data.table

Advanced 1hr Tutorial

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Overview

- Practice tomorrow's 6 min lightning talk as introduction now
- What would you like covered by this tutorial? (6 min)
- Deep dive (48 mins)

Deep dive ...

.I

```
if (length(err <- allocation[,
                if(length(unique(Price))>1) .I,
                by=stock ]$V1 )) {

  warning("Fills allocated to different
accounts at different prices! Investigate.")

  print(allocation[err])

} else {

  cat("Ok   All fills allocated to each
account at same price\n")

}
```

.SD

```
stocks[, head(.SD,2), by=sector]
```

```
stocks[, lapply(.SD, sum), by=sector]
```

```
stocks[, lapply(.SD, sum), by=sector,
.SDcols=c("mcap",paste0(revenueFQ",1:8))]
```

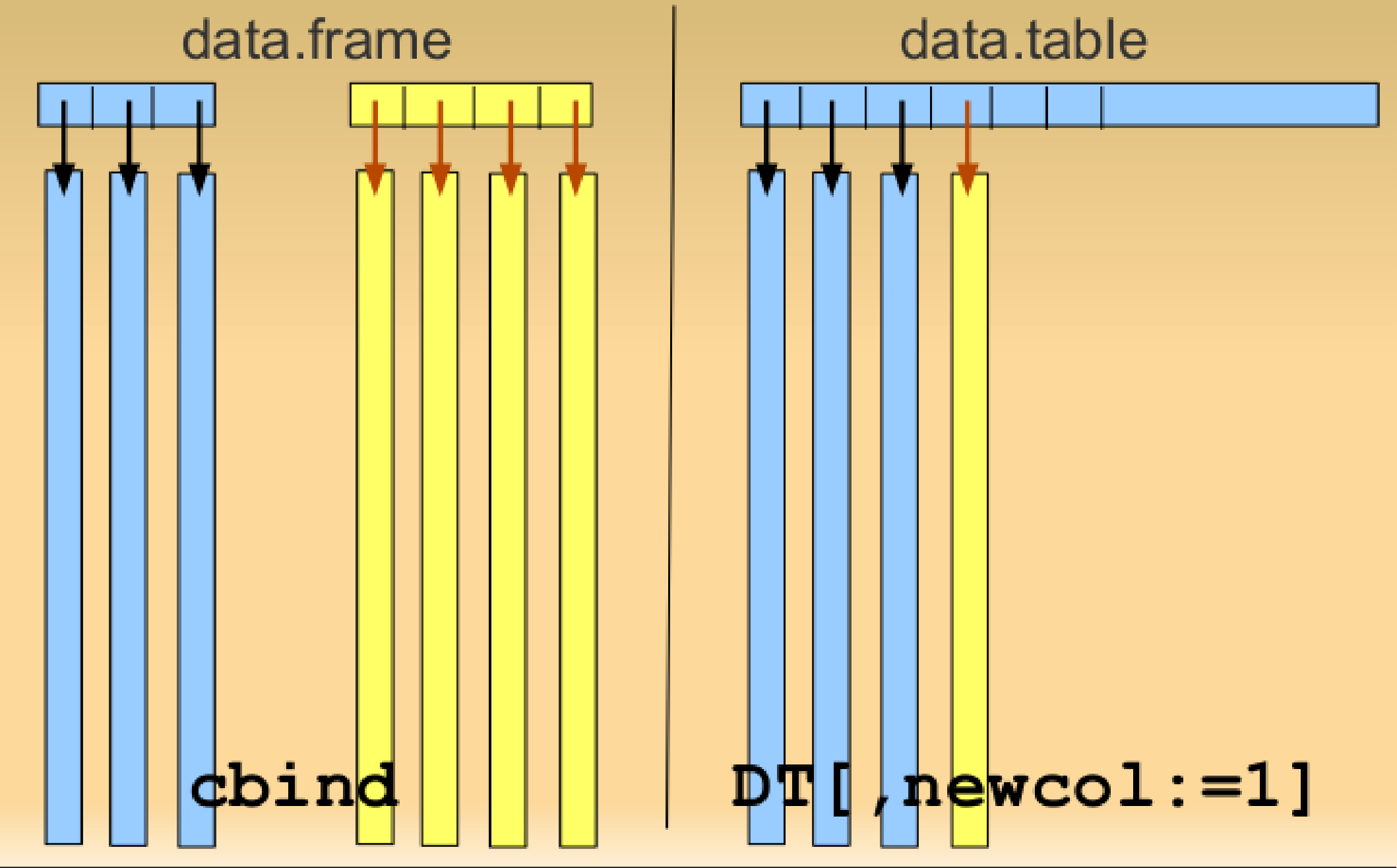
All symbols

- `.N`
- `.SD`
- `.I`
- `.BY`
- `.GRP`

All options

```
datatable.verbose                FALSE
datatable.nomatch                NA_integer_
datatable.optimize               Inf
datatable.print.nrows            100L
datatable.print.topn             5L
datatable.allow.cartesian        FALSE
datatable.alloccol               quote(max(100L,ncol(DT)+64L))
datatable.integer64              "integer64"
```

Over allocation



:= and `:=`()

```
DT[col1==something, col2:=col3+1]

DT[, `:=`(newCol1=mean(colA),
          newCol2=sd(colA)),
      by=sector]
```

`set*` functions

- `set()`
- `setattr()`
- `setnames()`
- `setcolorder()`
- `setkey()`
- `setkeyv()`

53 examples in :

```
example(data.table)
```

Joins: X[Y]

- Vector search vs binary search
- One column == is ok, but not 2+ (revisit example in intro)
- J(), .(), list(), data.table()
- CJ()
- SJ()
- nomatch
- mult

Rolling joins

```
roll = [-Inf,+Inf] | TRUE | FALSE
```

```
rollends = c(FALSE,TRUE)
```

By example on whiteboard

by -vs- keyby

Order is always maintained :

- of groups (by order of first appearance)
- rows within groups.

`keyby` is a `by` as usual, followed by `setkeyv(DT,by)`

Analogous to SQL

```
DT[ where,
    select | update,
    group by]
  [ having ]
  [ order by ]
  [ ]...[ ]
```

Variable name repetition

```
DF[with(DF, order(-z, b)), ]
```

```
DT[order(-z, b)]
```

Stack Overflow :

How to sort a data.frame by columns in R

Miscellaneous features

```
DT[, (myvar):=NULL]
```

Space and specials; e.g., `by="a, b, c"`

```
DT[4:7,newCol:=8][]
```

- extra `[]` to print at prompt
- auto fills rows 1:3 with NA

Thank you!

http://datatable.r-forge.r-project.org/