R Tips

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Key points to remember and refer to. Many of these came specifically from the Statistical Computing (Advanced R) course and from "Advanced R" by Hadley Wickham.

Names and Values and Memory

Syntactic names: names values are assigned to must have letters, digits, `.`, and `_` but can't begin with `_` or a digit. And you can't use a reserved word like `TRUE`, `if`, etc. Anything that doesn't follow these rules is a non-syntactic name.

You can override this by putting backticks "`1`" around it.

Copy-on-modify: Values assigned to a name, binds the name to the value. So if another name is assigned to the same values, the name is bound to the values. A copy is not made. However, if those values are modified while being assigned to a new name, a copy is made.

Atomic Vectors and Lists

Vectors: all elements must be of the same type. Use `c()` to bind smaller vectors and create another atomic vector, which will be flattened. Vectors do not have dimensions (i.e. `dim(c(1,2))` is always `NULL`).

Types of Atomic Vectors: (in order of ranking coercion from greatest to least)

- **character**: aka strings; letters and words defined with quotes around them (`"hi"`), or numbers coerced to character with as.character() or with quotes (i.e. "3")
- **complex**:
- **double**: decimals, scientific, hexadecimal forms of numbers, and includes `Inf`, `-Inf`, `NaN`. These are special values defined by floating point standard (but what's a floating point?)
- **integer**: integers which cannot contain fractional values; must be followed by `L` when defined (i.e. `3L`)
- **logical**: `TRUE`, `FALSE`

Lists: elements may be different types.

NULL: generic zero length vector.

Attributes: includes dimension and class

S3 objects: includes factors, date and times, data frames, and tibbles.

Matrices: