Swift and system_profiler

(and other command line tools)

Steve Goodrich
Ivanti Software

If you want to play along:
https://github.com/zepedebo/SystemProfilerPlayground.git
Or
http://bit.ly/2tKw3KD

Who Am I?

http://bit.ly/2tKw3KD

Who Are You?

http://bit.ly/2tKw3KD

Expectations

- Advanced beginner to beginning intermediate

- macOS

http://bit.ly/2tKw3KD

What We Will Cover

- Running processes
- Getting task results into a usable form
- Making sense of the results

http://bit.ly/2tKw3KD

A quick look at two key data structures

http://bit.ly/2tKw3KD

Running Processes

```
let lsProc = Process()
let lsStdout = Pipe()

lsProc.launchPath = "/bin/ls"
lsProc.arguments = ["-l"]

lsProc.standardOutput = lsStdout

lsProc.launch()
lsProc.waitUntilExit()
```

Set up the Process

Grab standard out

Launch and wait

```
let lsResultData = lsStdout
    .fileHandleForReading
    .readDataToEndOfFile();
let lsResultText = String(data: lsResultData,
                          encoding: String.Encoding.utf8)
```

Read in the result

Running System_Profiler

system_profiler SPHardwareDataType

```
Hardware:

    Hardware Overview:

      Model Name: Apple device
      Model Identifier: Parallels12,1
      Processor Speed: 3.99 GHz
      Number of Processors: 1
      Total Number of Cores: 2
      L2 Cache (per Core): 256 KB
      L3 Cache: 8 MB
      Memory: 2 GB
      Bus Speed: 400 MHz
      Boot ROM Version: 12.2.0 (41591)
      SMC Version (system): 1.16f8
      Serial Number (system): C02NN4G6FY14
      Hardware UUID: 929F6864-222A-5956-85AA-ECD09D5D3A46
```

Running System_Profiler

```
let spProc = Process()
let pipe = Pipe()
```

```
spProc.launchPath = "/usr/sbin/system_profiler"
spProc.arguments = ["SPHardwareDataType"]
```

Set up the Process

```
spProc.standardOutput = pipe
```

Grab standard out

```
spProc.launch()
spProc.waitUntilExit()
```

Launch and wait

```
let spData = pipe.fileHandleForReading.readDataToEndOfFile()
let spText = String(data:spData, encoding: String.Encoding.utf8)

let lines = spText?.components(separatedBy: "\n")
```

Read in the result

```
for line in lines! {
    let parts = line.components(separatedBy: ":")
    if parts.count > 1 && parts[0].contains("Hardware UUID") {
        print(parts[1])
    }
}
```

Process the information

Running System_Profiler

```
let spProc = Process()
let pipe = Pipe()

spProc.launchPath = "/usr/sbin/system_profiler"
spProc.arguments = ["-xml", "SPHardwareDataType"]

spProc.standardOutput = pipe
spProc.launch()
spProc.waitUntilExit()

let spData = pipe.fileHandleForReading.readDataToEndOfFile()
let dict: AnyObject? = try? PropertyListSerialization
    .propertyList(from: spData, options: [], format: nil) as AnyObject

let hardwareInfo = (dict as! NSArray)[0] as! NSDictionary

let items = (hardwareInfo["_items"] as! NSArray)[0]
if let result = (items as! NSDictionary)["platform_UUID"] as? String {
    print( result)
}
```

To the playground!

Making Sense of the Results

- Lambdas
- Basic iteration
- Using functional concepts

Lambda Functions

```
func add1(a: Int) -> Int {
    return a + 1
}
```

```
let add1 = {(a: Int) -> Int in return a + 1}

let add1 = {a in return a + 1}

let add1 = {$0 + 1}
```

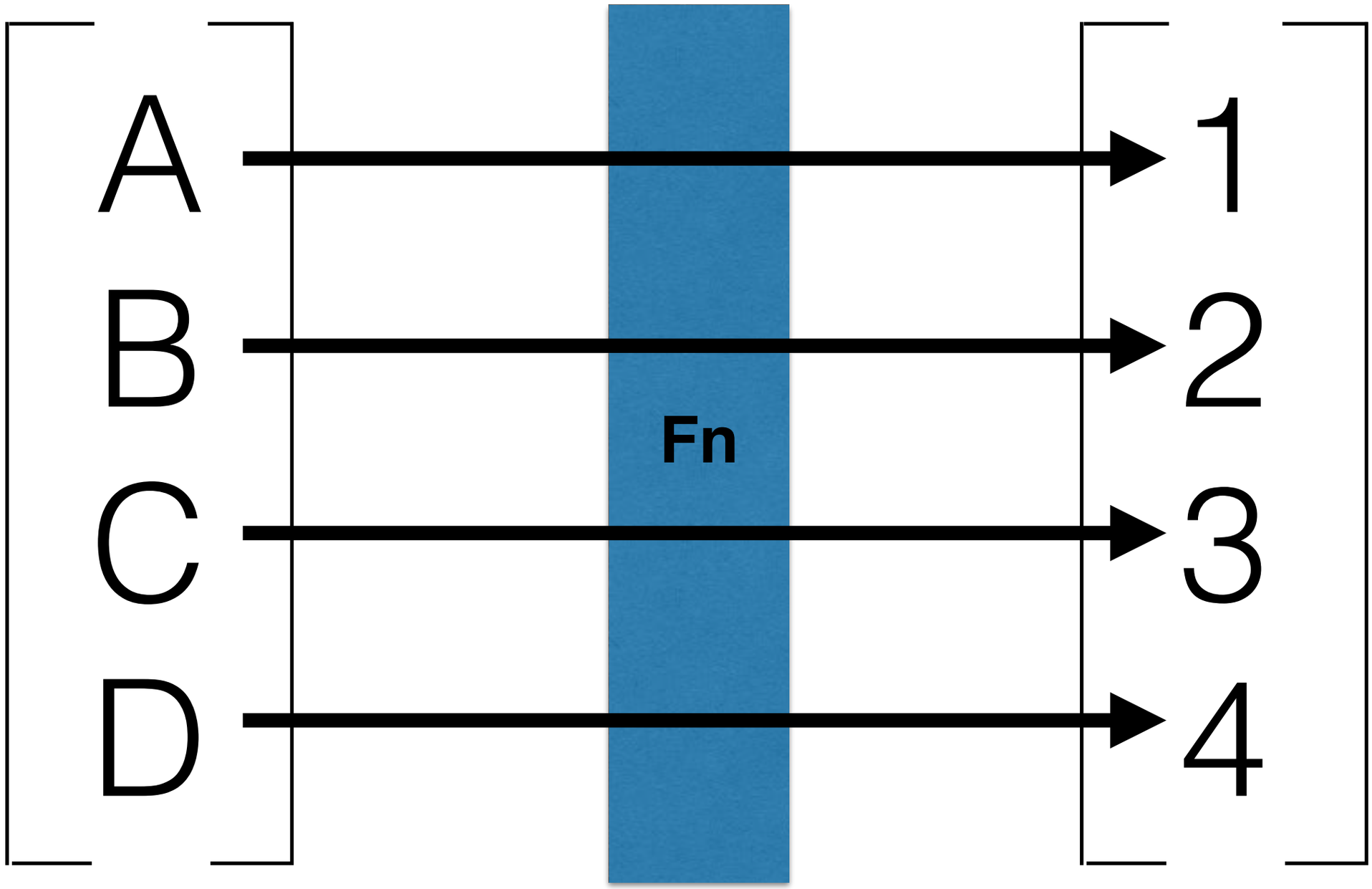
Interesting Example

```
public func timeMe(label: String, code :(Void) -> Void ) {
    let fortimeAtStart = Date()
    code()
    let forelapsedtime = Date().timeIntervalSince(fortimeAtStart)
    print("\(label): \(forelapsedtime)")
}
```

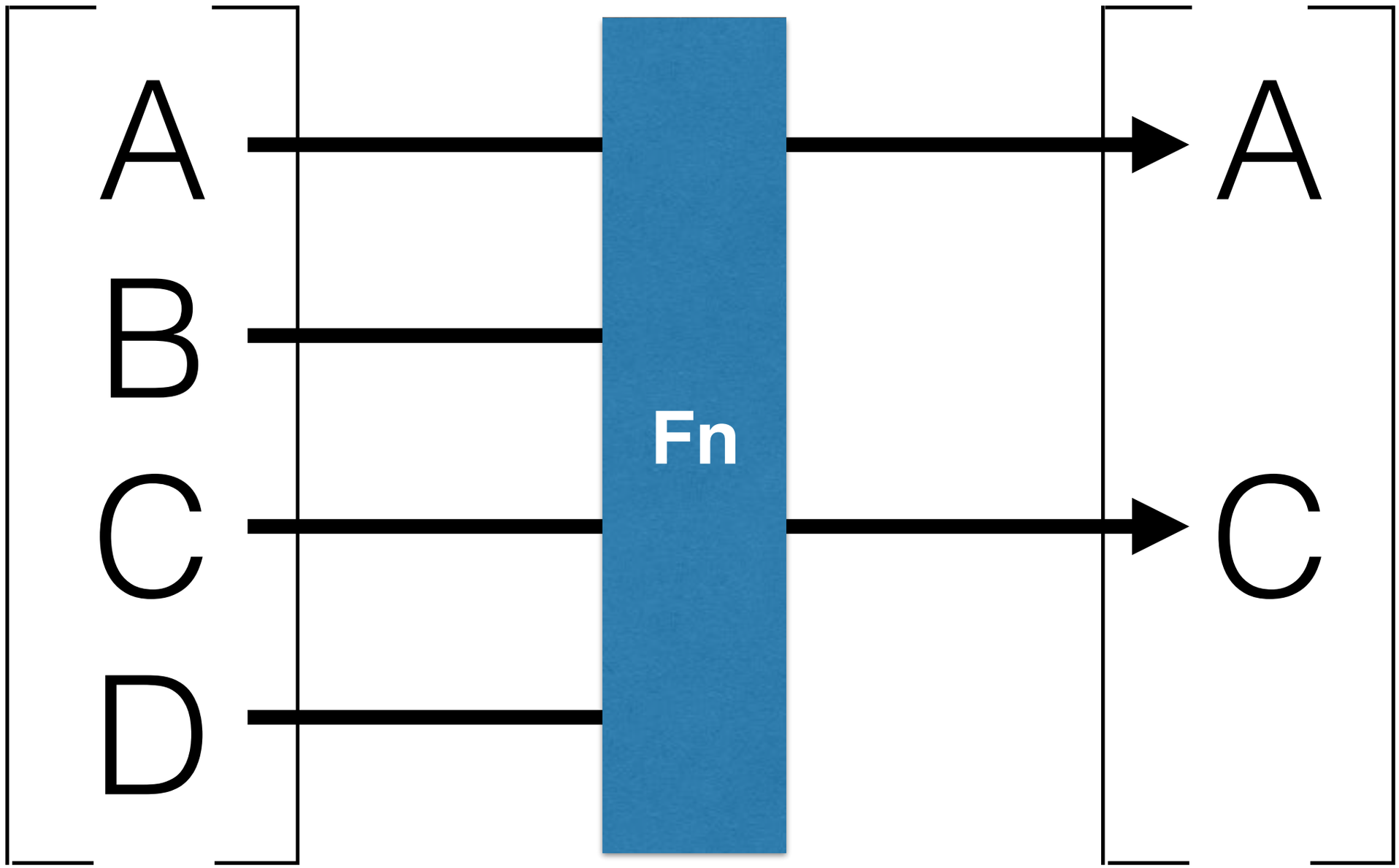
Iteration Basics

To the playground!

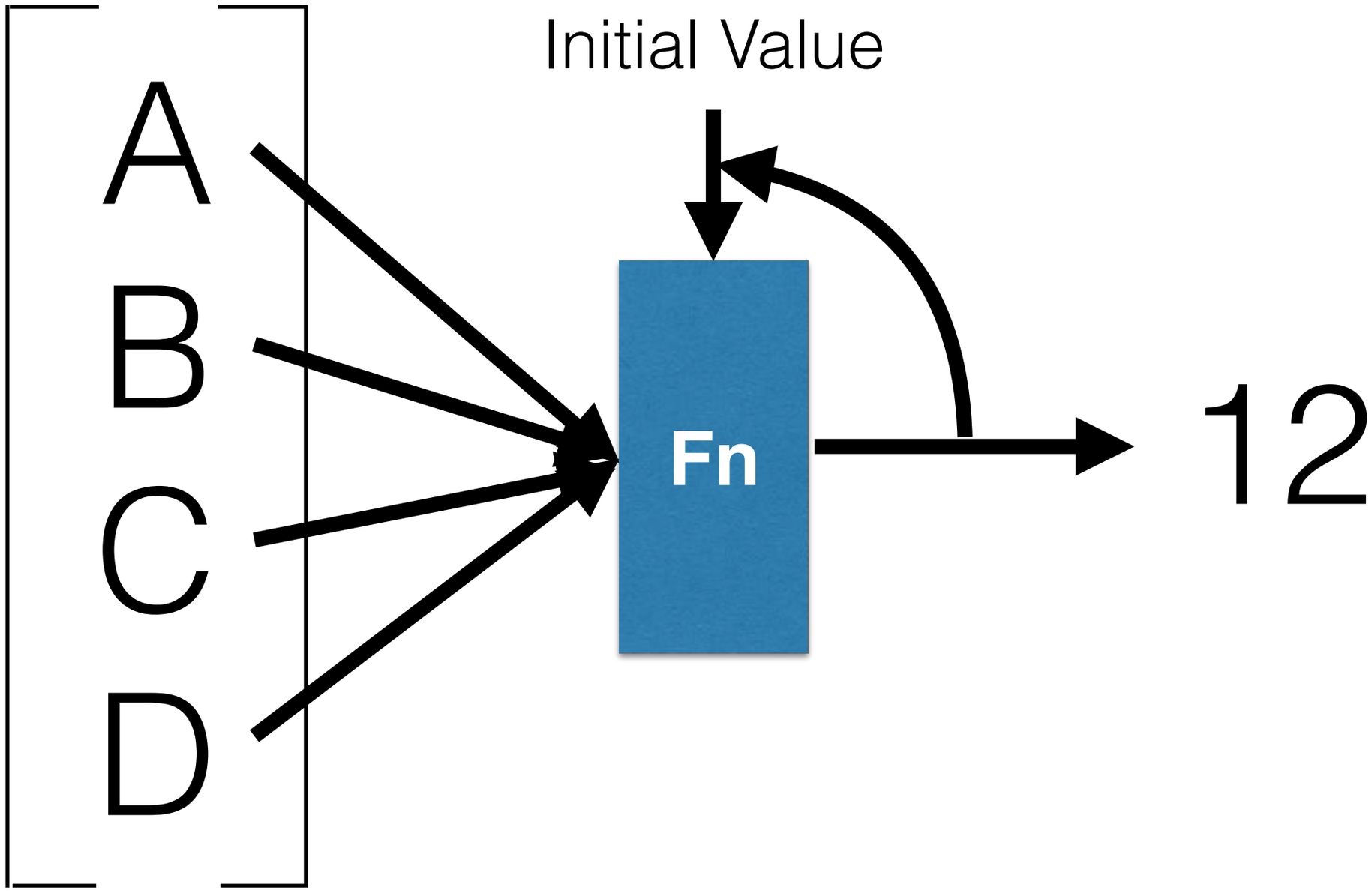
Map



Filter



Reduce



Parallel Versions

- http://moreindirection.blogspot.com/2015/07/gcd-and-parallel-collections-in-swift.html

References

- Parallel version of map:
  - http://moreindirection.blogspot.com/2015/07/gcd-and-parallel-collections-in-swift.html
- Dealing with Objective-C Exceptions:
  - http://stackoverflow.com/questions/32758811/catching-nsexception-in-swift
- The Playground
  - https://github.com/zepedebo/SystemProfilerPlayground.git

Ending Stuff

- E-Mail: steven.goodrich@ivanti.com

- Session Feedback: https://bit.ly/psumac2017-142

Thanks!