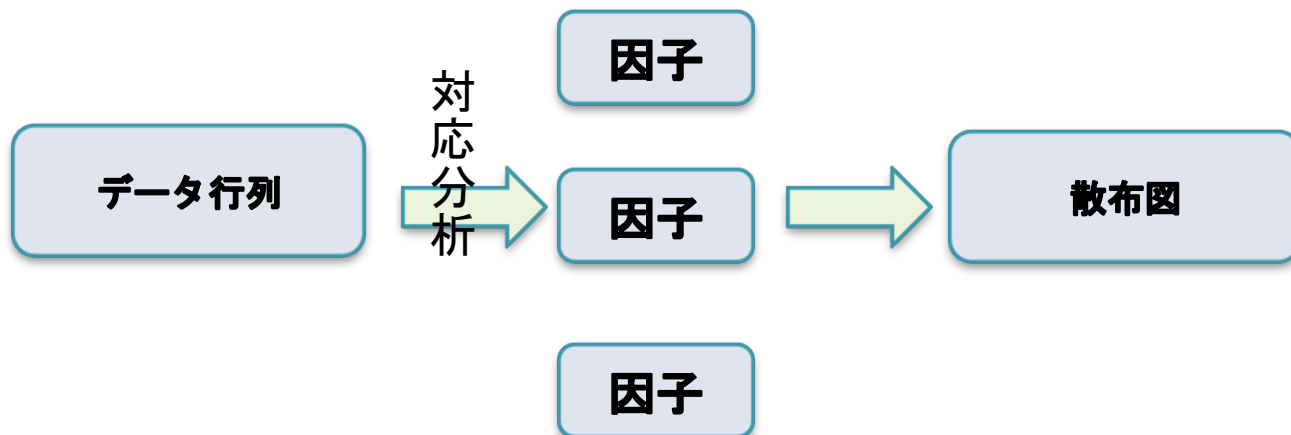


対応分析

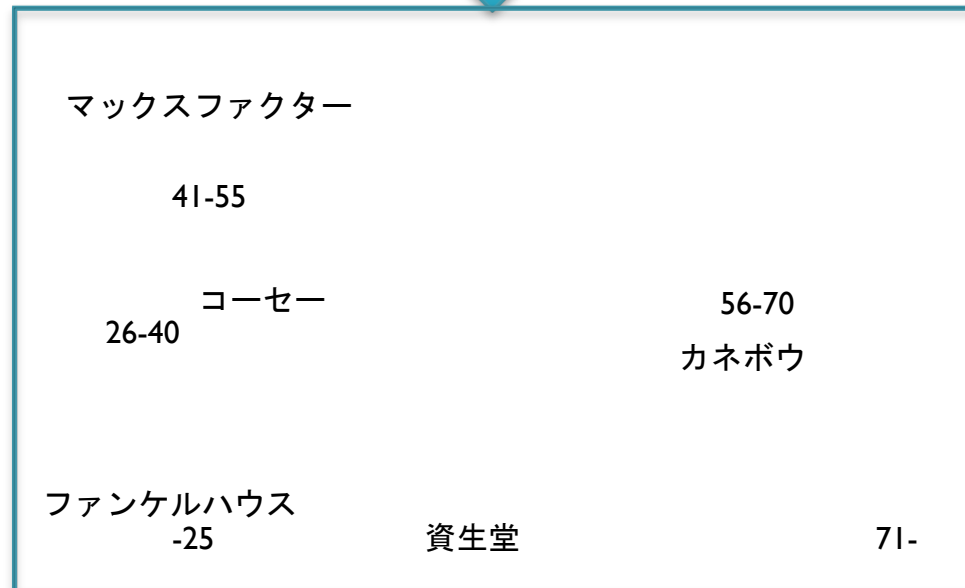
対応分析とは

- 分割表を使って数値だけでは分からないデータのパターンを分類する方法



化粧品ブランドと年代の関係

| | ~25 | 26~40 | 41~55 | 56~70 | 71~ | 合計 |
|-----------|-------|-------|-------|-------|------|-------|
| マックスファクター | 1028 | 278 | 321 | 278 | 88 | 1993 |
| ファンケルハウス | 6244 | 1629 | 1167 | 678 | 185 | 9903 |
| コーセー | 1328 | 392 | 316 | 235 | 74 | 2345 |
| カネボウ | 1219 | 226 | 243 | 357 | 209 | 2254 |
| 資生堂 | 5171 | 763 | 765 | 1120 | 644 | 8483 |
| 合計 | 14990 | 3288 | 2832 | 2668 | 1200 | 24978 |



Corresp関数

- Library(MASS)の中の
corresp関数corresp(x,nf=)を使う。
- nfとはそのデータを収縮する次元のこと。
最大でも列、または行数。
- 固有値 = 正準相関 (\$cor) ^2
累積寄与率 = 100*固有値/全体

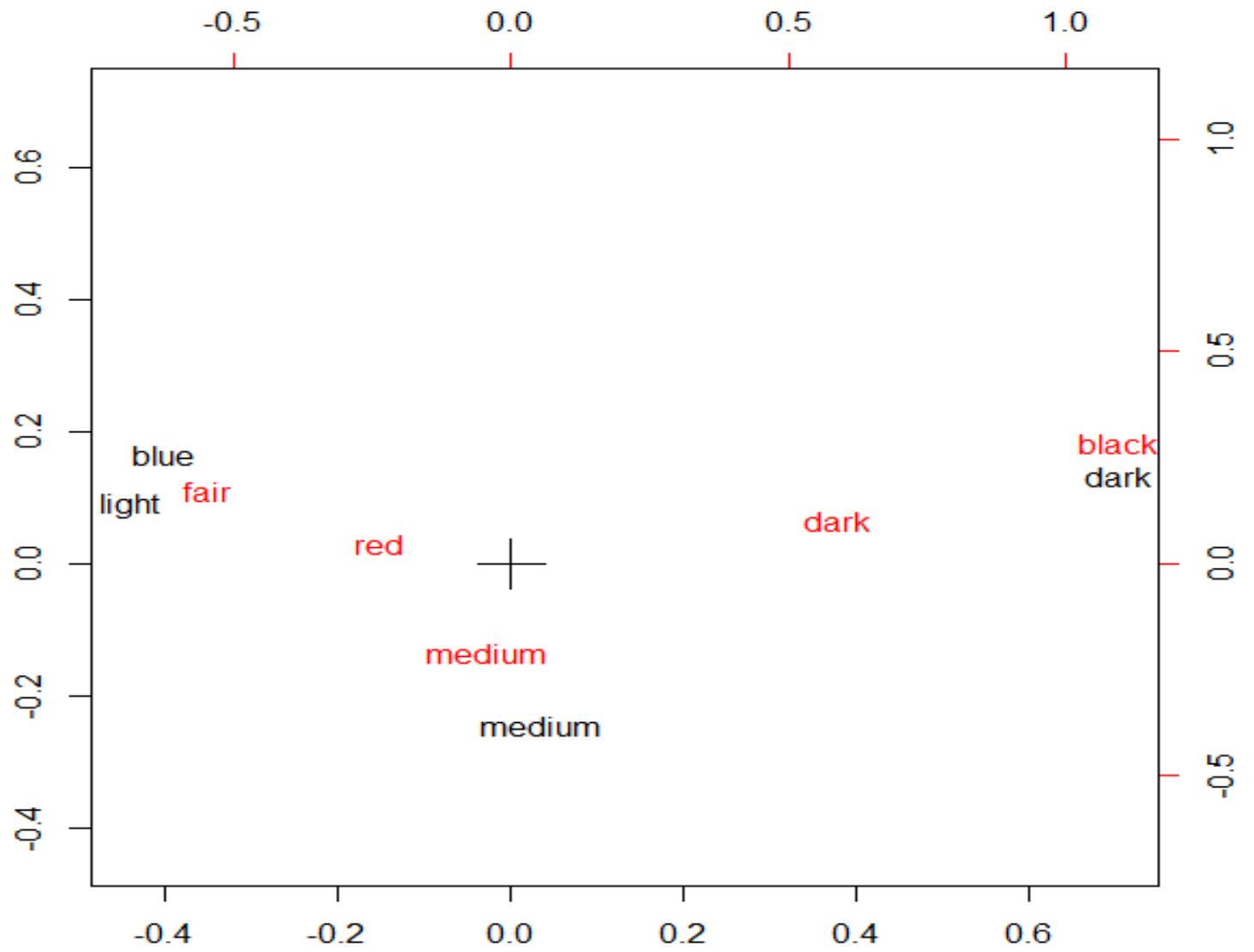
R Console

```
> library(MASS)
> caith
      fair red medium dark black
blue   326  38   241  110    3
light  688 116   584  188    4
medium 343  84   909  412   26
dark   98  48   403  681   85
> |
```

```
> library(MASS)
> caith
      fair red medium dark black
blue   326  38   241  110    3
light  688 116   584  188    4
medium 343  84   909  412   26
dark   98  48   403  681   85
>
> caith.ca<-corresp(caith,nf=4)
> summary(caith.ca)
      Length Class  Mode
cor      4      -none- numeric
rscore  16      -none- numeric
cscore  20      -none- numeric
Freq    20      -none- numeric
> |
```

R Console

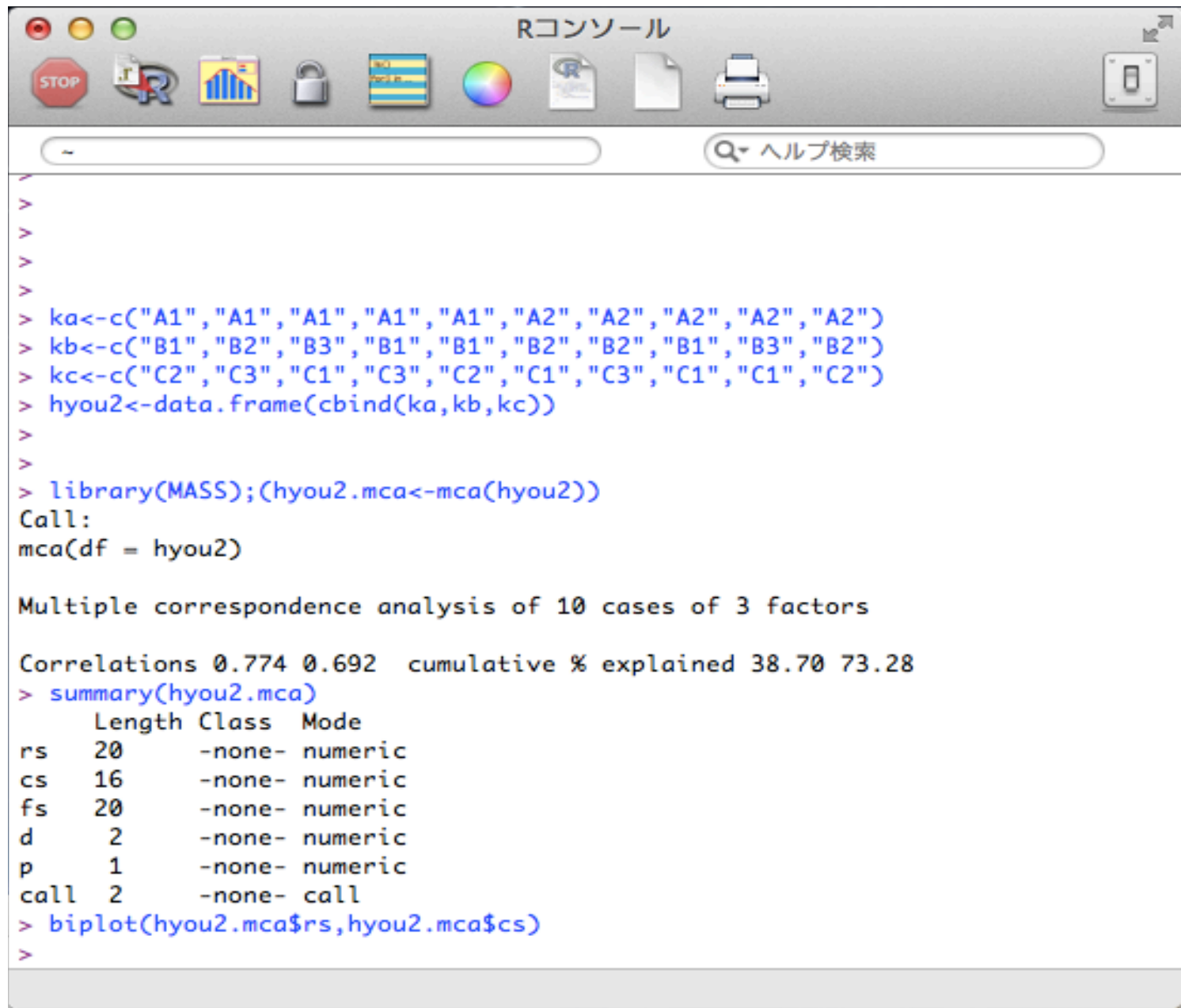
```
> library(MASS)
> caith
      fair red medium dark black
blue   326  38   241  110    3
light  688 116   584  188    4
medium 343  84   909  412   26
dark   98  48   403  681   85
>
> caith.ca<-corresp(caith,nf=4)
> summary(caith.ca)
      Length Class  Mode
cor      4      -none- numeric
rscore  16      -none- numeric
cscore  20      -none- numeric
Freq    20      -none- numeric
>
> caith.eig<-caith.ca$cor^2
> round(caith.eig,3)
[1] 0.199 0.030 0.001 0.000
> (参与率<-round(100*caith.eig/sum(caith.eig),2))
[1] 86.56 13.07  0.37  0.00
> |
```



多重対応分析

- 一つの項目に2つ以上の選択肢があるようなデータの分析をする際に用いる。
- Library(MASS)の中の
mca関数 : `mca(df,nf,abbrev=FALSE)`
corresp関数
を使う

表3・2 アンケート回答データ



```
Rコンソール
>
>
>
>
> ka<-c("A1", "A1", "A1", "A1", "A1", "A2", "A2", "A2", "A2", "A2")
> kb<-c("B1", "B2", "B3", "B1", "B1", "B2", "B2", "B1", "B3", "B2")
> kc<-c("C2", "C3", "C1", "C3", "C2", "C1", "C3", "C1", "C1", "C2")
> hyou2<-data.frame(cbind(ka,kb,kc))
>
>
> library(MASS);(hyou2.mca<-mca(hyou2))
Call:
mca(df = hyou2)

Multiple correspondence analysis of 10 cases of 3 factors

Correlations 0.774 0.692 cumulative % explained 38.70 73.28
> summary(hyou2.mca)
      Length Class  Mode
rs     20    -none- numeric
cs     16    -none- numeric
fs     20    -none- numeric
d       2    -none- numeric
p       1    -none- numeric
call   2    -none- call
> biplot(hyou2.mca$rs,hyou2.mca$cs)
>
```

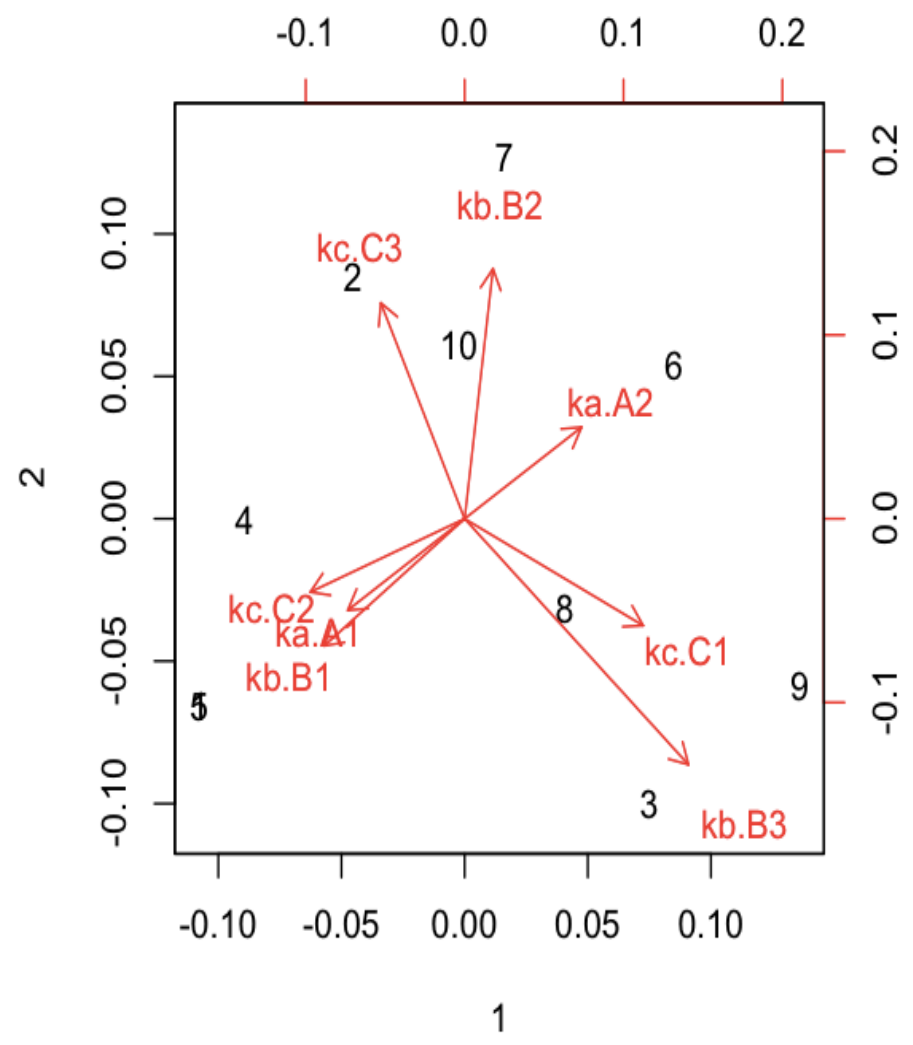


表3・3 アンケート回答データ

```
>
>
> hyou3<-matrix(c(1,1,1,1,1,0,0,0,0,0,0,0,0,0,0,1,1,1,1,1,
+ 1,0,0,1,1,0,0,1,0,0,0,1,0,0,0,1,1,0,0,1,
+ 0,0,1,0,0,0,0,0,1,0,0,0,1,0,0,1,0,1,1,0,
+ 1,0,0,0,1,0,0,0,0,1,0,1,0,1,0,0,1,0,0,0),10,8)
> colnames(hyou3)<-
c("K1.A1", "K1.A2", "K2.B1", "K2.B2", "K2.B3", "K3.C1", "K3.C2", "K3.C3")
>
> hyou3.ca<-corresp(hyou3,nf=2)
> biplot(hyou3.ca)
>
```

