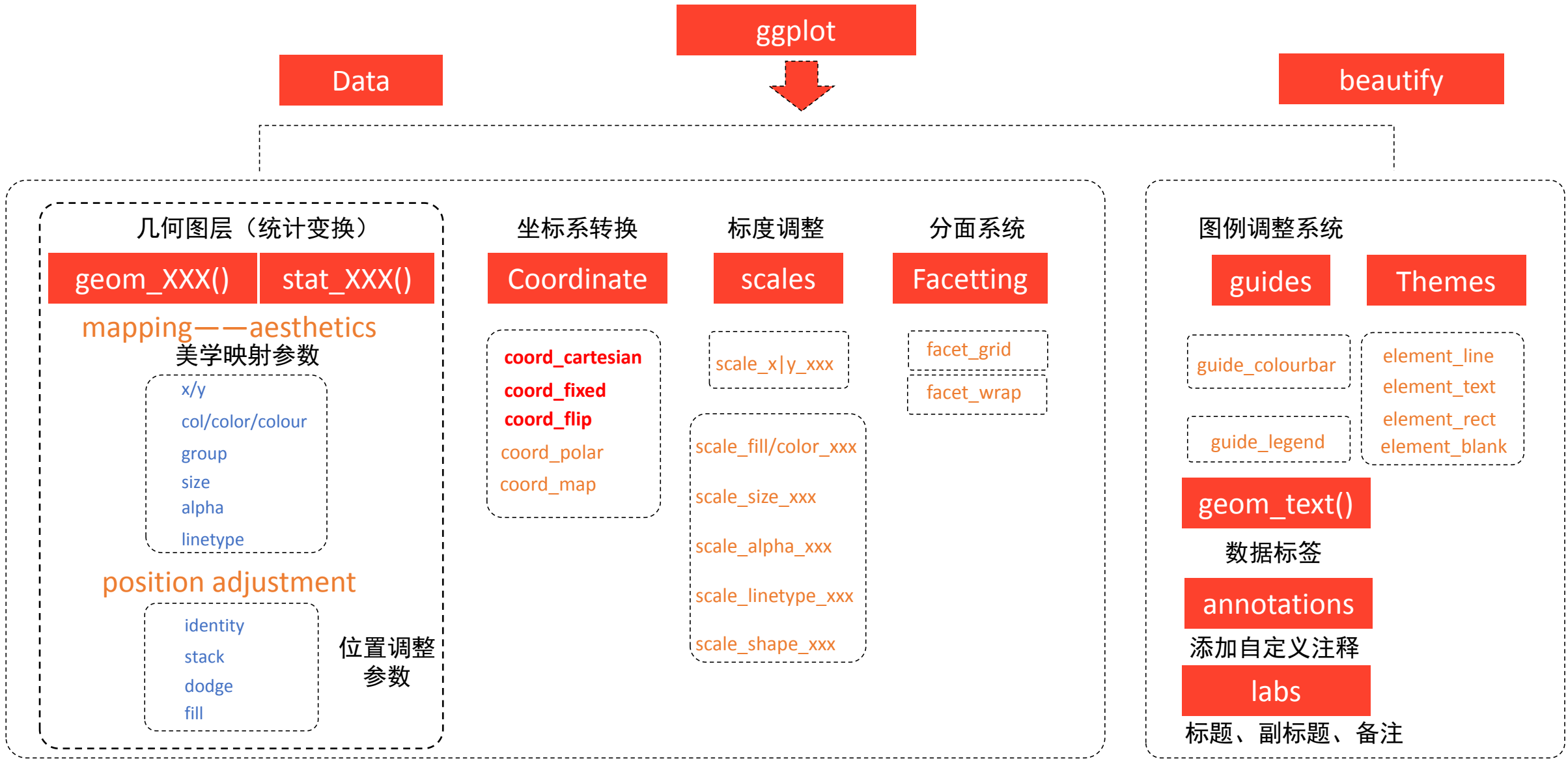


# 《R语言商务图表与数据可视化》

## 第八章：ggplot辅助几何对象与信息图基础

# ggplot2图层语法框架概览



# 本章目录



8.1 辅助图形操作辅助图形1——geom\_rect矩形图

8.2 辅助图形操作辅助图形2——geom\_segment矩形图



8.3 辅助图形操作辅助图形3——geom\_linerange线范围图

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8.5 折线图与路径图的区别——geom\_line/geom\_path

8.6 常见的辅助线/误差线对象 (geom\_abline/hline/vline/errorbar/herrorbar)



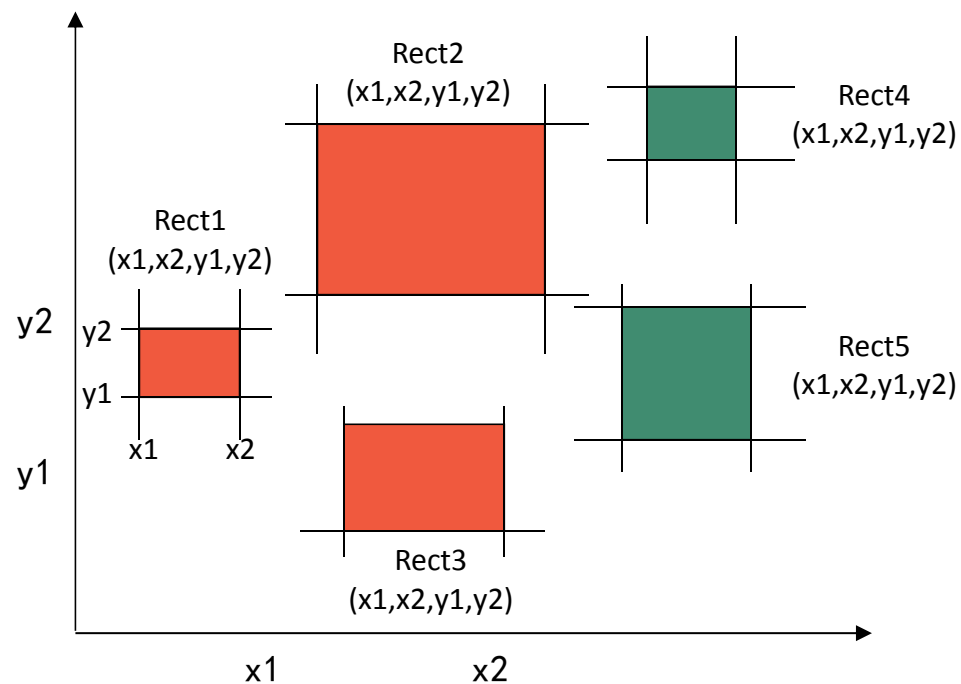
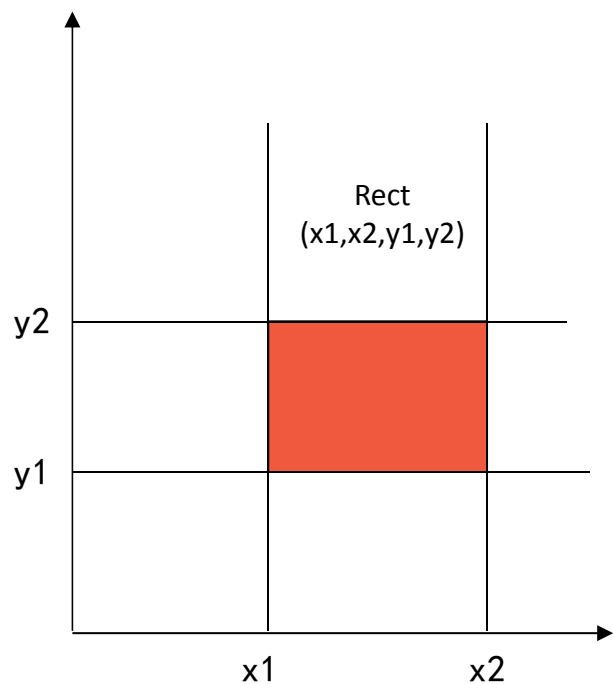
8.7 ggplot2辅助高阶图形扩展包——ggtreemap (树状图)

8.8 方块气泡图、不等款宽柱形图、堆积不等款柱形图案例

## 8.1 辅助图形操作辅助图形1——geom\_rect自由矩形图

`geom_rect()`

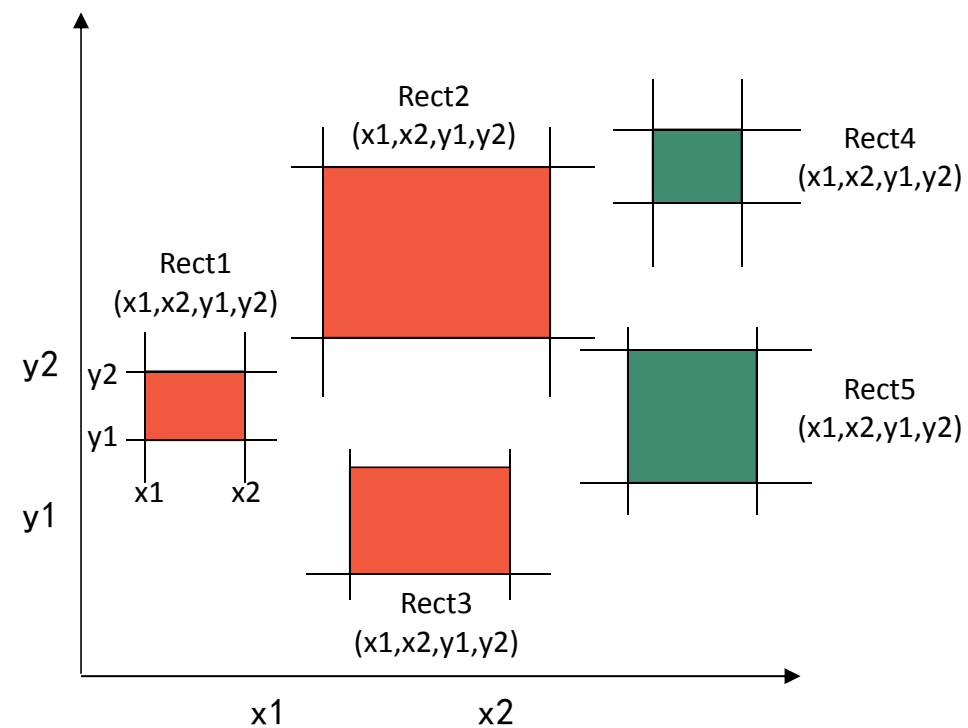
Mapping(xmin, xmax, ymin, ymax)



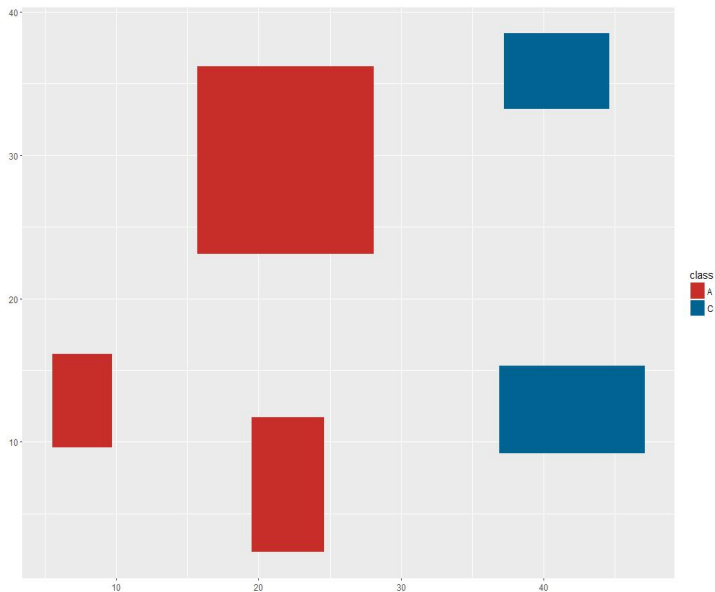
# 8.1 辅助图形操作辅助图形1——geom\_rect自由矩形图

geom\_rect()

Mapping(xmin, xmax, ymin, ymax)

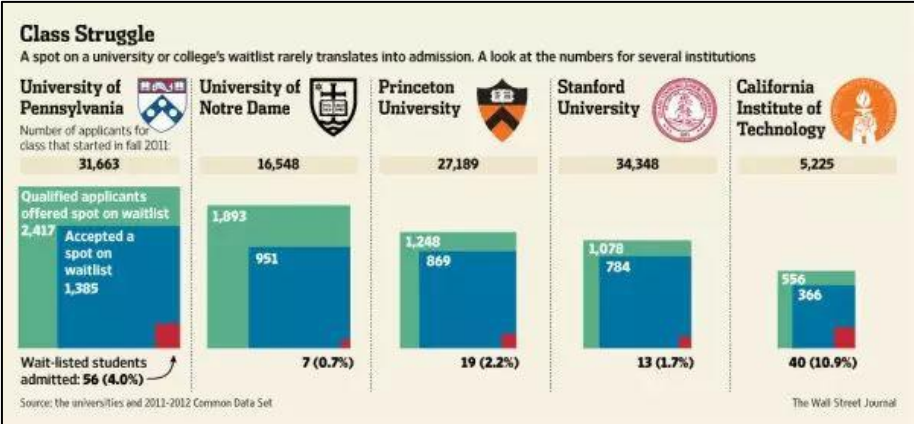
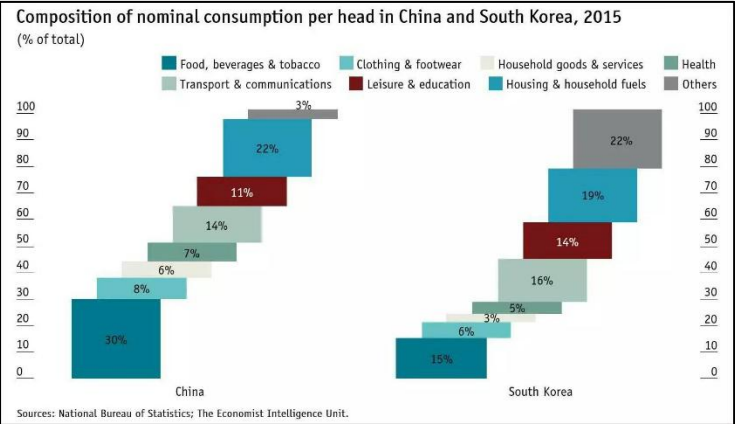


Rect	xmin	xmax	ymin	ymax	class
Rect1	5.5	9.7	9.6	16.1	A
Rect2	15.7	28.1	23.1	36.2	A
Rect3	19.5	24.6	2.3	11.7	A
Rect4	37.2	44.6	33.2	38.5	C
Rect5	36.9	47.1	9.2	15.3	C



# 8.1 辅助图形操作辅助图形1——geom\_rect自由矩形图

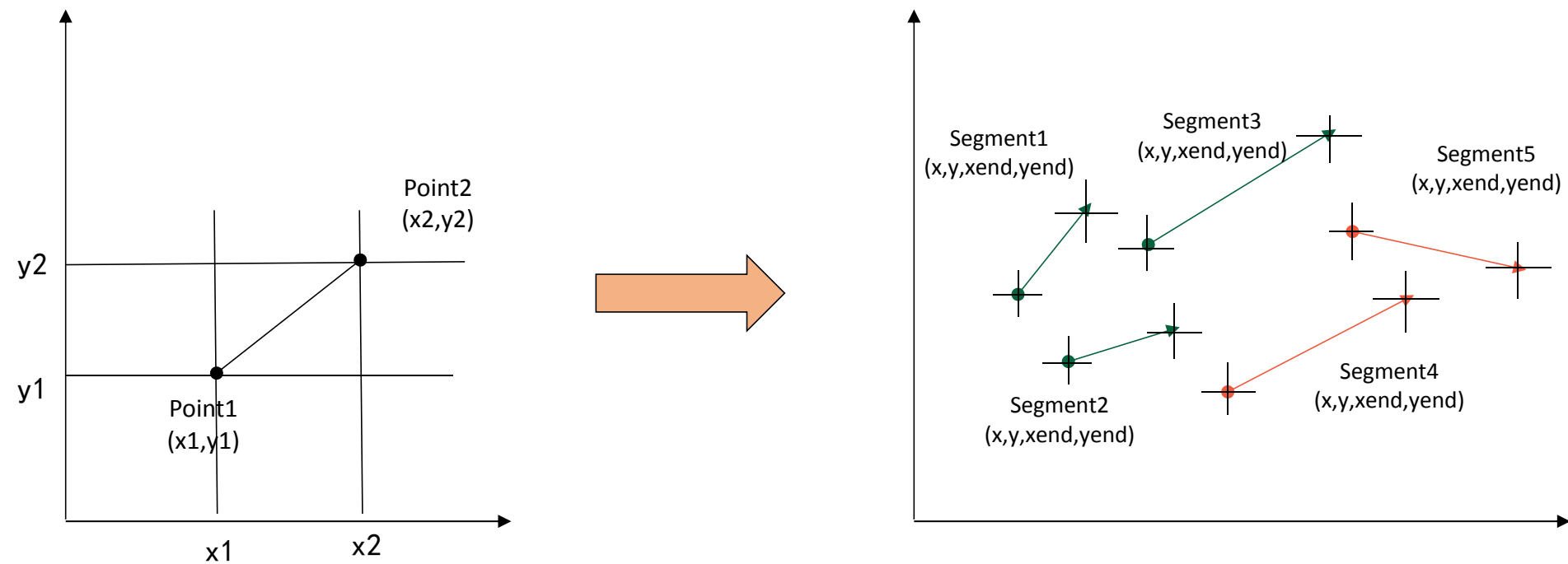
思考题：——想想这两个图怎么画？



## 8.2 辅助图形操作辅助图形2——geom\_segment矩形图

geom\_segment()

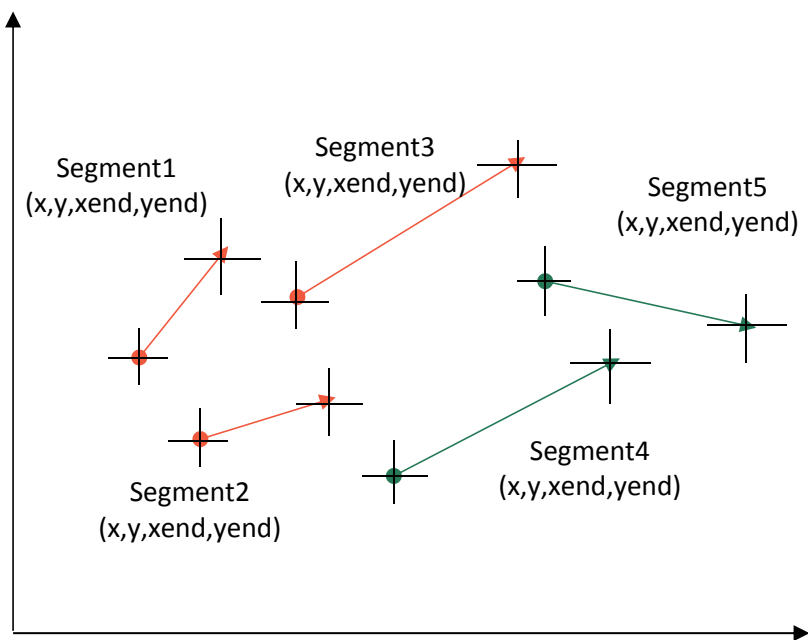
Mapping(x, y, xend, yend)



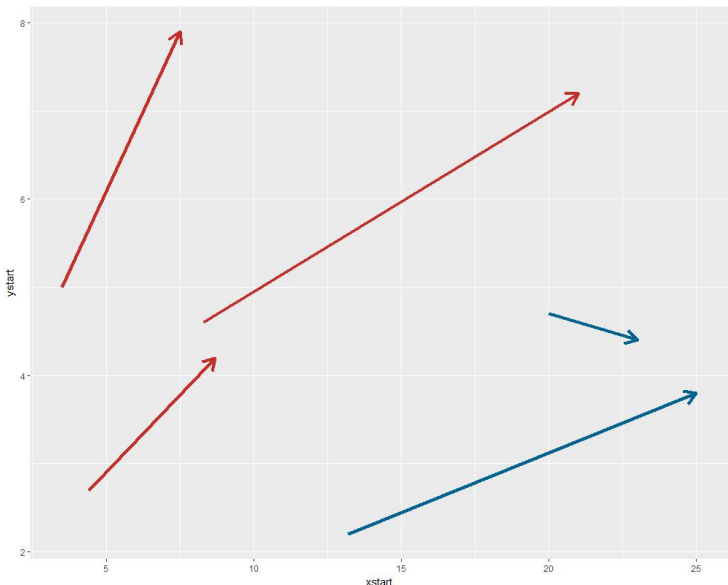
# 8.2 辅助图形操作辅助图形2——geom\_segment矩形图

geom\_segment ()

Mapping (x, y, xend, yend)



Segment	x	y	xend	yend	class
Segment1	3.5	5	7.5	7.9	A
Segment2	4.4	2.7	8.7	4.2	B
Segment3	8.3	4.6	21	7.2	C
Segment4	13.2	2.2	25	3.8	C
Segment5	20	4.7	23	4.4	C





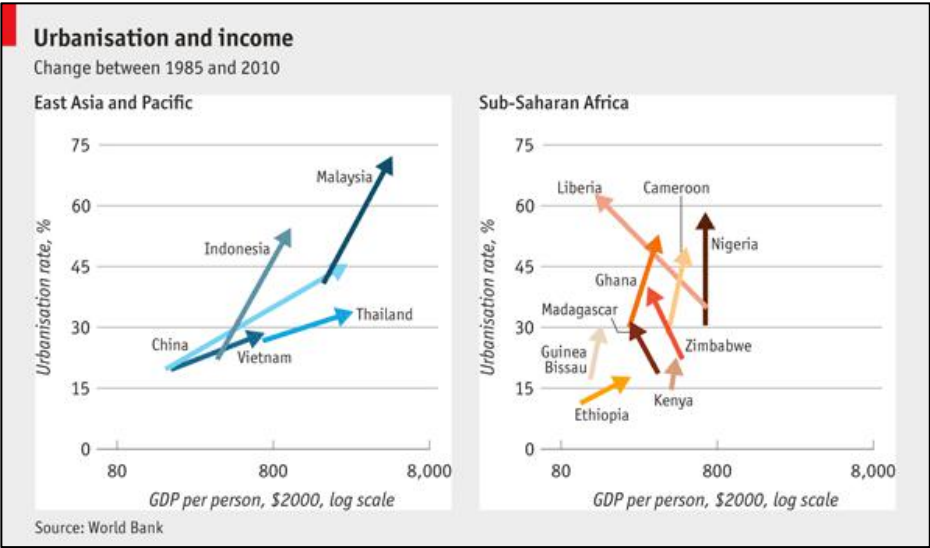
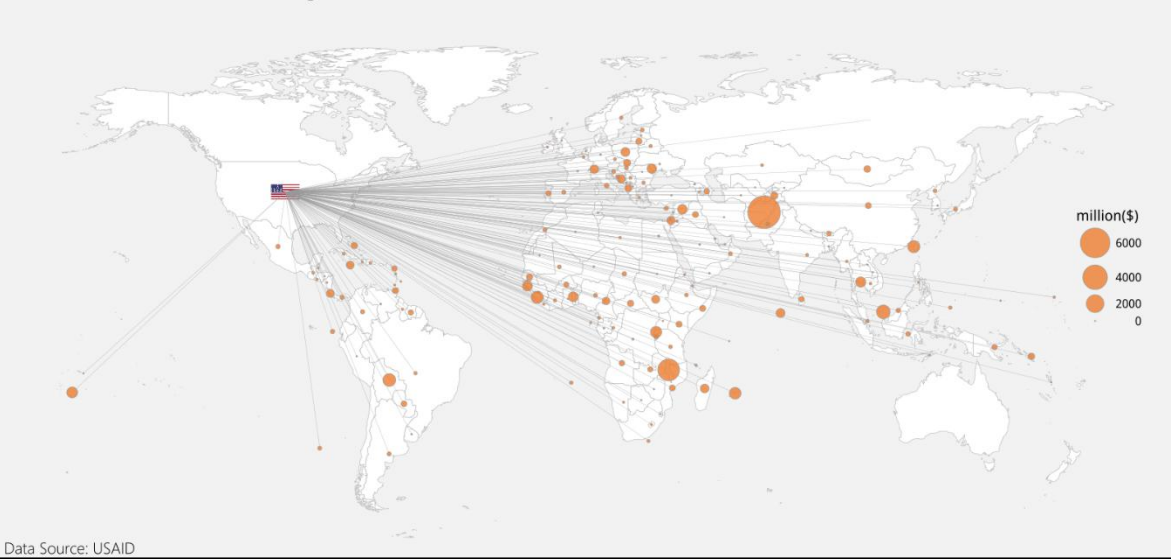
# 8.2 辅助图形操作辅助图形2——geom\_segment直线段

思考题：——想想这三个图怎么画？

geom\_segment()

Mapping(x, y, xend, yend)

Scaled Points of U.S. Foreign Aid in 2014

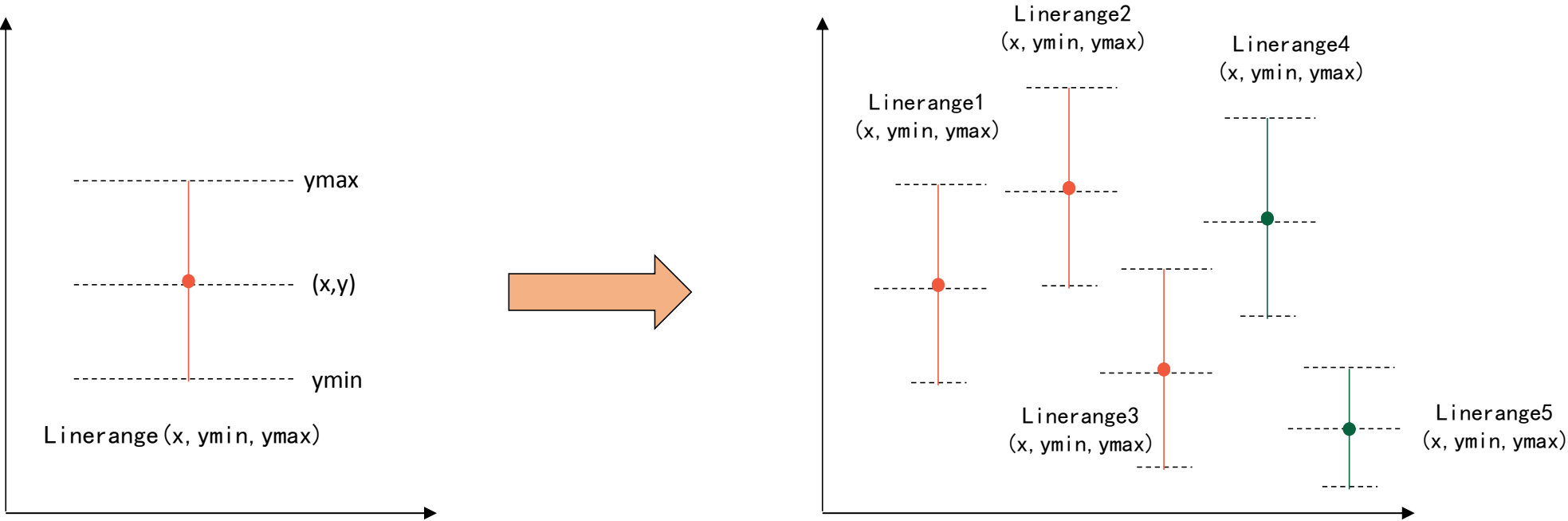


## 8.3 辅助图形操作辅助图形3——geom\_linerange线范围图

思考题：——想想这三个图怎么画？

geom\_linerange()

Mapping(x, ymin, ymax)

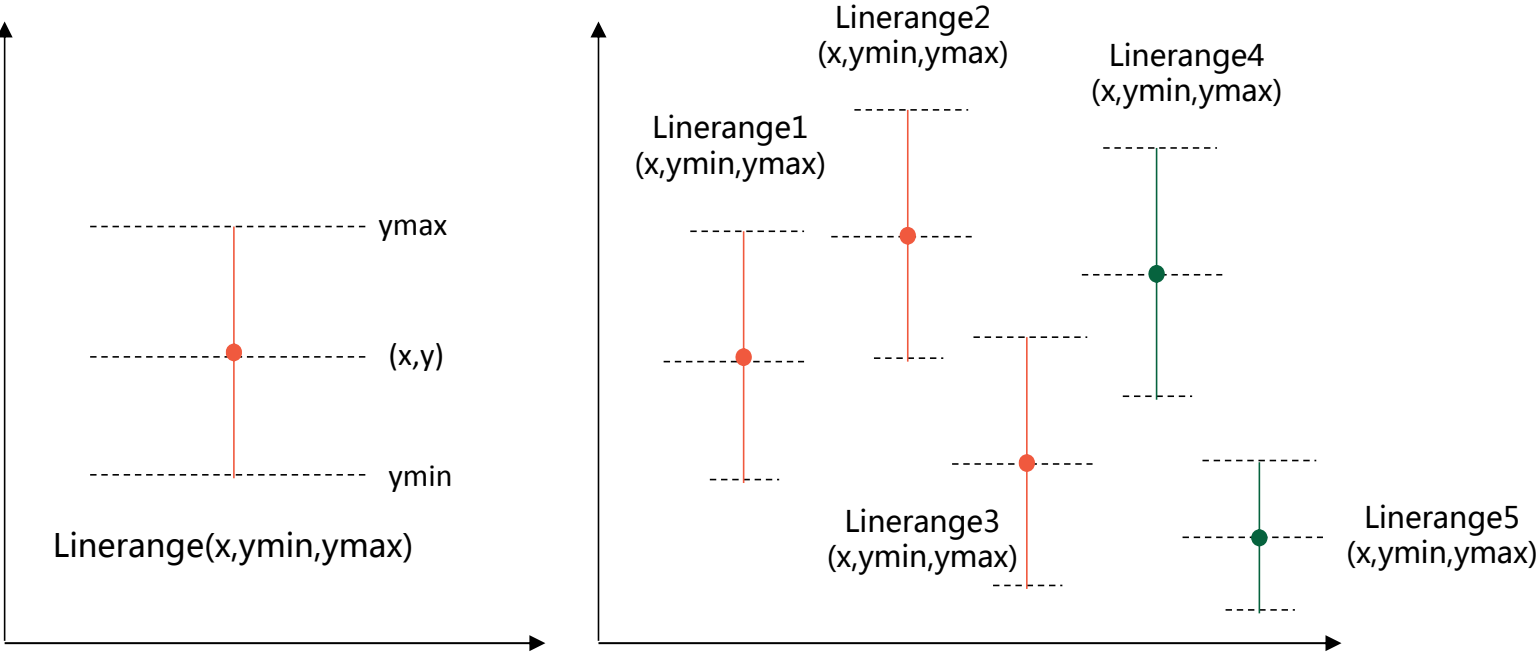


# 8.3 辅助图形操作辅助图形3——geom\_linerange线范围图

思考题：——想想这三个图怎么画？

geom\_linerange()

Mapping(x, ymin, ymax)



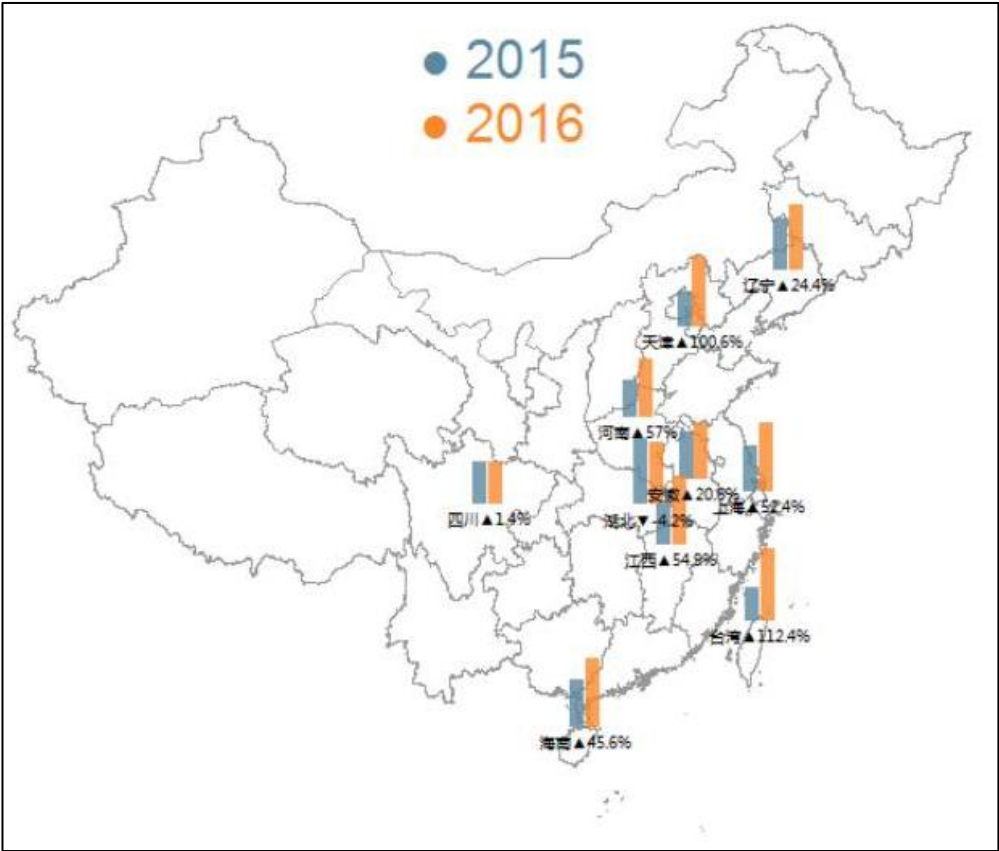
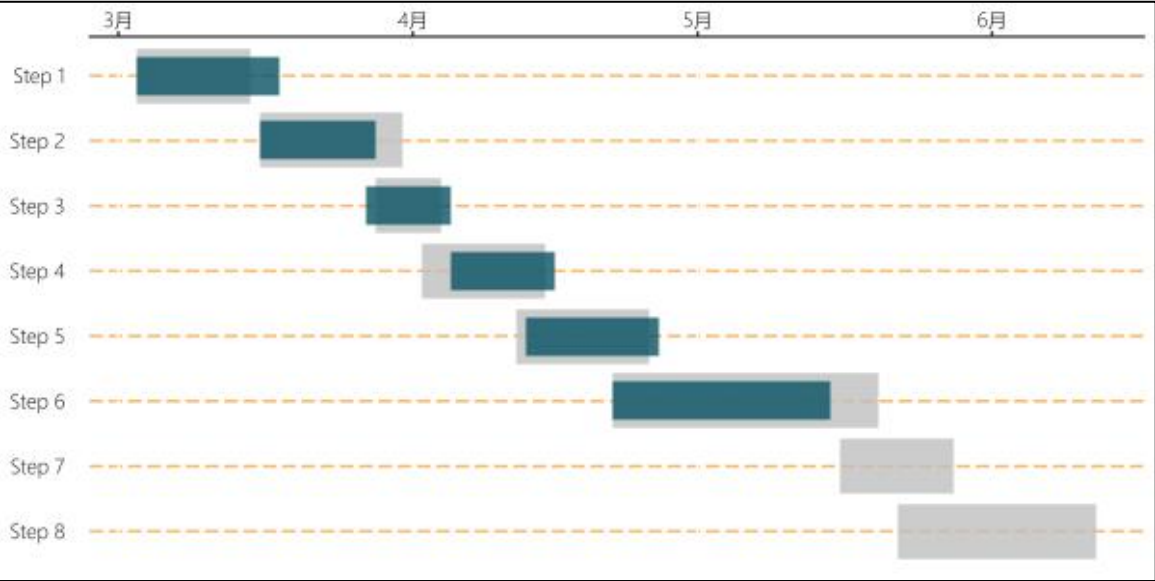
Segment	x	ymin	ymax	class
Segment1	3.5	2.5	7.5	A
Segment2	7	6.5	9.5	A
Segment3	12	3	9	A
Segment4	16	4.5	13.5	C
Segment5	20	3.8	4.2	C

## 8.3 辅助图形操作辅助图形3——geom\_linerange线范围图

思考题：——想想这三个图怎么画？

geom\_linerange()

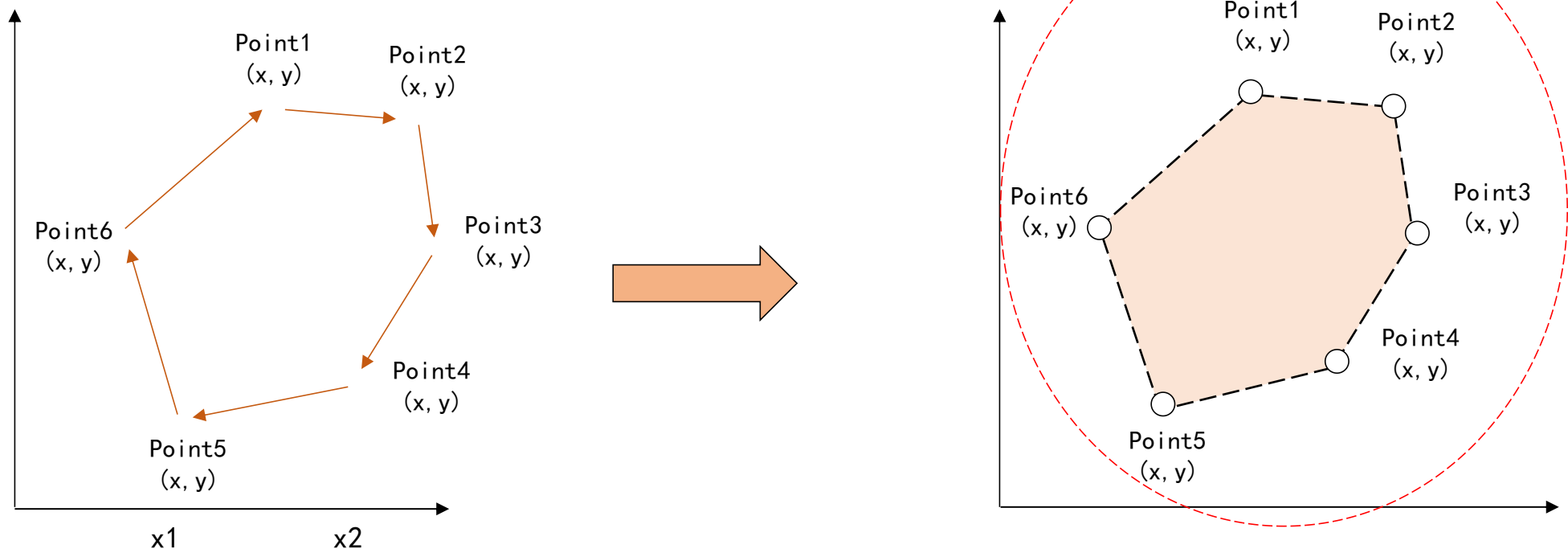
Mapping(x, ymin, ymax)



## 8.4 辅助图形操作辅助图形4——geom\_ploygon多边形图

geom\_ ploygon()

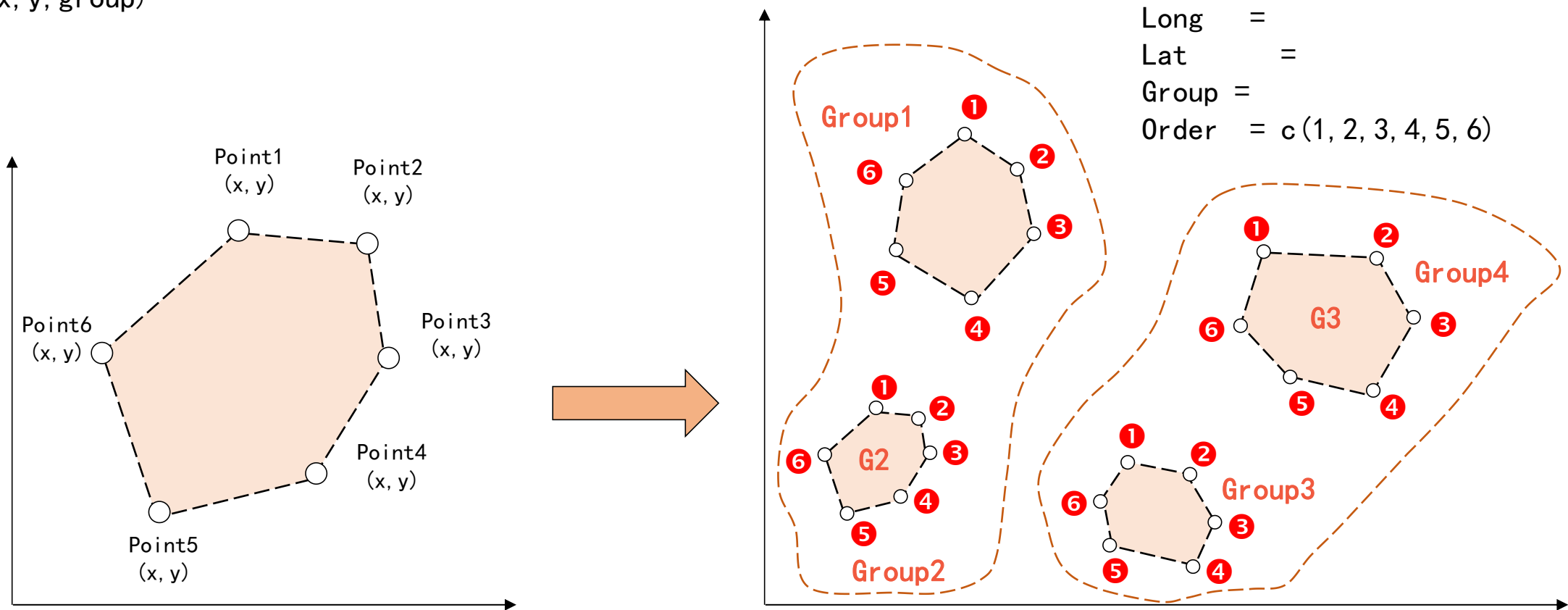
Mapping(x, y, group)



## 8.4 辅助图形操作辅助图形4——geom\_ploygon多边形图

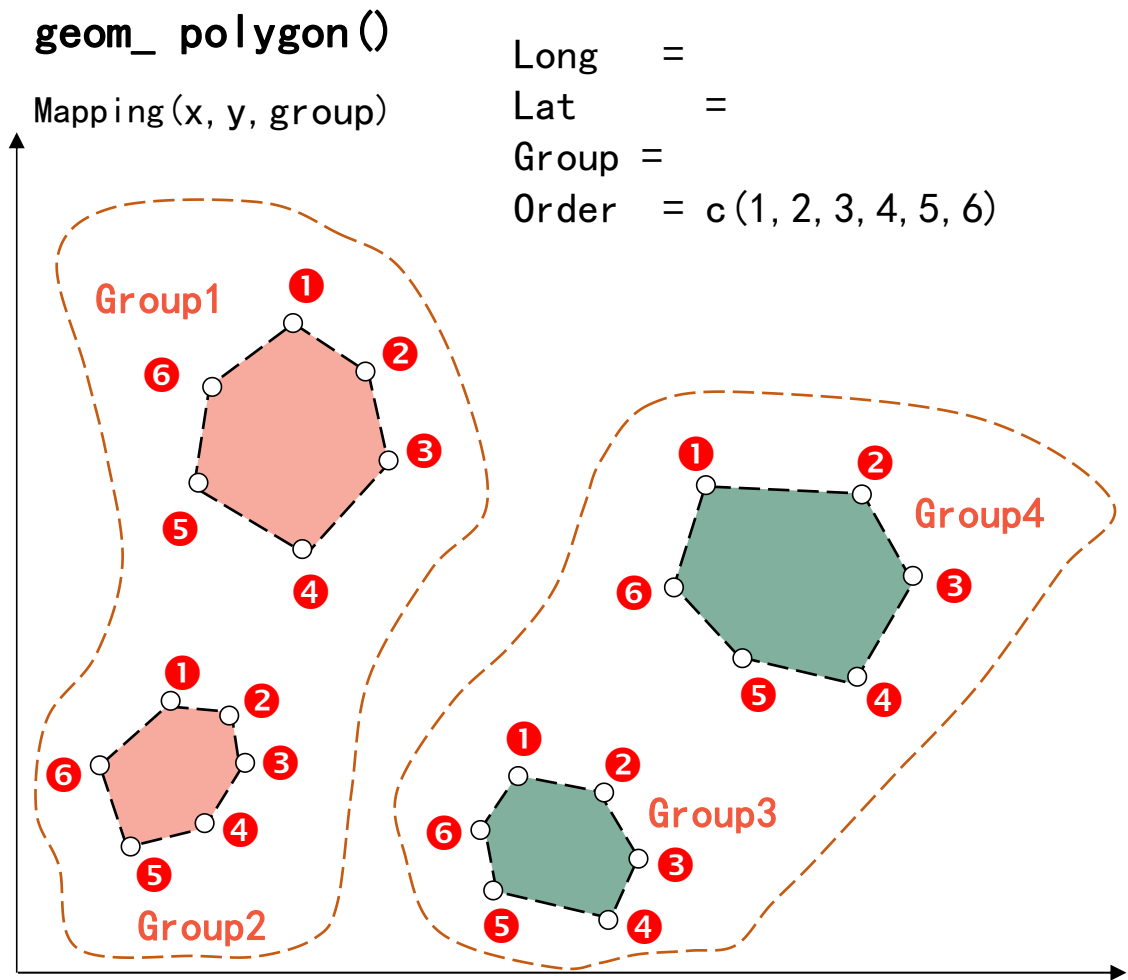
geom\_ ploygon()

Mapping(x, y, group)



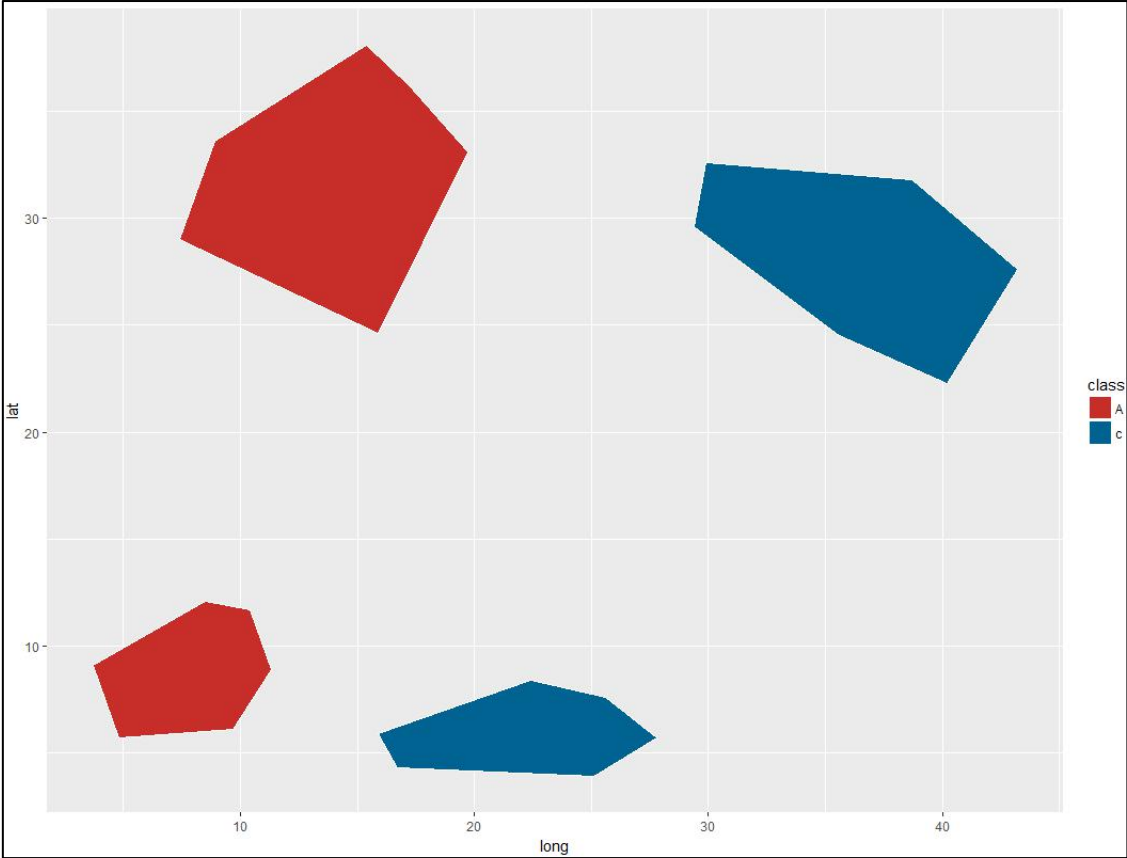
## 8.4 辅助图形操作辅助图形4——geom\_polygon多边形图

long	lat	group	order	long	lat	group	order
15.4	38.1	1	1	22.4	8.4	3	1
17.2	36.2	1	2	25.6	7.6	3	2
19.7	33.1	1	3	27.8	5.7	3	3
15.9	24.6	1	4	25.1	3.9	3	4
7.4	29.0	1	5	16.7	4.3	3	5
8.9	33.6	1	6	15.9	5.9	3	6
8.5	12.1	2	1	29.9	32.6	4	1
10.4	11.7	2	2	38.7	31.8	4	2
11.3	8.9	2	3	43.2	27.6	4	3
9.7	6.1	2	4	40.2	22.3	4	4
4.8	5.7	2	5	35.6	24.5	4	5
3.7	9.1	2	6	29.4	29.6	4	6



## 8.4 辅助图形操作辅助图形4——geom\_polygon多边形图

long	lat	group	order	long	lat	group	order
15.4	38.1	1	1	22.4	8.4	3	1
17.2	36.2	1	2	25.6	7.6	3	2
19.7	33.1	1	3	27.8	5.7	3	3
15.9	24.6	1	4	25.1	3.9	3	4
7.4	29.0	1	5	16.7	4.3	3	5
8.9	33.6	1	6	15.9	5.9	3	6
8.5	12.1	2	1	29.9	32.6	4	1
10.4	11.7	2	2	38.7	31.8	4	2
11.3	8.9	2	3	43.2	27.6	4	3
9.7	6.1	2	4	40.2	22.3	4	4
4.8	5.7	2	5	35.6	24.5	4	5
3.7	9.1	2	6	29.4	29.6	4	6

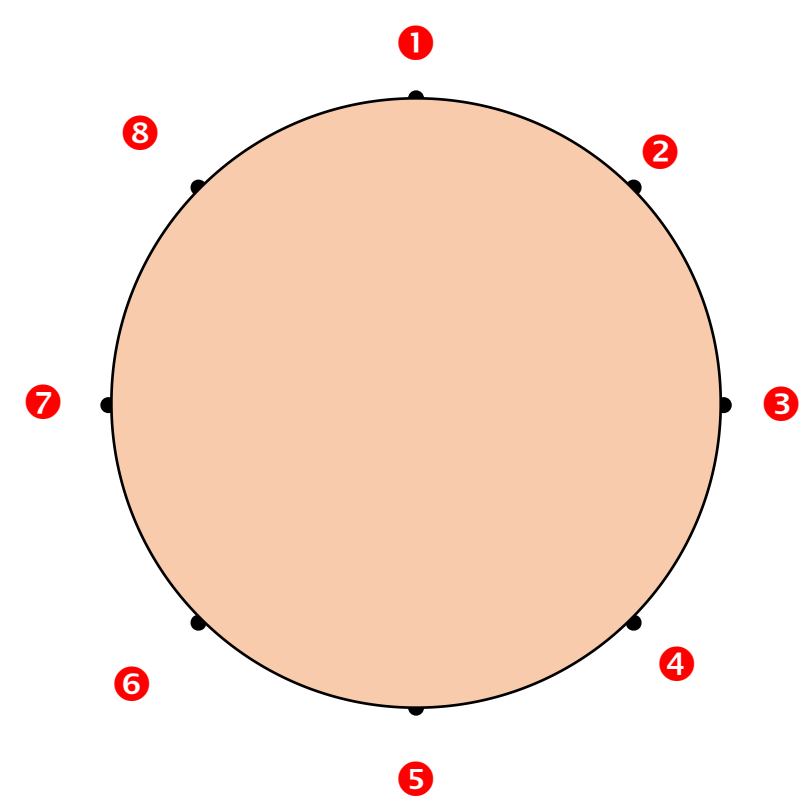




# 8.4 辅助图形操作辅助图形4——geom\_polygon多边形图

geom\_ ploygon()

Mapping(x, y, group)



$x^2 + y^2 = r^2$

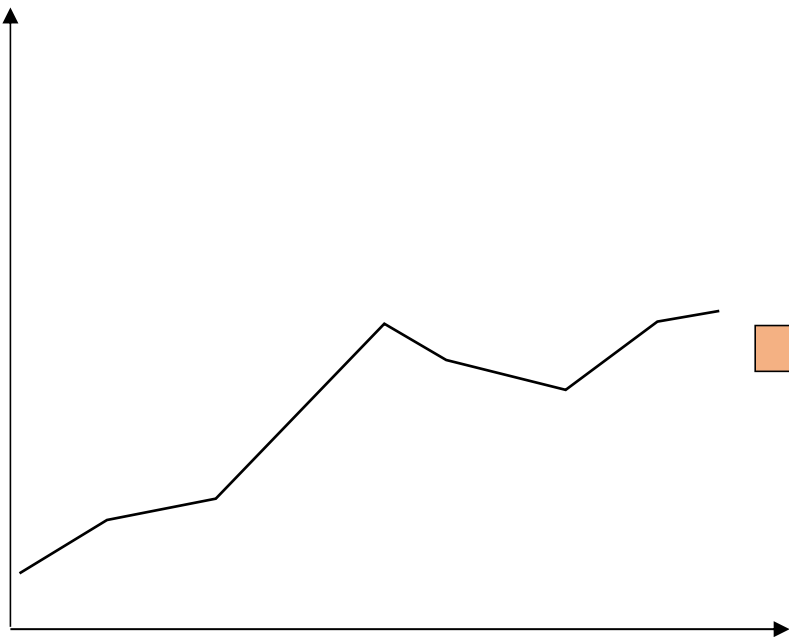


## 8.5 折线图与路径图的区别——geom\_line/geom\_path

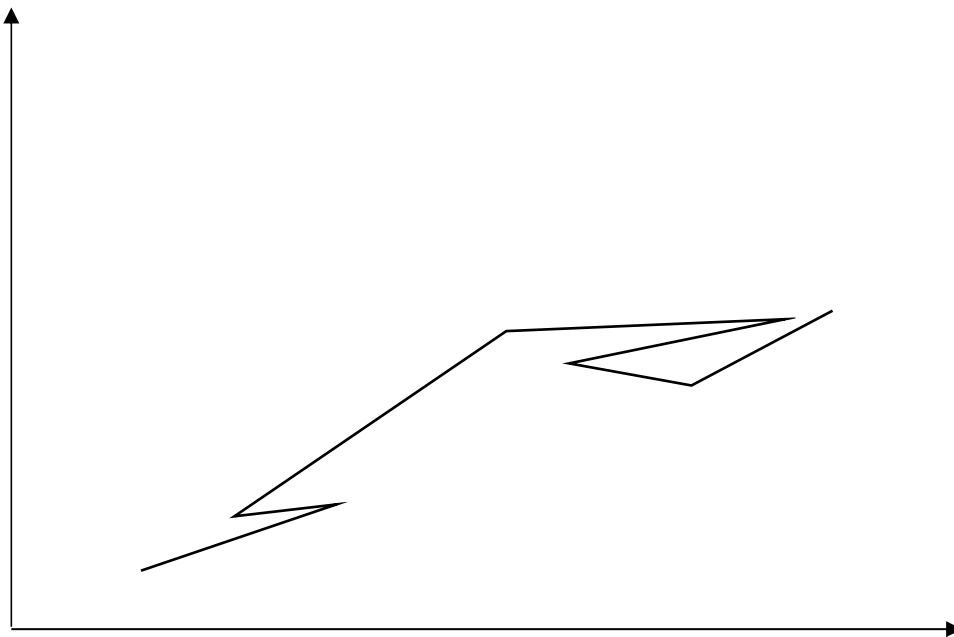
geom\_line()

geom\_path()

按照横轴自排序  
按照排序后的点顺序依次连接



路径图  
无排序，按照点在记录中出现的实际顺序依次相连



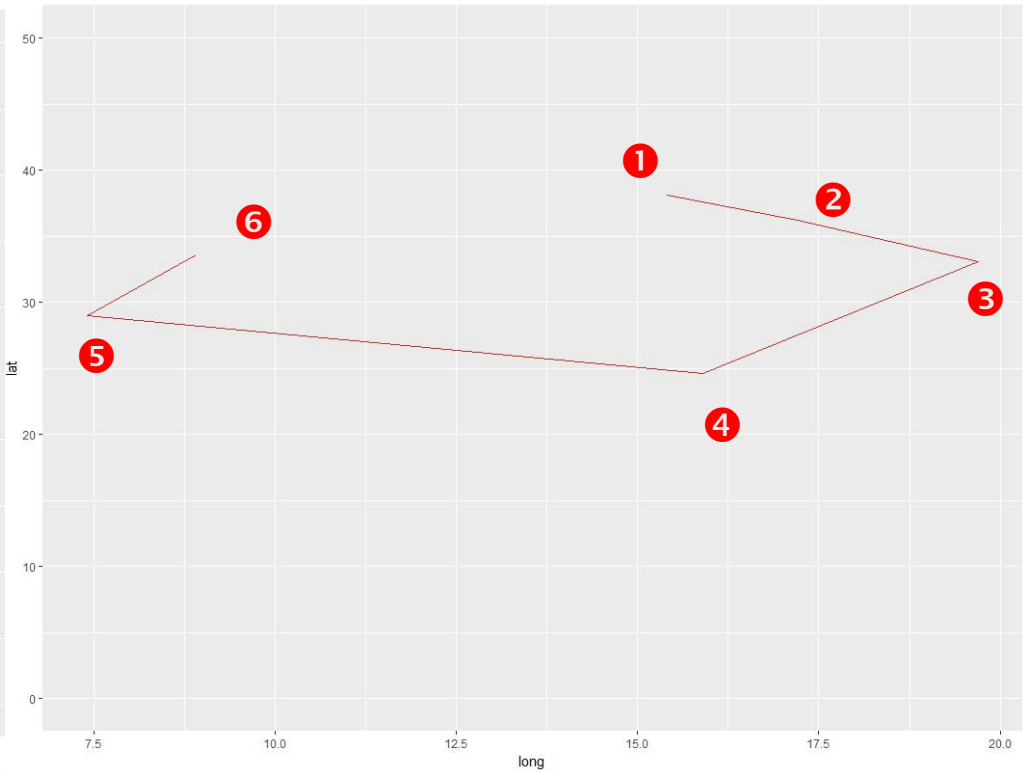
# 8.5 折线图与路径图的区别——geom\_line/geom\_path

long	lat
15.4	38.1
17.2	36.2
19.7	33.1
15.9	24.6
7.4	29.0
8.9	33.6
8.5	12.1

geom\_line()

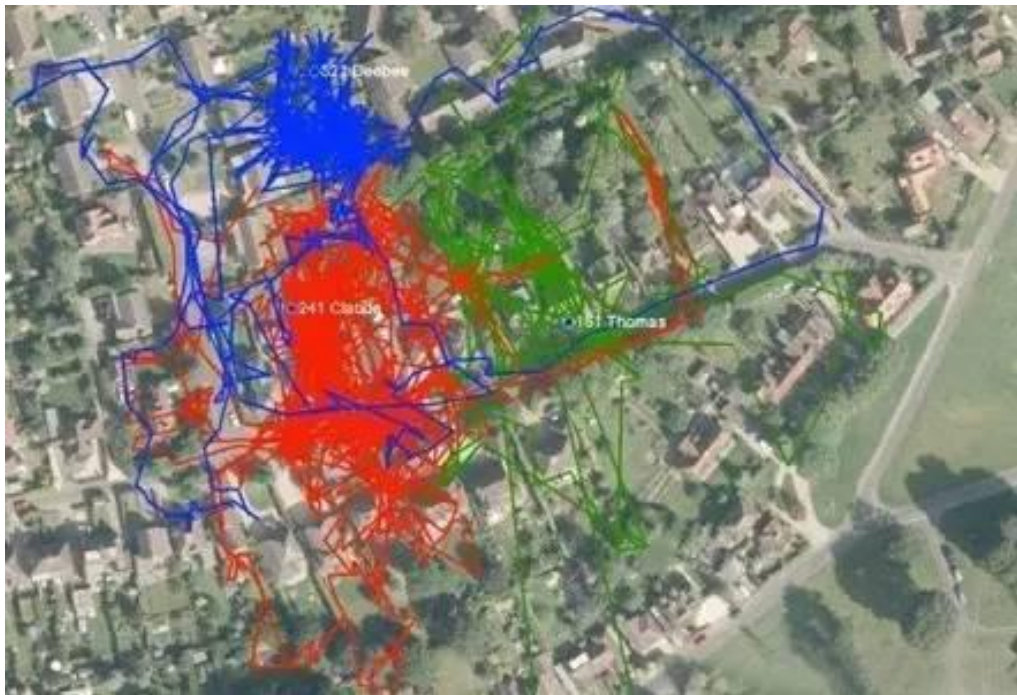


geom\_path()



# 8.5 折线图与路径图的区别——geom\_line/geom\_path

geom\_ path()

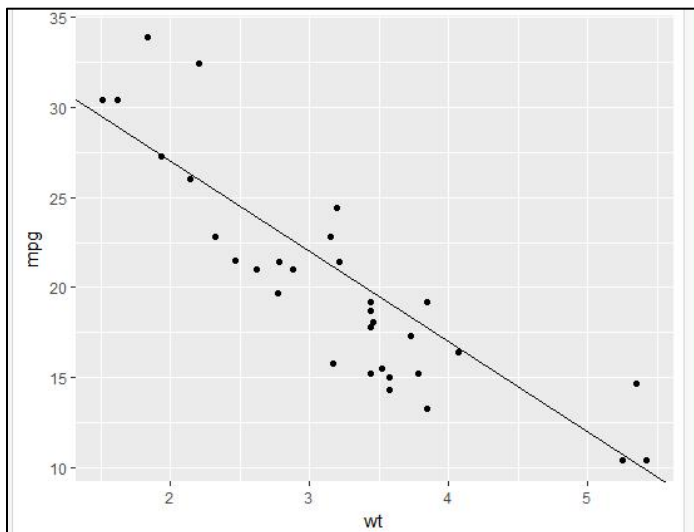


long	lat
x	y
x	y
x	y
x	y
x	y
x	y
x	y

(geom\_abline\hline\vline\errorbar\herrorbar)

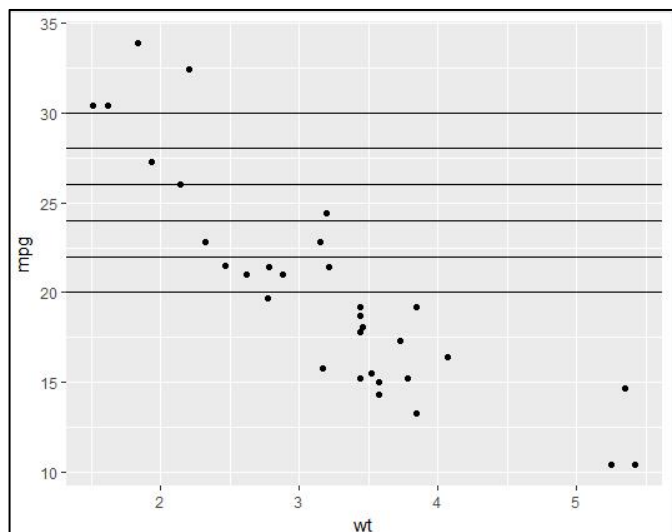
geom\_abline()

带斜率的直线段



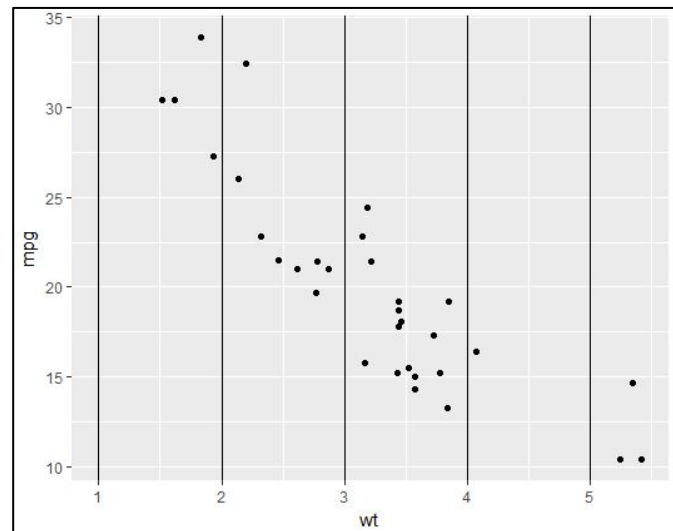
geom\_hline()

水平直线段



geom\_vline()

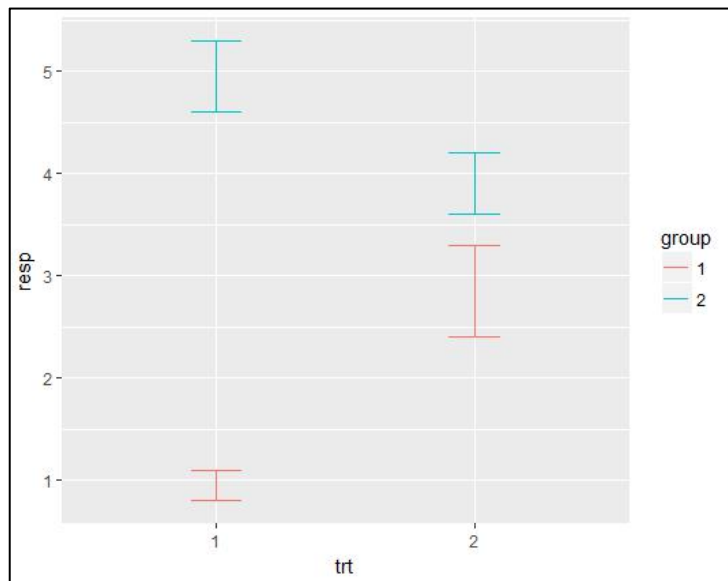
垂直直线段



(geom\_abline\hline\vline\errorbar\herrorbar)

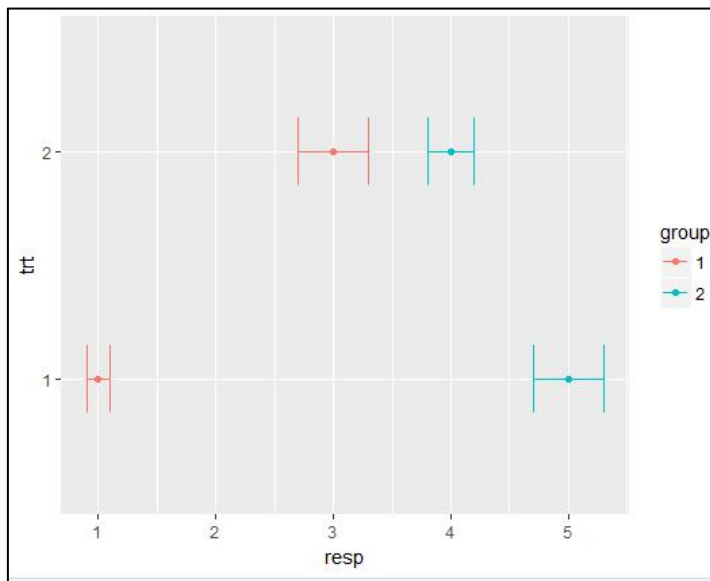
geom\_errorbar()

垂直误差线



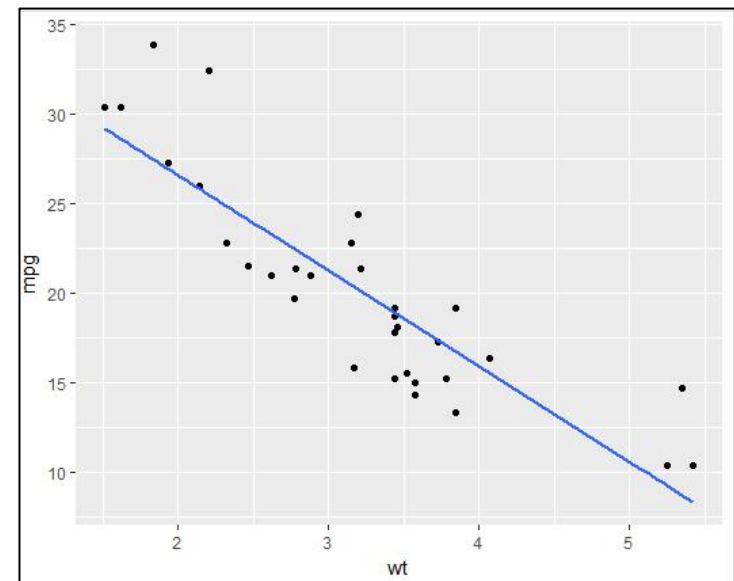
geom\_herrorbar()

水平误差线



geom\_smooth()

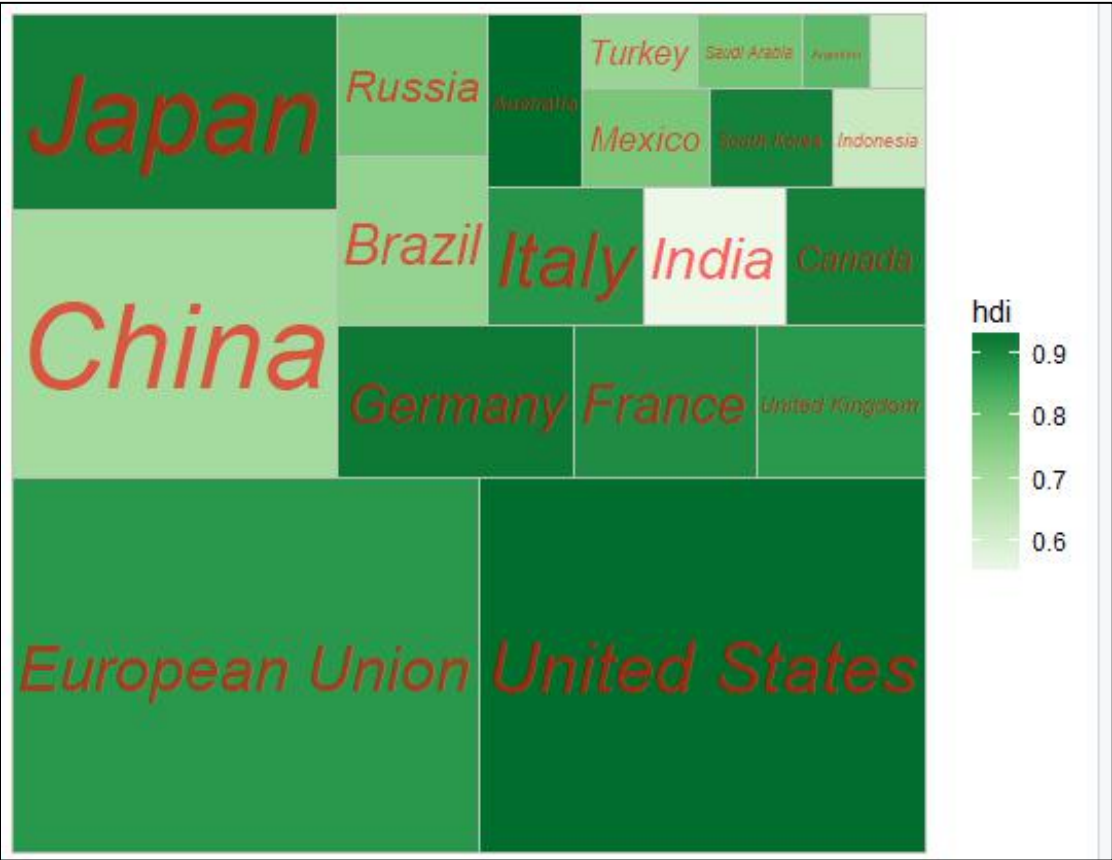
平滑曲线



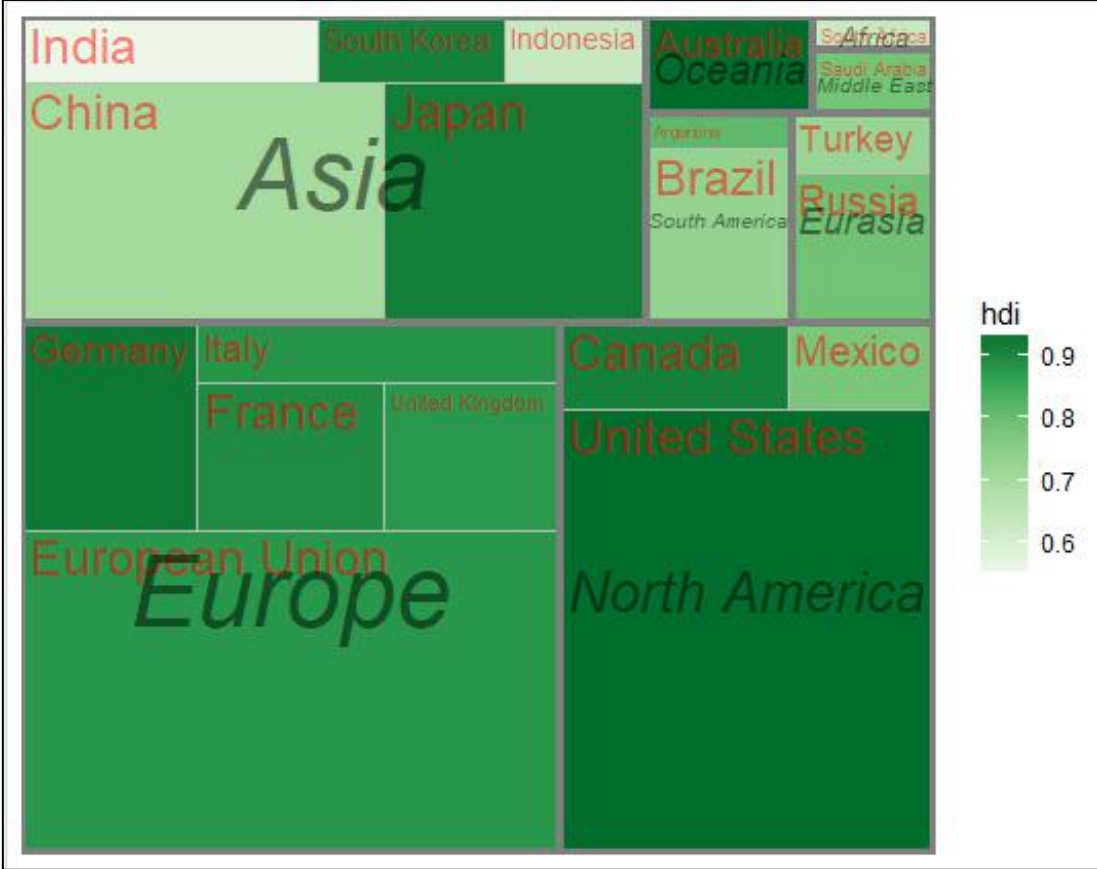


## 8.7 ggplot2辅助高阶图形扩展包——ggtreemap（树状图）

单序列



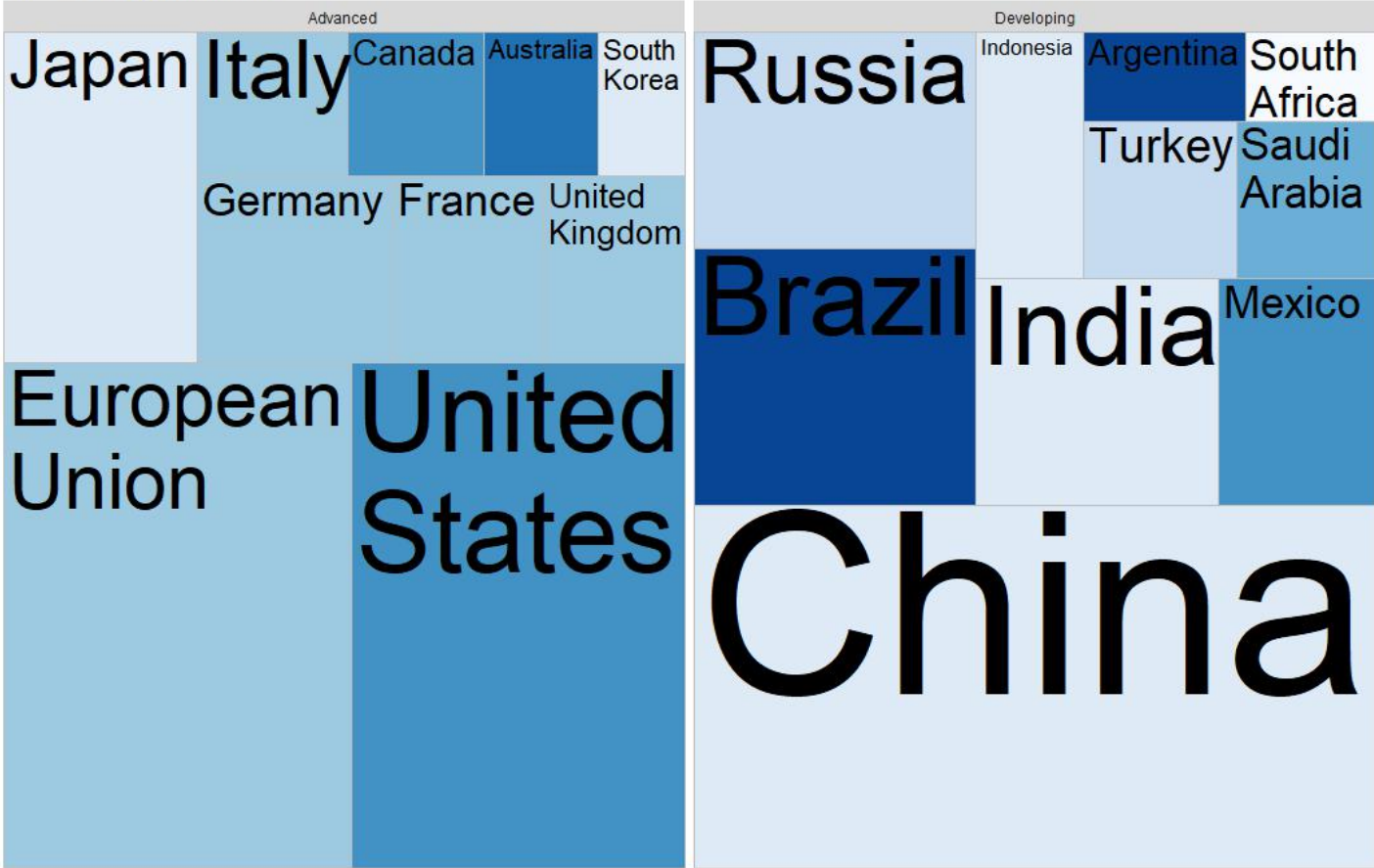
次级分组



## 8.7 ggplot2辅助高阶图形扩展包——ggtreemap（树状图）

### 分面操作

The G-20 major economies



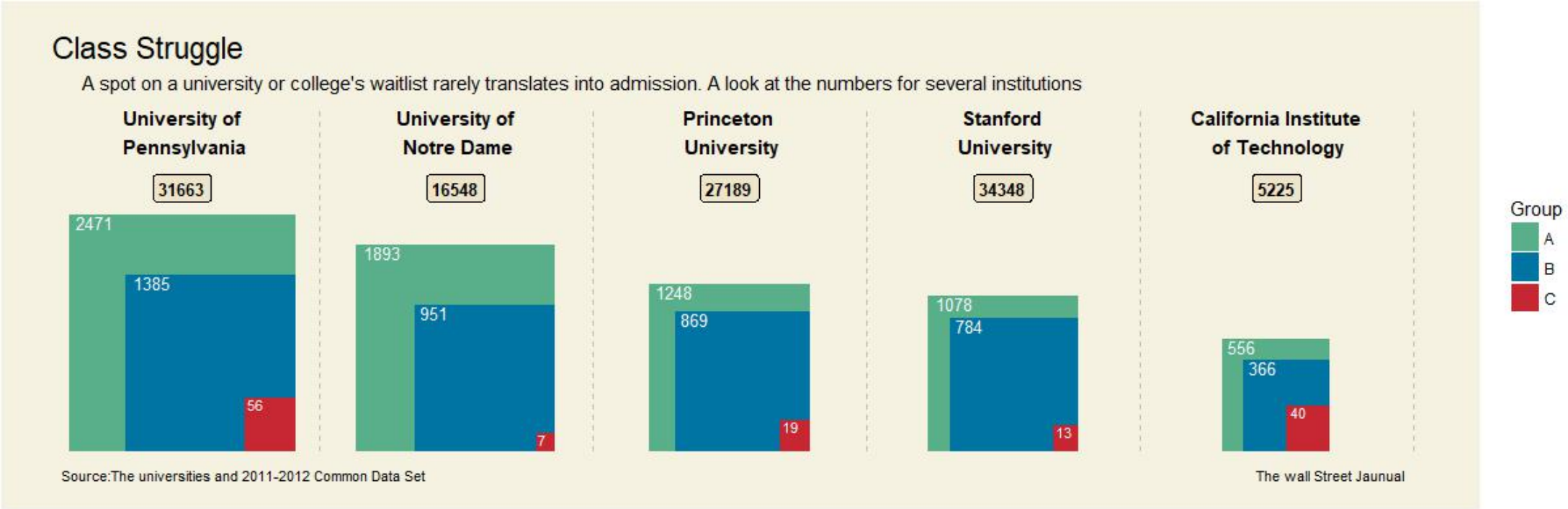
Region  
Africa Asia Eurasia Europe Middle East North America Oceania South America

The area of each country is proportional to its relative GDP within the economic group (advanced or developing)



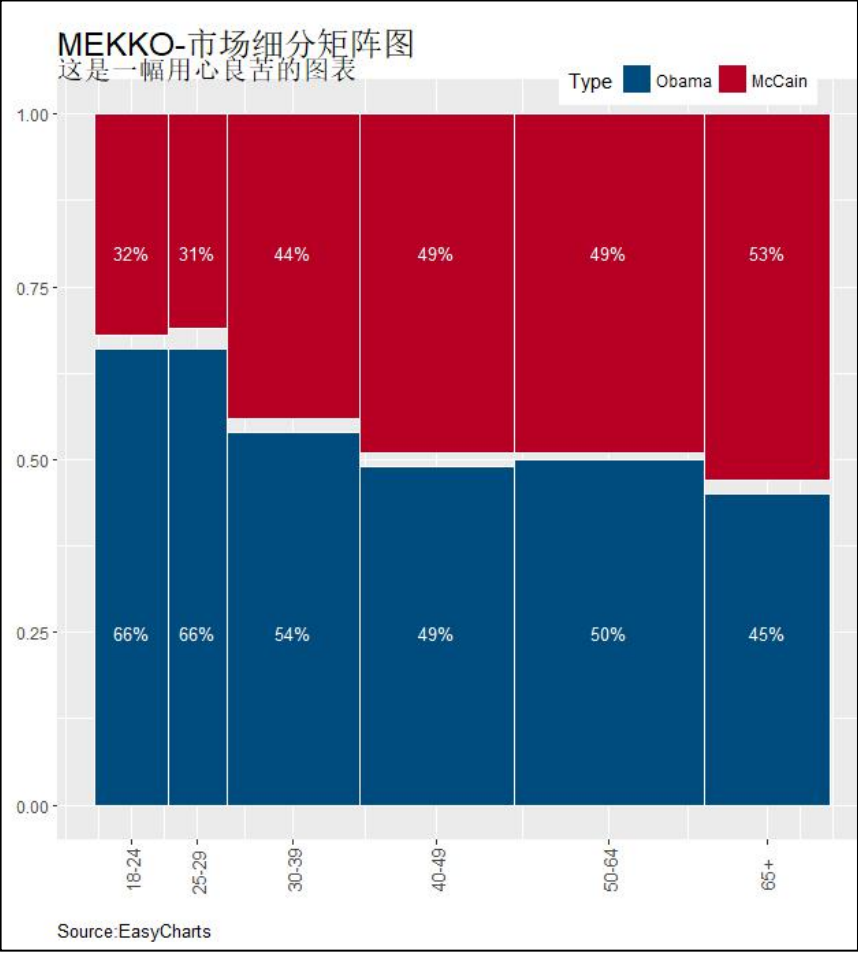
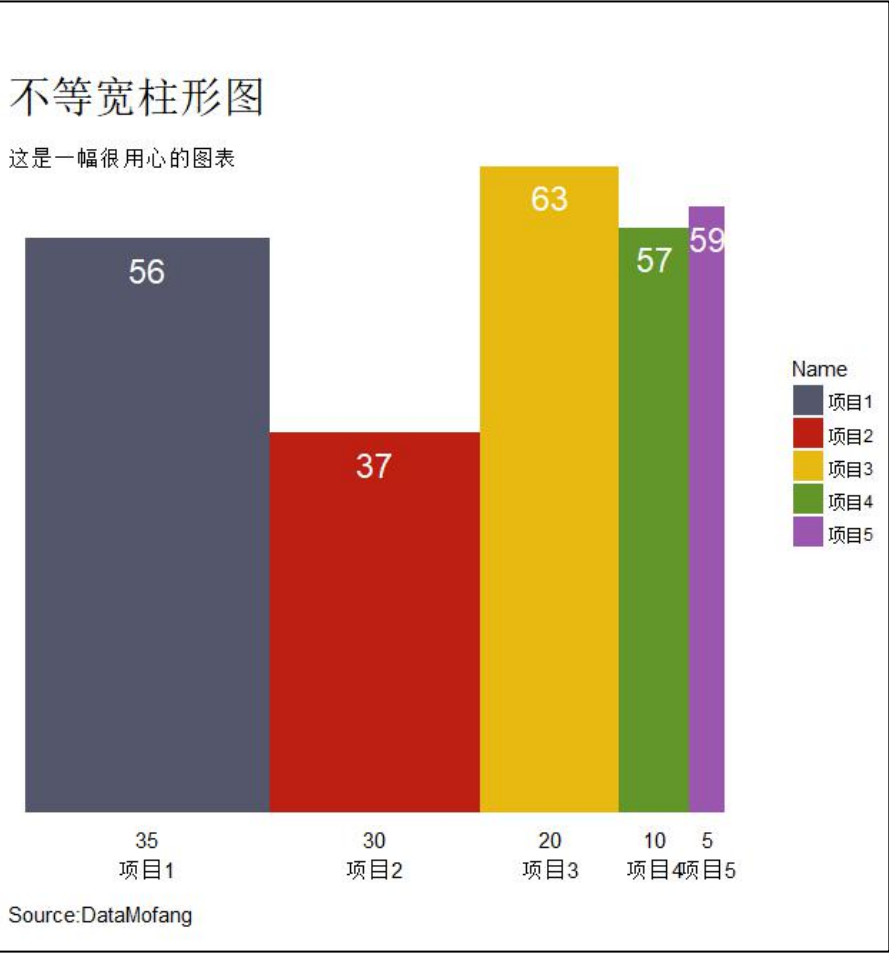
# 8.8 方块气泡图、不等款宽柱形图、堆积不等款柱形图案例

方块气泡图



# 8.8 方块气泡图、不等款宽柱形图、堆积不等款柱形图案例

不等款宽柱形图



谢谢大家！