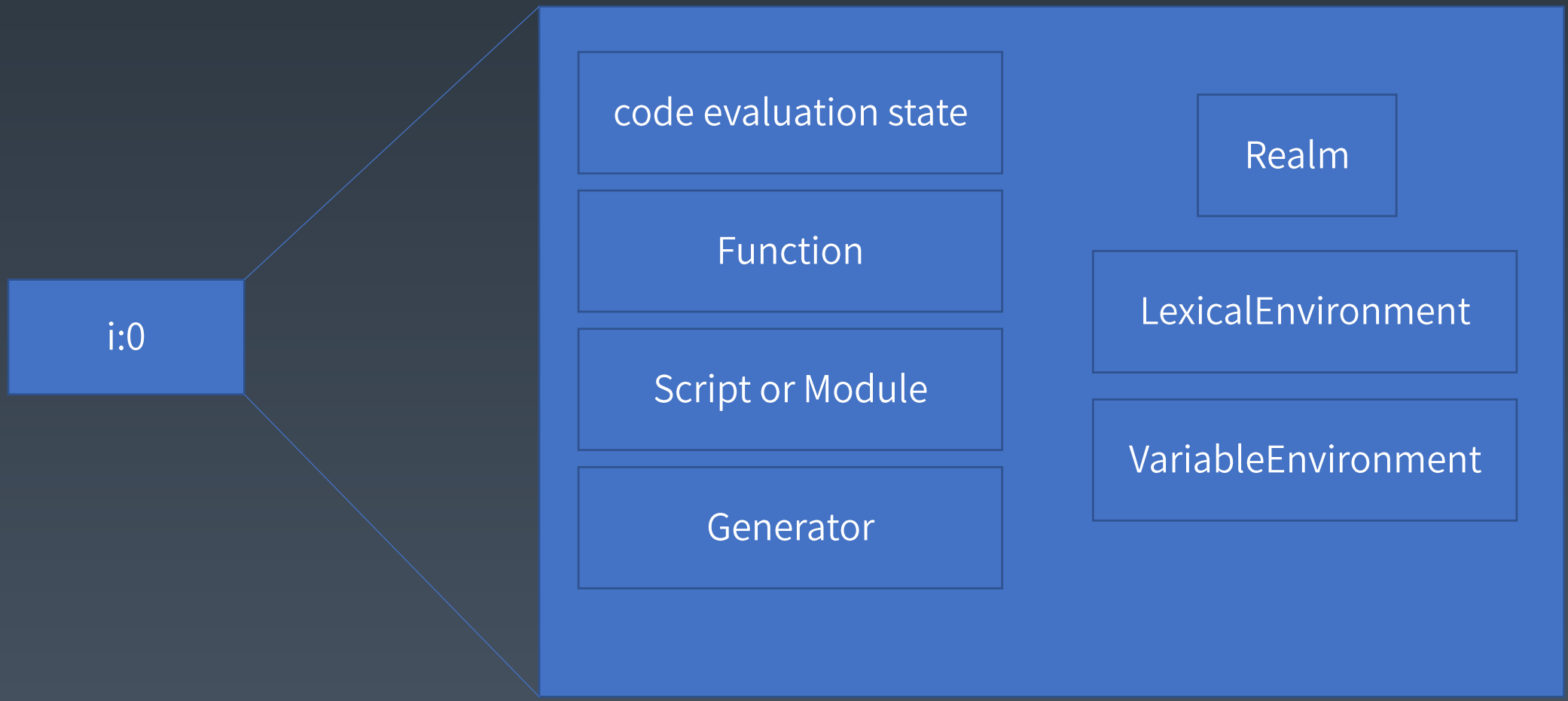
```
console.log(x);

console.log(x);
```

```
console.log(y);
```

函数调用


Running Execution Context
Execution Context
i:0
Execution Context
x:1
Execution Context
y:2
Execution Context Stack

Execution Context



Execution Context

- ECMAScript Code Execution Context
  - code evaluation state
  - Function
  - Script or Module
  - Realm
  - LexicalEnvironment
  - VariableEnvironment
- Generator Execution Contexts
  - code evaluation state
  - Function
  - Script or Module
  - Realm
  - LexicalEnvironment
  - VariableEnvironment
  - Generator

LexicalEnvironment

- this
- new.target
- super
- 变量

```
this.a = 1;
super();
x += 2;
new.target;
```

VariableEnvironment

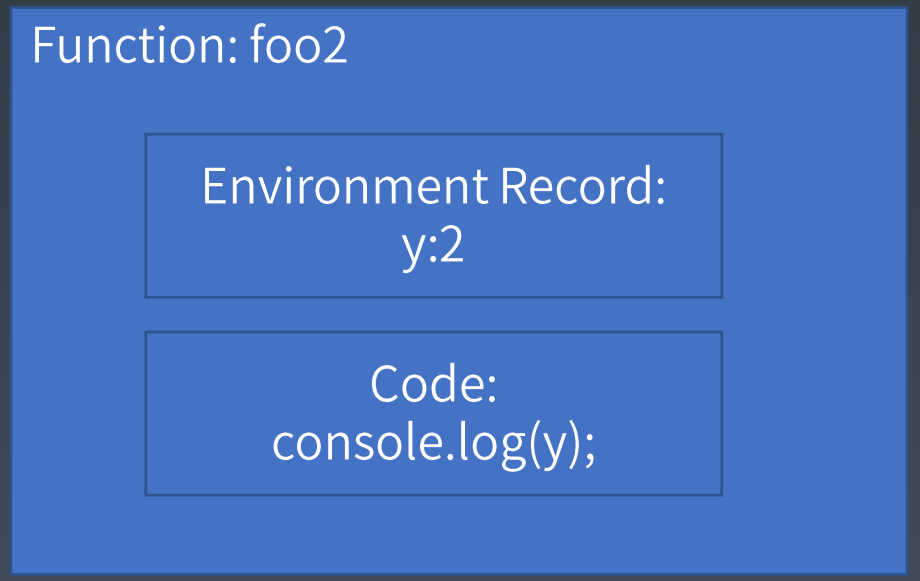
VariableEnvironment是个历史遗留的包袱，仅仅用于处理var声明。

```
{
    let y = 2;
    eval('var x = 1;’);
}

with({a:1}){
    eval('var x;’);
}
console.log(x);
```

Environment Record

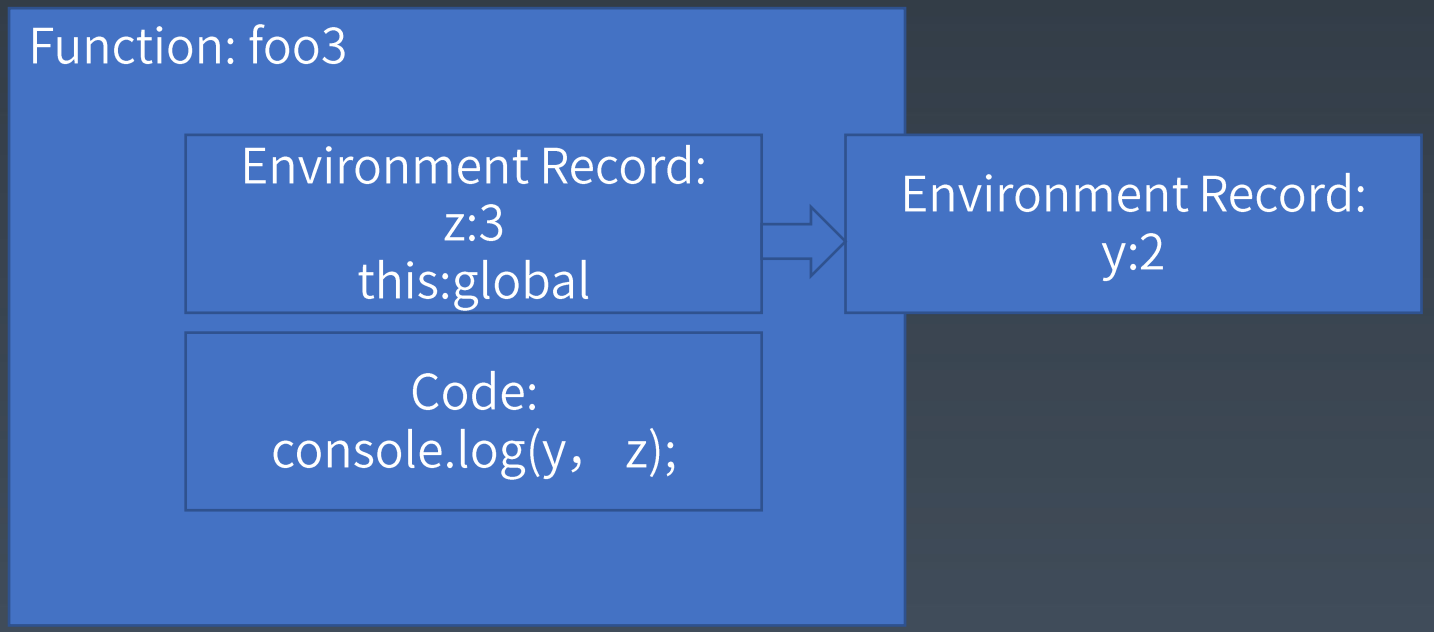
Function - Closure

```
var y = 2;
function foo2(){
    console.log(y);
}
export foo2;
```



Function - Closure

```
var y = 2;
function foo2(){
    var z = 3;
    return () => {
        console.log(y, z);
    }
}
var foo3 = foo2();
export foo3;
```



Realm

在JS中，函数表达式和对象直接量均会创建对象。

使用 . 做隐式转换也会创建对象。

这些对象也是有原型的，如果我们没有Realm，就不知道它们的原型是什么。

```
var x = {};//创建了一个Object对象


1 .toString();//装箱产生Number对象
```

作业：直观感受一下Realm

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THANKS!