

Finland parties

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Read data

```
> data <- read.table("http://ablejec.nib.si/R/dat/Finlan  
> str(data)
```

```
'data.frame': 10 obs. of 9 variables:
```

```
$ year           : int   1945 1948 1951 1954 1958 1  
$ Communist      : num   23.5 20 21.6 21.6 23.2 22  
$ Social.Democrats : num   25 26.3 26.5 26.2 23.2 19.  
$ Rural.Party    : num   NA NA NA NA NA NA NA 10.5  
$ Centre.Party   : num   21.4 24.2 23.3 24.1 23 23  
$ Liberal.People.Party: num   NA NA 5.6 7.9 5.9 5.9 6.5  
$ Swedish.Party  : num   7.9 7.7 7.6 7 6.7 6.4 6 5.  
$ National.Coalition : num   15 17 14.6 12.8 15.3 15.1  
$ Other          : num   7.2 4.8 0.8 0.4 2.7 8.1 4.
```

```
> data$year
```

```
[1] 1945 1948 1951 1954 1958 1962 1966 1970 1972 1975
```

Remove data for 1975

```
> data <- data[data$year!=1975,]  
> str(data)
```

```
'data.frame': 9 obs. of 9 variables:
```

```
$ year           : int  1945 1948 1951 1954 1958 1  
$ Communist      : num  23.5 20 21.6 21.6 23.2 22  
$ Social.Democrats : num  25 26.3 26.5 26.2 23.2 19.  
$ Rural.Party    : num  NA NA NA NA NA NA NA 10.5  
$ Centre.Party   : num  21.4 24.2 23.3 24.1 23 23  
$ Liberal.People.Party: num  NA NA 5.6 7.9 5.9 5.9 6.5  
$ Swedish.Party  : num  7.9 7.7 7.6 7 6.7 6.4 6 5.  
$ National.Coalition : num  15 17 14.6 12.8 15.3 15.1  
$ Other          : num  7.2 4.8 0.8 0.4 2.7 8.1 4.
```

```
>
```

Replace NA with 0

```
> data[is.na(data)] <- 0  
> str(data)
```

```
'data.frame': 9 obs. of 9 variables:
```

```
$ year          : int  1945 1948 1951 1954 1958 1  
$ Communist     : num  23.5 20 21.6 21.6 23.2 22  
$ Social.Democrats : num  25 26.3 26.5 26.2 23.2 19.  
$ Rural.Party   : num  0 0 0 0 0 0 0 10.5 9.2  
$ Centre.Party  : num  21.4 24.2 23.3 24.1 23 23  
$ Liberal.People.Party: num  0 0 5.6 7.9 5.9 5.9 6.5 6  
$ Swedish.Party : num  7.9 7.7 7.6 7 6.7 6.4 6 5.  
$ National.Coalition : num  15 17 14.6 12.8 15.3 15.1  
$ Other         : num  7.2 4.8 0.8 0.4 2.7 8.1 4.
```

Find parties to group

```
> names(data)
[1] "year"                "Communist"
[3] "Social.Democrats"   "Rural.Party"
[5] "Centre.Party"       "Liberal.People.Party"
[7] "Swedish.Party"      "National.Coalition"
[9] "Other"

> leftId <-
+ pmatch(c("Comm", "Rural", "Social"), names(data))
> leftId
[1] 2 4 3

> centreId <-
+ pmatch(c("Centre", "Liberal", "Swedish"), names(data))
> centreId
[1] 5 6 7

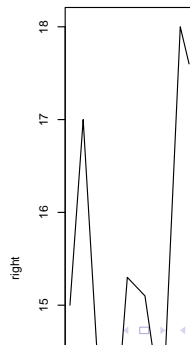
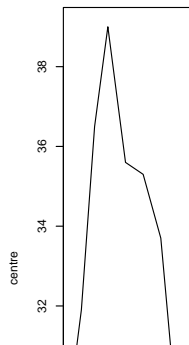
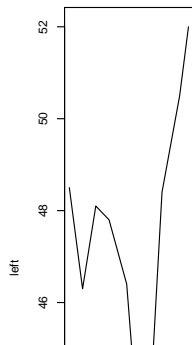
> rightId <-
+ pmatch(c("National"), names(data))
```

Prepare group data

```
> left <- apply(data[,leftId],1,sum)
> centre <- apply(data[,centreId],1,sum)
> right <- data[,rightId]
> year <- data$year
```

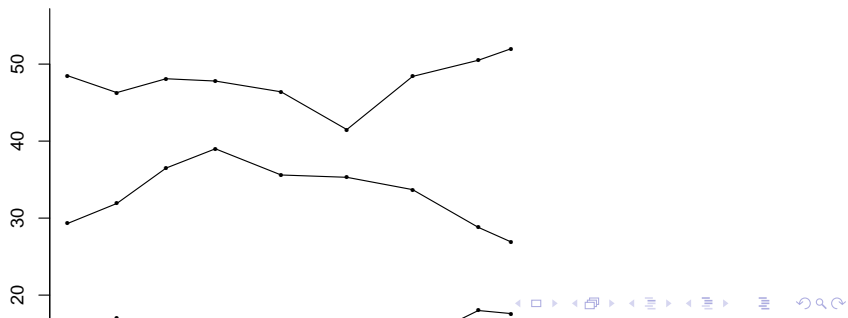
Plot the data 1

```
> oldpar <- par(mfrow=c(1, 3))  
> plot(year, left, type="l")  
> plot(year, centre, type="l")  
> plot(year, right, type="l")  
> par(oldpar)
```



Plot the data 2

```
> par(mar=c(5, 4, 4, 4))  
> plot(year, left, type="o", ylim=c(0, 55),  
+ pch=16, cex=0.5, ylab="", bty="L")  
> lines(year, centre, pch=16, type="o", cex=0.5)  
> lines(year, right, pch=16, type="o", cex=0.5)
```



Models

```
> mdl <- lm(left~year)
> summary(mdl)
```

```
Call:
lm(formula = left ~ year)
```

```
Residuals:
```

Min	1Q	Median	3Q	Max
-6.5763	-0.3821	0.5204	1.6270	2.9278

```
Coefficients:
```

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-147.31223	212.95238	-0.692	0.511
year	0.09959	0.10873	0.916	0.390

```
Residual standard error: 2.982 on 7 degrees of freedom
Multiple R-squared: 0.107, Adjusted R-squared: -0.02056
F-statistic: 0.8388 on 1 and 7 DF, p-value: 0.3902
```

Plot

```
> par(mar=c(5, 4, 4, 4))
> plot(year, left, type="o", ylim=c(0, 55),
+      pch=16, cex=0.5, ylab="", bty="L")
> lines(year, centre, pch=16, type="o", cex=0.5)
> lines(year, right, pch=16, type="o", cex=0.5)
> abline(mdl, lty=5)
> lines(year, predict(mdc), type="l", lty=4)
> abline(mdr)
> lastPoint <- cbind(left, centre, right)[length(year), ]
> text(rep(1972.5),
+      lastPoint, c("LEFT", "CENTRE", "RIGHT"), xpd=TRUE, adj=0)
```

Final Plot

