Trabajo parte propia

David García Curbelo

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Scratch

Veamos otro ejemplo (con sus respectivos pasos) de implementación de la distribución de Poisson mediante los paquetes `distr` y `distrEx`:

Poisson

Parameter

```
   ## Class: PoissonParameter
    setClass("PoissonParameter",
            representation = representation(lambda = "numeric"),
            prototype = prototype(lambda = 1,
                                  name = gettext("Parameter of a Poisson distribution")
                      ),
            contains = "Parameter")
```

Distribution

```
## Class: poisson distribution
setClass("Poisson",
            prototype = prototype(
                        r = function(n){ rpois(n, lambda = 1) },
                        d = function(x, log = FALSE){
                                dpois(x, lambda = 1, log = log)
                        },
                        p = function(q, lower.tail = TRUE, log.p = FALSE ){
                                ppois(q, lambda = 1,
                                        lower.tail = lower.tail, log.p = log.p)
                        },
                        q = function(p, lower.tail = TRUE, log.p = FALSE ){
                                qpois(p, lambda = 1,
                                        lower.tail = lower.tail, log.p = log.p)
                        },
                        img = new("Naturals"),
                        param = new("PoissonParameter"),
                        support = 0:1,
                        lattice = new("Lattice", pivot = 0, width = 1, Length = 2,
                                name = gettext("lattice of a Poisson distribution")
                        ),
                        .logExact = TRUE,
                        .lowerExact = TRUE
```

```
            ),
            contains = "LatticeDistribution"
)
```

Métodos de acceso

```
## Access Methods
setMethod("lambda", "PoissonParameter", function(object) object@lambda)

## Replace Methods
setReplaceMethod("lambda", "PoissonParameter",
                    function(object, value){ object@lambda <- value; object})
```

Funciones genéricas

```
if(!isGeneric("lambda"))
    setGeneric("lambda", function(object) standardGeneric("lambda"))

setValidity("PoissonParameter", function(object){
    if(length(lambda(object)) != 1)
        stop("lambda has to be a numeric of length 1")
    if(lambda(object) < 0)
        stop("lambda has to be a non-negative value")
    else return(TRUE)
})
```

```
## Class "PoissonParameter" [in ".GlobalEnv"]
##
## Slots:
##
## Name:     lambda      name
## Class:   numeric character
##
## Extends:
## Class "Parameter", directly
## Class "OptionalParameter", by class "Parameter", distance 2
```

Funciones de distribución

```
    Poisson <- function(lambda = 1) new("Poisson", lambda = lambda)
```

Convulsionales

```
## Convolution for two poisson distributions Pois(n1,lamb1) and Pois(n2,lamb2)
## Distinguish cases
## lamb1 == lamb2 und lamb1 != lamb2
setMethod("+", c("Poisson","Poisson"),
            function(e1,e2){
                if(isTRUE(all.equal(lambda(e1),lambda(e2))))
                    return(new("Poisson", lambda = lambda(e1), .withArith = TRUE))

                return(as(e1, "LatticeDistribution") + e2)
})
```