

# One Does Not Simply Iterate over Mordor

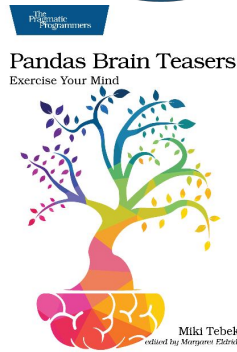
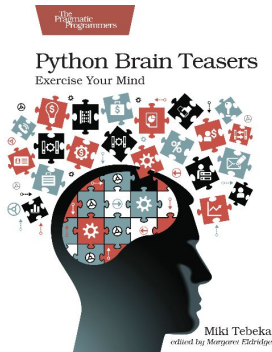
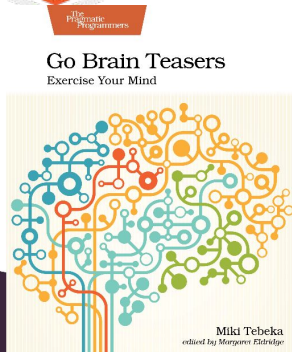
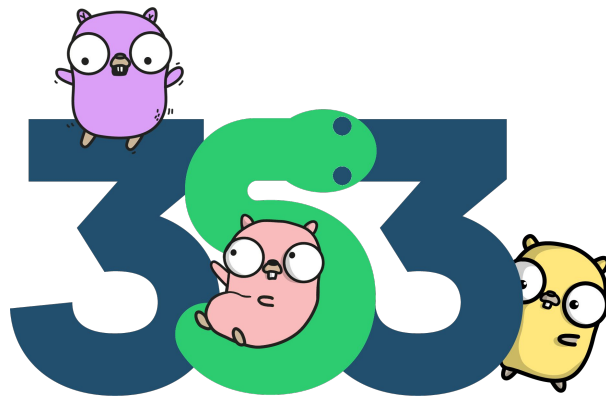
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GopherCON 2025  
*Israel*

# miki @tebeka



CEO,  
CTO,  
UFO



# Range Over Function

Go 1.23, August 2024

# Generators

Python 2.3, July 2003



## type Seq

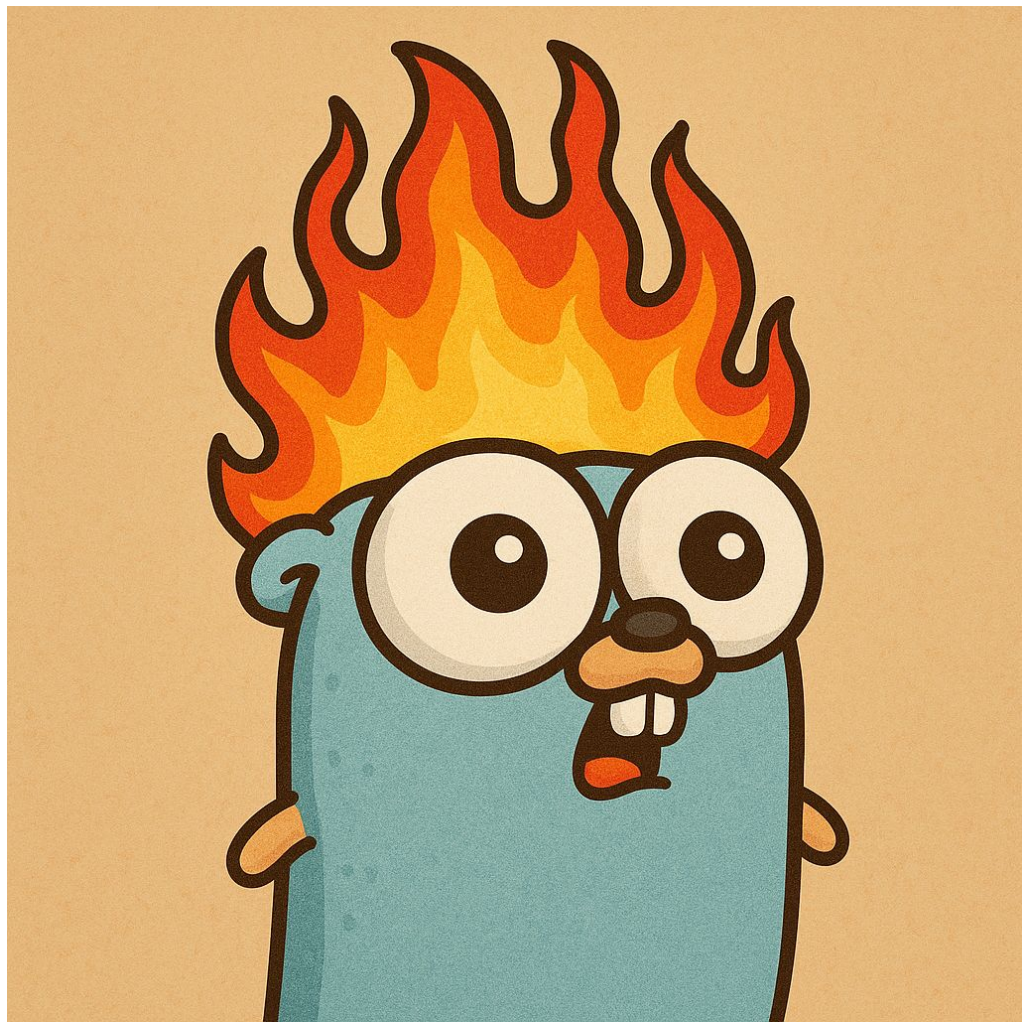
```
type Seq[V any] func(yield func(V) bool)
```

## type Seq2

```
type Seq2[K, V any] func(yield func(K, V) bool)
```

[pkg.go.dev/iter](http://pkg.go.dev/iter)





## func Tick

```
func Tick(d Duration) <-chan Time
```

Before Go 1.23, this documentation warned that the underlying Ticker would never be recovered by the garbage collector, ...

[pkg.go.dev/time](https://pkg.go.dev/time)



# CODE

`tick/tick.go`

Load logs from  
compressed  
JSON file.

```
$ zcat logs.json.gz | wc
```

```
5350200 16045852 770589508
```

```
$ zcat logs.json.gz | head -1
```

```
{"host": "199.72.81.55", "time":  
"1995-07-01T00:00:01Z", "request": "GET /history/apollo/  
HTTP/1.0", "status": 200, "bytes": 6245}
```

# CODE

`log/log.go`

# CODE

`slice/slice.go`

# CODE

`bench/main.go`

# Map

lower: ["Suite", "Up"] -> ["suite", "up"]

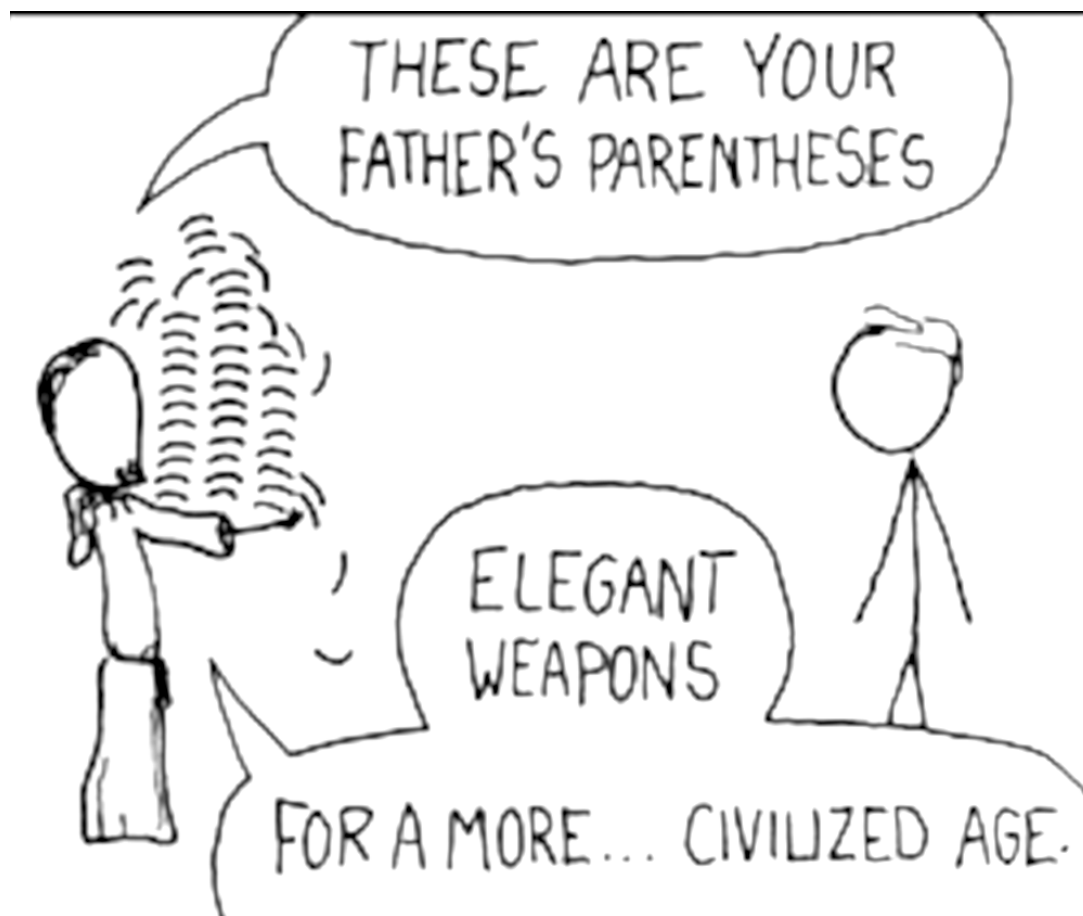
# Filter

$\geq 0$ : [2, -1, 3, 4] -> [2, 3, 4]

# Reduce

sum: [1, 2, 3, 4]  $\Rightarrow$  10

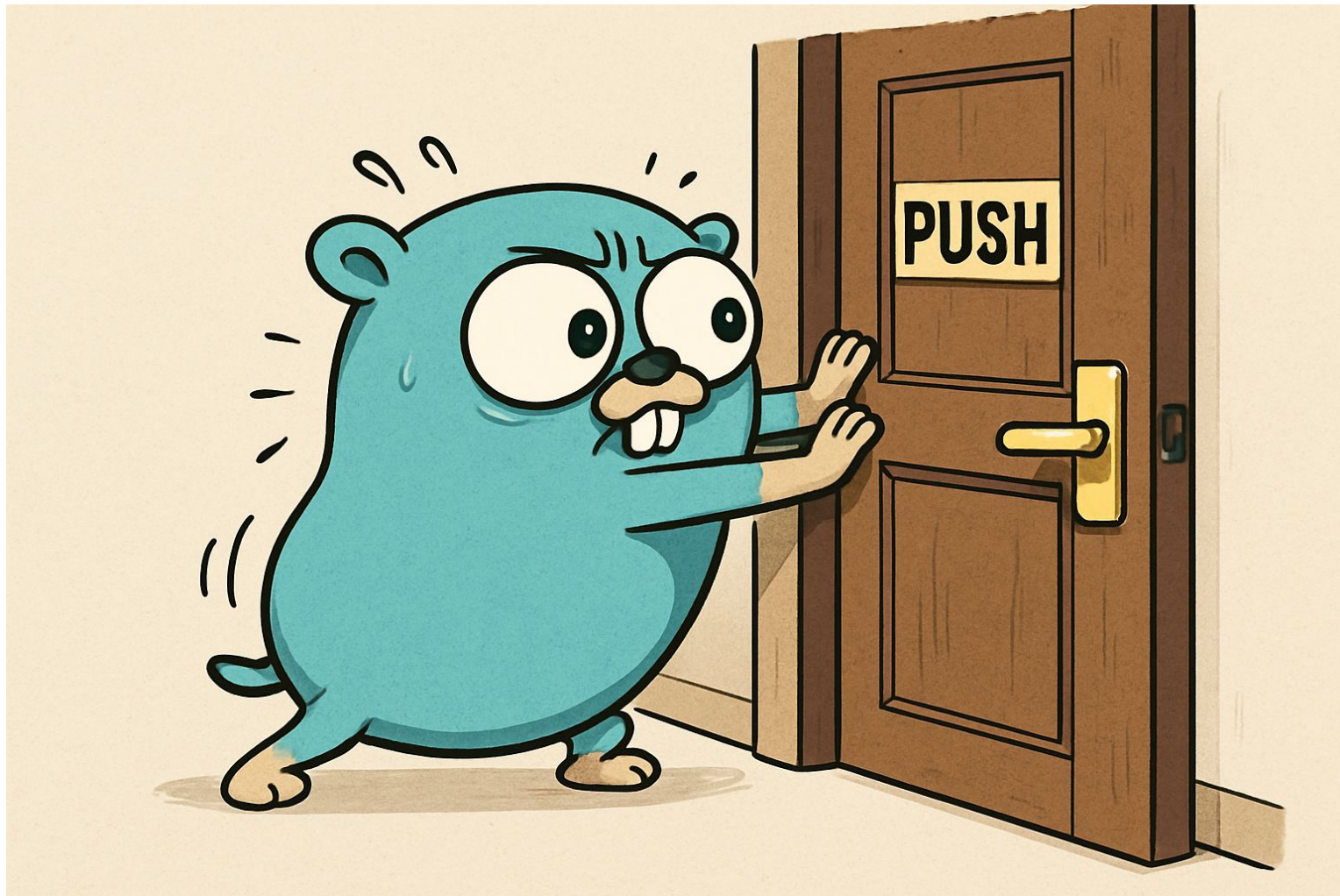




<https://xkcd.com/297/>

# CODE

`lazy/lazy.go`



# CODE

push / push . go

# CODE

`pull/pull.go`





## func Collect

```
func Collect[E any](seq iter.Seq[E]) []E
```

Collect collects values from seq into a new slice and returns it.

## func Values

```
func Values[Slice ~[]E, E any](s Slice) iter.Seq[E]
```

Values returns an iterator that yields the slice elements in order.

[pkg.go.dev/slices](https://pkg.go.dev/slices)



## func Values

```
func Values[Map ~map[K]V, K comparable, V any](m Map) iter.Seq[V]
```

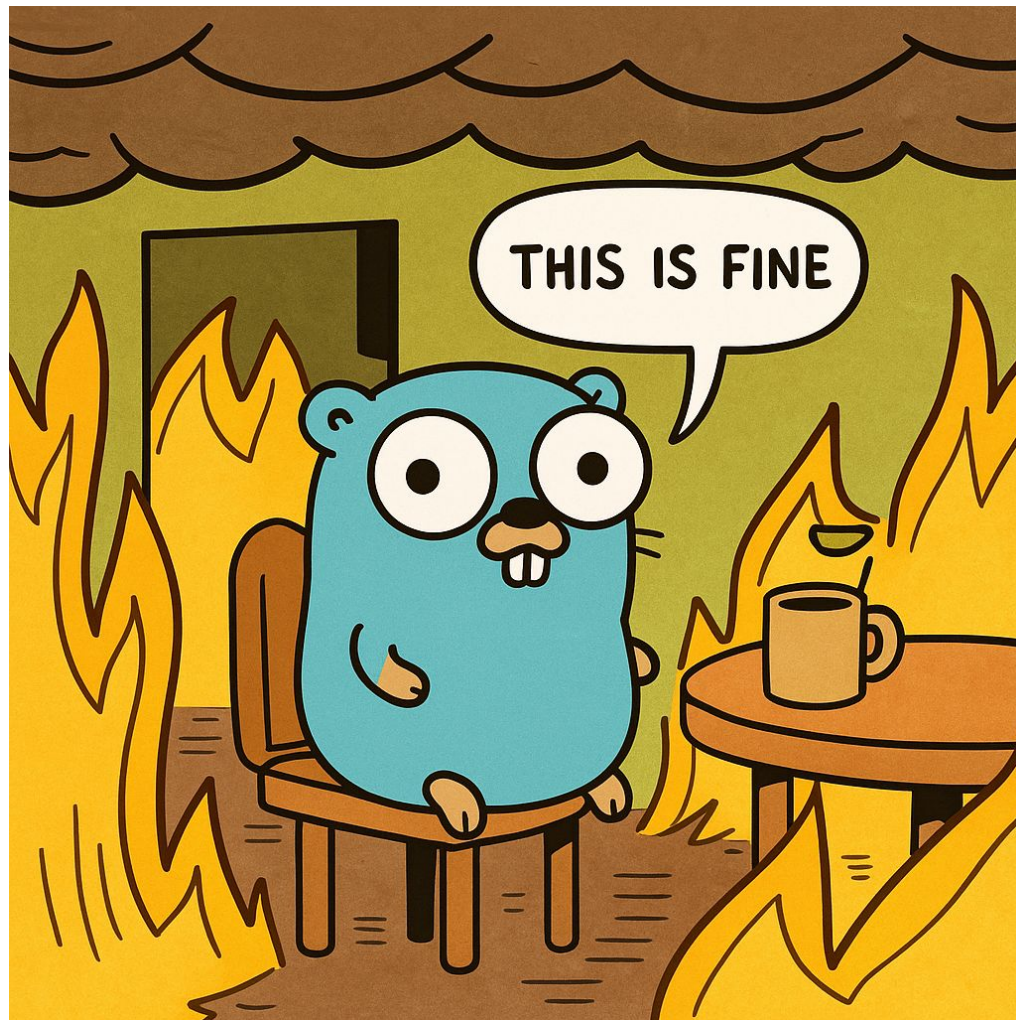
Values returns an iterator over values in m. The iteration order is not specific

## func All

```
func All[Map ~map[K]V, K comparable, V any](m Map) iter.Seq2[K, V]
```

All returns an iterator over key-value pairs from m. The iteration order is not

[pkg.go.dev/maps](https://pkg.go.dev/maps)



# TANSTAAFL

- Performance (\*)
- Harder to debug
- Error handling
- Resource management

# CODE

`order/order.go`

# CODE

`leak/leak.go`



# Questions?

# Range-Over Functions in Go ArdanLab Blog







[github.com/tebeka/talks/tree/main/gcil-2025](https://github.com/tebeka/talks/tree/main/gcil-2025)