

R Data Reshaping

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1 Introduction

- References
- R Data Reshaping
- cbind and rbind
- Joins
- reshape2

"R for Everyone - Advanced Analytics and Graphic" J. P. Lander

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- cbind, rbind
- Joins
- reshape2

cbind rbind example

```
sport <- c("Hockey", "Baseball", "Football")
league <- c("NHL", "MLB", "NFL");
trophy <-c("Trophy1", "Trophy2", "Trophy3")
trophies1 <- cbind(sport, league, trophy)
trophies2 <- data.frame(sport=c("Basketball", "Golf"),
  league=c("NBA", "PGA"),
  trophy=c("Trophy4", "Trophy5"),
  stringsAsFactors=FALSE)
trophies <- rbind(trophies1, trophies2)

cbind(Sport=sport, Association=league, Prize=trophy)
```

joins background

```
download.file(url="http://jaredlander.com/data/US_Foreign_Aid
             destfile="data/ForeignAid.zip")
unzip("data/ForeignAid.zip", exdir="data")

require(stringr)
F <- dir("data/", pattern="\\.csv")
for(a in F)
{
  nameToUse <- str_sub(string=a, start=12, end=18)
  temp <- read.table(file=file.path("data", a),
                    header=TRUE, sep=",", stringAsFactors=FALSE)
  assign(x=nameToUse, value=temp)
}
```

```
Aid <- merge(x=Aid_90s, y=Aid_00s,  
            by.x=c("Country.Name", "Program.Name"),  
            by.y=c("Country.Name", "Program.Name"))  
head(Aid)
```

plyr join (1)

```
require(plyr)
Aid2 <- join(x=Aid_90s, y=Aid_00s, by=c("Country.Name", "Prog
head(Aid2)
```

```
frameNames <- str_sub(string=F, start=12, end=18)
frameList <- vector("list", length(frameNames))
names(frameList) <- frameNames
for (a in frameName)
{
  frameList[[a]] <- eval(parse(text=a))
}
```


plyr join (2)

```
head(frameList[1])
head(frameList[["Aid_00s"]])
head(frameList[[5]])
head(frameList[["Aid_60s"]])

allAid <- Reduce(function(...)
{
  join(..., by=c("Country.Name", "Program.Name"))
}, frameList)

dim(allAid)

require(useful)
corner(allAid, c=15)
bottomleft(allAid, c=15)
```

data.table merge

```
require(data.table)
dt1 <- data.table(Aid_90s, key=c("Country.Name", "Program.Name"))
dt2 <- data.table(Aid_00s, key=c("Country.Name", "Program.Name"))

dt3 <- dt1[dt2]
```

```
head(Aid2)
```

```
require(reshape2)
```

```
melt0 <- melt(Aid2, id.vars=c("Country.Name", "Program.Name")  
             variable.name="Year", value.name="Dollars")
```

```
tail(melt0, 10)
```

melt plot exampe

```
require(scales)
melt00$Year <- as.numeric(str_sub(melt00$Year, start=3, 6))
meltAgg <- aggregate(Dollars ~ Program.Name + Year, data=melt00,
                     sum, na.rm=TRUE)
meltAgg$Program.Name <- str_sub(meltAgg$Program.Name, start=1,
                                length=6)

ggplot(meltAgg, aes(x=Year, y=Dollars)) +
  geom_line(aes(group=Program.Name)) +
  facet_wrap(~ Program.Name) +
  scale_x_continuous(breaks=seq(from=2000, to=2009, by=2)) +
  theme(axis.text.x=element_text(angle=90, vjust=1, hjust=1)) +
  scale_y_continuous(labels=multiple_format(extra=dollar, n=1))
```

```
cast00 <- dcast(melt00, Country.Name + Program.Name ~ Year,  
value.var = "Dollars")  
head(cast00)
```