scalaz "For the Rest of Us" Cheat Sheet

Adam Rosien

29 August 2012

Installation

In your `build.sbt` file:

```
libraryDependencies += "org.scalaz" %% "scalaz-core" % "6.0.4"
```

Then in your `.scala` files: [1]

```
import scalaz._
import Scalaz._
```

[1] Note that this is for `scalaz` 6. The imports (and many classes!) for `scalaz` 7 are much different.

Style

Name	Scala	scalaz
"unix-pipey"	`g(f(a))`	`a |> f |> g`
ternary "operator"	`if (p) "yes" else "no"`	`p ? "yes" | "no"`
`Option` constructors	`Some(42)`	`42.some`
	`None`	`none`
`Option.getOrElse`	`o.getOrElse("meh")`	`o | "meh"`
`Either` constructors	`Left("meh")`	`"meh".left`
	`Right(42)`	`42.right`

Memoization

Constructor	Backing store
`immutableHashMapMemo[K, V]`	`HashMap`
`mutableHashMapMemo[K, V]`	`mutable.HashMap`
`weakHashMapMemo[K, V]`	remove+gc unused entries
`arrayMemo[V](size: Int)`	fixed size, `K = Int`

Validation

`Validation` improves on `Either`: `Success/Failure` is more natural than `Left/Right`, and `Validations` can be composed together, accumulating failures.

`Validation[X, A]` constructors	`"meh".fail` `42.success`
`ValidationNel[X, A]` constructors	`"meh".failNel` `42.successNel`
Lift failure type into `NonEmptyList`	`v.liftFailNel`

De-construct into `Failure` and `Success` cases	`v.fold(`
	` f => ...,`
	` s => ...)`

Combine `Validations`	`(ValidationNEL[X, A] |@|`
	` ValidationNEL[X, B]) {`
	` (A, B) => C`
	`} // ValidationNEL[X, C]`

Table 1: `ValidationNel[X, A] =:= Validation[NonEmptyList[X], A]`

Lens

`Lens` give you composable "getter/setter" objects.

`Lens` constructor	`Lens[A, B](get: A => B, set: (A, B) => A)`
compose	`andThen[C](that: Lens[B,C]) = Lens[A,C]`
pair	`***[C,D](that: Lens[C,D]) = Lens[(A,C),(B,D)]`
get	`lens(a: A)`
set	`lens.set(a: A, b: B)`
modify	`lens.mod(a: A, f: B => B)`