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2024-11-05

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Conjoint measurement analysis

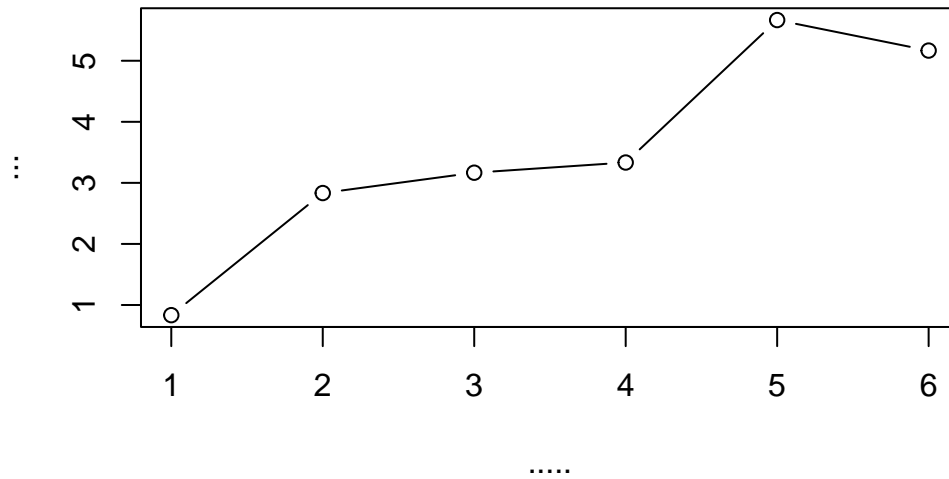
```
rank <- matrix(c(1,3, 2,6, 4,5), nrow=3, ncol=2, byrow=TRUE)
rownames(rank) <- c("50kW", "70kW", "90kW")
colnames(rank) <- c("No", "Yes")

#
p1bar <- rowMeans(rank) ; p2bar <- colMeans(rank)
mu1 <- mean(c(rank))
beta1 <- p1bar - mu1 ; beta2 <- p2bar - mu1

#
fitted <- outer(beta1, beta2, function(x,y) x+y+mu1)
round(fitted,3)
```

	No	Yes
50kW	0.833	3.167
70kW	2.833	5.167
90kW	3.333	5.667

```
y1 <- c(rank) ; y2 <- c(fitted)
plot(y1[order(y1)],y2[order(y1)],xlab=' ',ylab=' ',type='b')
```



```
library(conjoint) ; data(tea)
# 13
tprof2 <- tprof
tprof2[['price']]
```

```
[1] 3 1 2 2 3 2 3 2 3 1 1 2 3
```

```
tprof2 <- lapply(tprof2,as.factor)
tprof2
```

```
$price
[1] 3 1 2 2 3 2 3 2 3 1 1 2 3
Levels: 1 2 3
```

```
$variety
[1] 1 2 2 1 3 1 2 3 1 3 1 2 2
Levels: 1 2 3
```

```
$kind
[1] 1 1 2 3 3 1 1 1 2 2 3 3 3
Levels: 1 2 3
```

```
$aroma
[1] 1 1 1 1 1 2 2 2 2 2 2 2 2
Levels: 1 2
```

```
# 100
head(tprefm)
```

	profil1	profil2	profil3	profil4	profil5	profil6	profil7	profil8	profil9
1	8	1	1	3	9	2	7	2	2
2	0	10	3	5	1	4	8	6	2
3	4	10	3	5	4	1	2	0	0
4	6	7	4	9	6	3	7	4	8
5	5	1	7	8	6	10	7	10	6
6	10	1	1	5	1	0	0	0	0

	profil10	profil11	profil12	profil13
1	2	2	3	4
2	9	7	5	2
3	1	8	9	7
4	5	2	10	9
5	6	6	10	7
6	0	0	1	1

```
# 100
head(tpref)
```

```
Y
1 8
2 1
3 1
4 3
5 9
6 2
```

```
#
levels <- paste(rep(c("price", "variety", "kind", "aroma"), c(3,3,3,2)),
               as.character(tlevn[[1]]), sep=":")
levels

[1] "price:low"      "price:medium"   "price:high"     "variety:black"
[5] "variety:green"  "variety:red"    "kind:bags"       "kind:granulated"
[9] "kind:leafy"     "aroma:yes"      "aroma:no"
```

```
#
Conjoint(tpref, tprof, levels)
```

```
Call:
lm(formula = frml)
```

```
Residuals:
    Min       1Q   Median       3Q      Max
-5,1888 -2,3761 -0,7512  2,2128  7,5134
```

```
Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)    3,55336    0,09068   39,184 < 2e-16 ***
factor(x$price)1  0,24023    0,13245    1,814   0,070 .
factor(x$price)2 -0,14311    0,11485   -1,246   0,213
factor(x$variety)1 0,61489    0,11485    5,354 1,02e-07 ***
factor(x$variety)2 0,03489    0,11485    0,304   0,761
factor(x$kind)1    0,13689    0,11485    1,192   0,234
factor(x$kind)2   -0,88977    0,13245   -6,718 2,76e-11 ***
factor(x$aroma)1   0,41078    0,08492    4,837 1,48e-06 ***
---

```

```
Signif. codes:  0 '***' 0,001 '**' 0,01 '*' 0,05 '.' 0,1 ' ' 1
```

```
Residual standard error: 2,967 on 1292 degrees of freedom
Multiple R-squared:  0,09003,    Adjusted R-squared:  0,0851
F-statistic: 18,26 on 7 and 1292 DF,  p-value: < 2,2e-16
```

```
[1] "Part worths (utilities) of levels (model parameters for whole sample):"
      levnms      utls
1      intercept 3,5534
2      price:low 0,2402
```

```

3     price:medium -0,1431
4     price:high -0,0971
5     variaty:black  0,6149
6     variaty:green  0,0349
7     variaty:red -0,6498
8     kind:bags  0,1369
9     kind:granulated -0,8898
10    kind:leafy  0,7529
11    aroma:yes  0,4108
12    aroma:no -0,4108
[1] "Average importance of factors (attributes):"
[1] 24,76 32,22 27,15 15,88
[1] Sum of average importance:  100,01
[1] "Chart of average factors importance"

```