

„CTT“ package

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disattenuated.cor()

- korekce proti zeslabení nereliabilitou
- `disattenuated.cor(r.xy,c(r.xx,r.yy))`
 - # `r.xy=0.6, r.xx=0.7,r.yy=0.8`
 - `disattenuated.cor(0.6,c(0.7,0.8))`
 - `[,1]`
 - `[1,] 0.8017837`

spearman.brown()

- `spearman.brown(r.xx, input = 2, n.or.r = "n")`
 - #old reliability is 0.82, if we want a new measure to be 0.9, the new test length is
 - `> spearman.brown(0.82, input = 0.9, n.or.r = "r")`
 - `$`n.new``
 - `[1] 1.97561`
 - #old reliability is 0.82, if the measure is shortened to half length, the reliability of new test is
 - `> spearman.brown(0.82, input = 0.5, n.or.r = "n")`
 - `$`r.new``
 - `[1] 0.6949153`

splitHalf()

- „psych“ package
 - `> splitHalf(ODdata)`
 - Split half reliabilities
 - Call: `splitHalf(r = ODdata)`
- Maximum split half reliability (lambda 4) = 0.9
- Guttman lambda 6 = 0.86
- Average split half reliability = 0.82
- Guttman lambda 3 (alpha) = 0.82
- Minimum split half reliability (beta) = 0.58
- Average interitem $r = 0.2$ with median = 0.18

lowerCor()

- „psych“ package

```
>
> korelace <- lowerCor(ODdata)
Polozka1  Plzk1 Plzk2 Plzk3 Plzk4 Plzk5 Plzk6 Plzk7 Plzk8 Plzk9 Plz10 Pl11R Pl12R Plz13 Plz14 Pl15R Plz16 Plz17 Pl18R Plz19
Polozka1  1.00
Polozka2  0.41 1.00
Polozka3  0.33 0.49 1.00
Polozka4  0.33 0.31 0.37 1.00
Polozka5  0.04 -0.04 0.12 0.10 1.00
Polozka6  0.28 0.35 0.22 0.15 -0.08 1.00
Polozka7  0.23 0.31 0.17 0.22 0.10 0.29 1.00
Polozka8  0.23 0.39 0.23 0.18 -0.01 0.34 0.27 1.00
Polozka9  0.25 0.35 0.16 0.17 -0.07 0.40 0.24 0.81 1.00
Polozka10 0.24 0.39 0.20 0.17 -0.05 0.34 0.25 0.72 0.70 1.00
Polozka11R 0.06 0.11 -0.07 0.01 -0.06 0.11 0.17 0.43 0.38 0.30 1.00
Polozka12R 0.11 0.12 -0.03 0.04 -0.11 0.12 0.14 0.35 0.34 0.32 0.48 1.00
Polozka13 0.13 0.15 0.02 0.08 0.07 0.21 0.20 0.38 0.40 0.40 0.34 0.56 1.00
Polozka14 0.17 0.28 0.19 0.15 0.05 0.35 0.18 0.54 0.47 0.49 0.25 0.27 0.33 1.00
Polozka15R 0.08 0.19 0.04 0.03 -0.09 0.22 0.26 0.40 0.38 0.38 0.37 0.26 0.34 0.29 1.00
Polozka16 0.29 0.23 0.15 0.19 -0.07 0.22 0.13 0.30 0.25 0.28 0.20 0.23 0.22 0.28 0.32 1.00
Polozka17 0.21 0.19 0.24 0.28 0.12 0.09 0.08 0.11 0.17 0.13 -0.07 -0.02 0.10 0.05 -0.05 0.06 1.00
Polozka18R 0.00 0.08 0.09 0.02 -0.03 0.08 0.07 0.24 0.21 0.20 0.12 0.13 0.19 0.09 0.26 0.07 0.32 1.00
Polozka19 0.08 0.05 0.10 0.06 -0.03 0.02 0.09 0.14 0.15 0.04 0.12 0.08 0.08 0.09 0.04 0.14 0.17 0.09 1.00
>
```

alpha()

- „psych“ package
- alpha(data, check.keys = T)
 - std.alpha – méně zkreslený odhad (zešikmené položky, různé škály)

```
> alpha(ODdata, check.keys=TRUE)
```

```
Reliability analysis
```

```
Call: alpha(x = ODdata, check.keys = TRUE)
```

```
raw_alpha std.alpha G6(smc) average_r S/N ase mean sd median_r
0.8 0.82 0.86 0.2 4.6 0.016 3.1 0.78 0.18
```

```
lower alpha upper 95% confidence boundaries
0.77 0.8 0.83
```

```
Reliability if an item is dropped:
```

	raw_alpha	std.alpha	G6(smc)	average_r	S/N	alpha	se	var.r	med.r
Položka1	0.79	0.81	0.85	0.20	4.4	0.017	0.026	0.18	
Položka2	0.79	0.81	0.84	0.19	4.2	0.017	0.025	0.17	
Položka3	0.80	0.82	0.85	0.20	4.5	0.016	0.025	0.19	
Položka4	0.80	0.82	0.85	0.20	4.5	0.016	0.026	0.19	
Položka5-	0.82	0.83	0.86	0.22	5.0	0.015	0.022	0.20	
Položka6	0.79	0.81	0.85	0.19	4.3	0.017	0.026	0.17	
Položka7	0.80	0.82	0.85	0.20	4.4	0.017	0.027	0.18	
Položka8	0.78	0.80	0.83	0.18	3.9	0.018	0.021	0.17	
Položka9	0.78	0.80	0.83	0.18	3.9	0.018	0.022	0.17	
Položka10	0.78	0.80	0.84	0.18	4.0	0.018	0.022	0.17	
Položka11R	0.80	0.81	0.85	0.20	4.4	0.017	0.025	0.19	
Položka12R	0.79	0.81	0.85	0.19	4.3	0.017	0.025	0.19	
Položka13	0.79	0.81	0.85	0.19	4.3	0.017	0.025	0.17	
Položka14	0.79	0.81	0.85	0.19	4.2	0.017	0.025	0.17	
Položka15R	0.79	0.81	0.85	0.19	4.3	0.017	0.026	0.17	
Položka16	0.79	0.81	0.85	0.19	4.3	0.017	0.027	0.17	
Položka17	0.80	0.82	0.86	0.21	4.7	0.016	0.025	0.19	
Položka18R	0.80	0.82	0.86	0.20	4.6	0.016	0.026	0.19	
Položka19	0.81	0.83	0.86	0.21	4.7	0.016	0.026	0.20	

Další funkce - psych

- `EFA_model <- fa(ODdata, nfactors = 2, rotate = "oblimin")`
 - `EFA_model$loadings`
 - Faktorové náboje položek
 - `fa.diagram(EFA_model)`
 - Path diagrams
- `describe(ODdata)`
 - Statisticky položek
- `AUC(c(TP,FP,FN,TN))`
 - Specificita, senzitivita

Plot Zoom

Factor Analysis

