Attributes

Nick Ulle

The S3 Object System

Nick Ulle

S3 Objects

Nick Ulle

S3 Generics & Methods

Nick Ulle

Other Object Systems

Nick Ulle

The S4 Object System

- A stricter, less popular alternative to S3

    - Generic functions and methods

    - Copy-on-write

- *Multiple dispatch:* generics can dispatch on multiple arguments

- *Formal classes* defined by calling `setClass`

    - Constructed by calling `new`

    - Fields are called *slots* and accessed with `@`, the slot operator

Reference Classes

- More like traditional object-oriented programming
  - Methods belong to objects, not generic functions
  - **NOT** copy-on-write
- Formal classes defined by calling `setRefClass`
  - `setRefClass` returns a constructor function
  - Fields accessed with `$`
- Rarely used in practice
- Sometimes called "R5" (originally this was a joke)

The R6 Object System

- A mixture of S3 and environments

  - Methods belong to objects, not generic functions

  - **NOT** copy-on-write

- Semi-formal classes defined by calling `R6Class`

- Simpler and more efficient than reference classes

- Provided by the R6 package (not built-in)

  - Tidyverse-adjacent

Other Object Systems

There are several other object systems available for R.

These are provided as packages, usually on CRAN.