

## 进展

## 打印AST

代码路径:/home/ts/bupt/workspace/Kaleidoscope/Chapter4

- 函数打印:

```
1 def foo(a b) a *b + 2;
```

```
ready> def foo(a b) a*b+2;
ready> *****
AST: {
  PrototypeAST: {
    Name: foo
    Args : a b
  }
  BinaryExpression: {
    BinaryExpression: {
      VariableExprssion: {
        Name: a
      }
      *
      VariableExprssion: {
        Name: b
      }
    }
    +
    NumberExpression :{
      Value: 2.000000
    }
  }
}
```

- 调用函数

```
1 foo(1, 2);
```

```
ready> foo(1, 2);
ready> *****
AST: {
  CallExpression: {
    Callee :foo
    NumberExpression :{
      Value: 1.000000
    }
    NumberExpression :{
      Value: 2.000000
    }
  }
}
```

- 表达式

```
1 1+3*4*5-2;
```

```

ready> 1+3*4*5-2;
ready> *****
AST: {
  BinaryExpression: {
    BinaryExpression: {
      NumberExpression :{
        Value: 1.000000
      }
      +
      BinaryExpression: {
        BinaryExpression: {
          NumberExpression :{
            Value: 3.000000
          }
          *
          NumberExpression :{
            Value: 4.000000
          }
        }
        *
        NumberExpression :{
          Value: 5.000000
        }
      }
    }
    -
    NumberExpression :{
      Value: 2.000000
    }
  }
}
*****
Evaluated to 59.000000

```

- extern

```

ready> extern sin();
ready> *****
PrototypeAST: {
  Name: sin
  Args :
}
*****

```

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