

userR!2017

valaddin

Functional

input validation

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You know the drill

```
foo <- function(x, y, z, ...) {  
  if (oops(x))  
    stop()  
  if (oops_again(y))  
    stop()  
  if (doh(y) && dammit(z))  
    stop()  
  
  # ... you'll get to the meat, eventually  
}
```

Simple, familiar, convenient ...

... except it

- **clutters** the main logic
- is **repetitive** and tedious
- is **ill-suited** to interactive use
- is **rigid**
- is sometimes **uninformative**

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```
foo <- function(x, y, z, ...) {
```

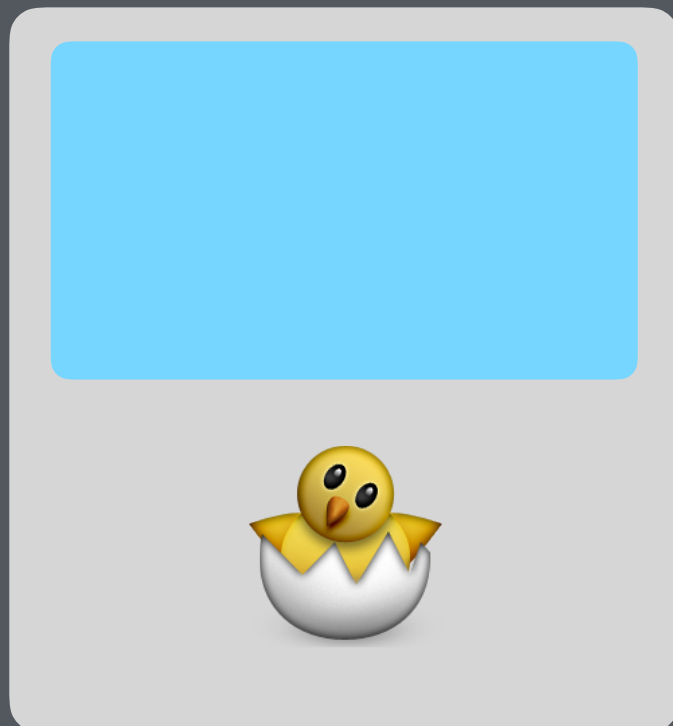
```
  if (oops(x))  
    stop()  
  if (oops_again(y))  
    stop()  
  if (doh(y) && dammit(z))  
    stop()
```

```
  # the meat
```

```
}
```



Functional input validation (in an eggshell)





The usual way

The functional way





firmly(, )



```
add <- function(x, y) x + y
```



```
add <- firmly(add, is.numeric)
```

```
add(1, 2)  
# [1] 3
```

```
add(1, "2")  
# Error: add(x = 1, y = "2")  
# FALSE: is.numeric(y)
```

```
add <- firmly(add, vld_is(length(x) == length(y)))
```

```
add(1, 2)  
# [1] 3
```

```
add("1", 1:2)  
# Error: add(x = "1", y = 1:2)  
# 1) FALSE: is.numeric(x)  
# 2) length(x) == length(y) is not true
```

```
loosely(add)(1, 1:2)  
# [1] 2 3
```



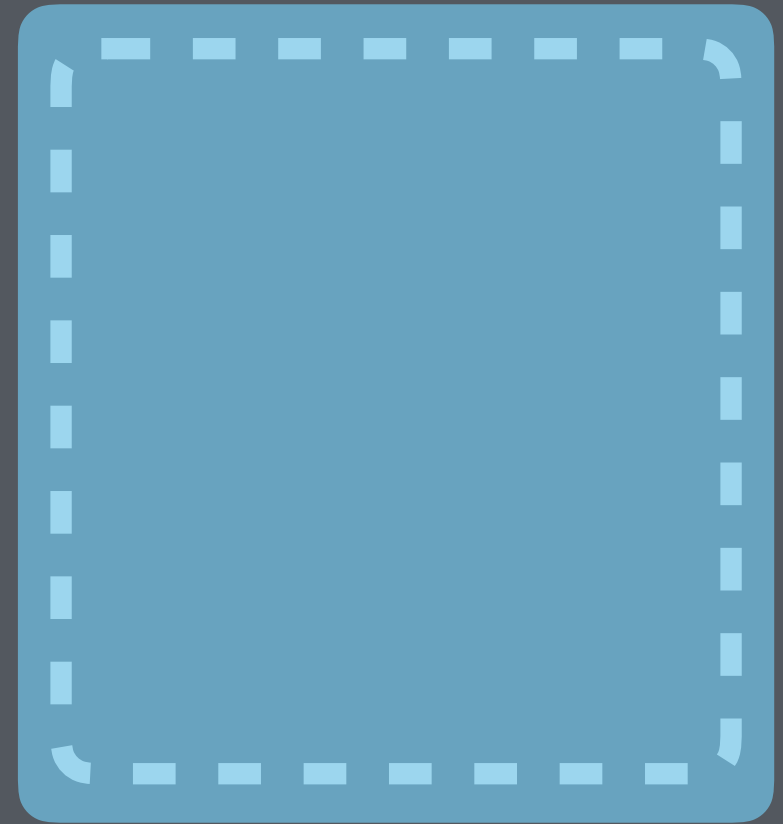
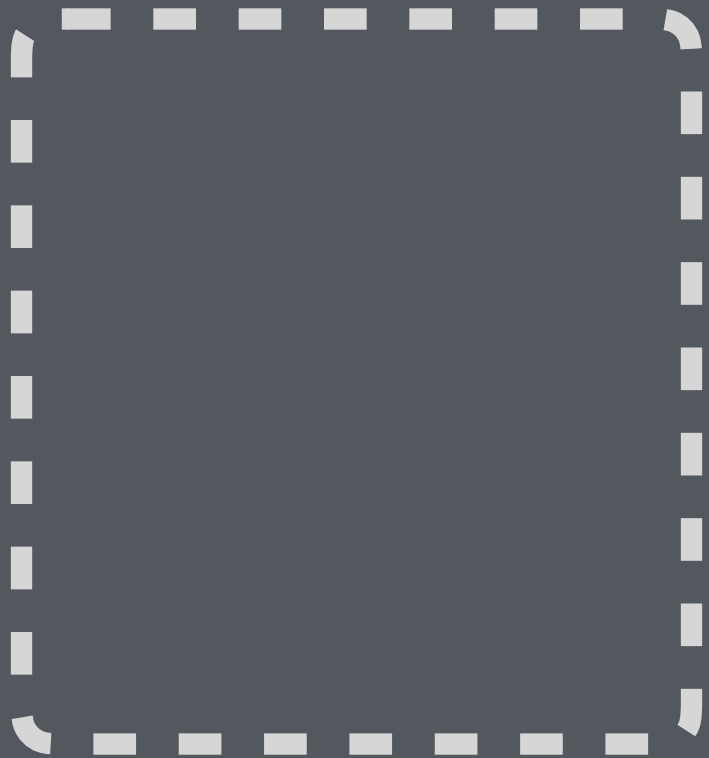
loosely()

Clarify structure

```
foo <- fasten(  
  vld_not(oops(x),  
    oops_again(y),  
    doh(y) && dammit(z))  
)(  
  function(x, y, z, ...) {  
    # Just the Lean meat  
  }  
)
```

VS

```
foo <- function(x, y, z, ...) {  
  if (oops(x))  
    stop()  
  if (oops_again(y))  
    stop()  
  if (doh(y) && dammit(z))  
    stop()  
  # Now to the meat ...  
}
```



`firmly(identity, )`

Functional input validation covers

Object validation

```
validate(mtcars,  
         is.data.frame,  
         vld_gt(100)(nrow(.)),  
         vld_has_name("cylinders")(.))
```

Error: validate(. = mtcars)

1) nrow(.) is not greater than 100

2) . does not have name "cylinders"

What else?

- Spec for input validation supports new **tidyverse grammar (rlang)**
- Programmable error messages (**glue**)
- Non-functional input validation: **argufy, ensurer, typeCheck**

Thank you!



github.com/egnha/valaddin