



Paired Comparison Preference Models

Practicals and Home work: Part 5

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Exercise 1: Continue analysis from lecture

- ▷ Data file: `trdeliv2.RData`
- ▷ Models in: `trdel2sex_models.RData`
- ▷ Description in: `trdeliv2.html`

Questions:

- 1 try to explain model with 3 classes and fixed effect `sex` (`mm3`)
- 2 fit a model with `Lerntypen` as fixed effect:
proceed as presented in the lecture:
 - set up design
 - fit models and find appropriate number of classes
 - calculate and plot worth parameters
 - try to explain classes with additional subject covariates

Exercise 2: Analyse Poverty Data

▷ Data file: `sichleist.RData`

5 Items aus der EU-SILC Studie (2008):

Es gibt Dinge, die sich viele Haushalte nicht leisten können, obwohl Sie gerne möchten. Können Sie sich leisten ...

`urlaub`

einmal im Jahr eine Woche Urlaub an einem anderen Ort zu machen, wenn Sie für die Unterkunft bezahlen müssen?

`speise`

jeden zweiten Tag Fleisch, Fisch, Geflügel (oder eine entsprechende vegetarische Speise zu essen)?

`bekleid`

bei Bedarf neue Kleidung zu kaufen?

`warm`

die gesamte Wohnung angemessen warm zu halten?

`gaeste`

einmal monatlich Freunde oder Verwandte zu sich () nach Hause zum Essen einzuladen?

jeweils: kann es sich der Haushalt leisten: 1 ...ja, 2 ...nein

Exercise 2: Analyse Poverty Data

Subject Variables:

lochstopf ... 900 Euro-Ausgabe aus eigenen Mitteln finanzierbar 1 ja 2 nein

finanzprob .. Finanzielle Schwierigkeiten
1 Nie
2 Immer wieder kleinere
3 Schwere liegen mehr als 5 Jahre zurück
4 Schwere in den letzten 5 Jahren

kinder ... Haushalte mit/ohne Kinder 1 ohne 2 mit

armut ... Armutsgefährdung bei 40% des Medians 1 ja 2 nein

Aufgaben:

proceed as before: fit models with/without fixed effects

(hint: when setting up the design pay attention to the response format)



Exercise 3: Attitudes towards sexual relations with ...

▷ Data file: `attidsexPC.RData`

3 Items from the British Social Attitudes survey (2008, National Centre for Social Research):
(Likert items transformed to PC: 1 always wrong, ... 4 Not wrong at all)

• the items are:

SB sexual relations before marriage

S0 Adultery (sex with others)

SH Adult homosexual relations

there are 3 comparisons which are coded as:

1 ...if 1st item is considered more wrong than the other

-1 ...if 2nd item is considered more wrong than the other

0 ...both considered as equally wrong

subject covariates are:

<code>sex</code>	1 male 2 female
<code>age</code>	metric (recode)
<code>comp</code> (ever use a computer for any reason?)	1 yes 2 no
<code>pol</code> (Left-right: where would you place your views?)	1 left ... 10 right
<code>relig</code> (How important is religion in your daily life?)	1 very important...4 Not at all important
<code>god</code> (Think God is angered by human sin?)	1 Yes, definitely 2 Yes, probably 3 No, probably not 4 No, definitely not 5 Dont believe in God

Exercise 3: Attitudes towards sexual relations with ...

Tasks:

Use the data `attidsexPC.RData` (from course-Webpage)

- 1 check how many missings are in the 3 comparisons? (hint: `checkMIS()`)
- 2 fit a model for the complete cases (without subject covariates)
- 3 generate the worth and plot the worth-parameter
- 4 Fit the reference model including missing values under MCAR (2nd approach) without subject covariates (hint: use original data – use option: `NI=TRUE` but no α s and β s) (hint: type in R "`pattPC.fit()`" and press Tab twice to get options needed)
- 5 additionally include α s for each item
- 6 additionally include β s for each item
- 7 use deviances to decide if there are missings not at random
- 8 examine the log odds $2\beta_j + 2\beta_k$
- 11 choose 2 interesting subject covariates and fit models (MNAR model + subject covariates not possible ♠)
- 12 which subject covariates model would you choose?