

Module 1: Functions and Organization

Topic 2.3: Function Guidelines

Function Complexity

- Functions should be simple
 - Easier to debug
- **Function length** is the most obvious measure
- Short functions can be complicated too

Function Length

- How do you write complicated code with simple functions?
- **Function Call Hierarchy**

Option 1

```
func a() {  
  .  
  <100 lines>  
  .  
}
```

Option 2

```
func a() {  
  b()  
  c()  
}
```

```
func b() {  
  .  
  <50 lines>  
  .  
}
```

```
func c() {  
  .  
  <50 lines>  
  .  
}
```

Control-flow Complexity

- Control-flow describes conditional paths

```
func foo() {  
    if a == 1 {  
        if b == 1 {  
            ...  
        }  
    }  
    ...  
}
```

- 3 control-flow paths

Partitioning Conditionals

- Functional hierarchy can reduce control-flow complexity

```
func foo() {  
    if a == 1 {  
        CheckB()  
    }  
    ...  
}
```

```
func CheckB() {  
    if b == 1 {  
        ...  
    }  
}
```

- 2 control-flow paths in each function