

Polychoric Correlation Analysis

Variables: Medu, Fedu, traveltime, studytime, failures, famrel, freetime, goout, Dalc, Walc, health

Complete ordinal cases: 649

Method: psych::polychoric maximum-likelihood polychoric correlation.

Top associations:

variable_1	variable_2	polychoric_correlation	approx_p_value	pairwise_n	absolute_correlation	direction
Dalc	Walc	0.7746139	7.308601e-131	649	0.7746139	Positive
Medu	Fedu	0.7036974	4.075093e-98	649	0.7036974	Positive
goout	Walc	0.4349485	2.466531e-31	649	0.4349485	Positive
freetime	goout	0.3792629	1.244379e-23	649	0.3792629	Positive
goout	Dalc	0.3216518	4.361353e-17	649	0.3216518	Positive
Medu	traveltime	-0.3210203	5.058670e-17	649	0.3210203	Negative
Medu	failures	-0.3166485	1.398979e-16	649	0.3166485	Negative
Fedu	traveltime	-0.2708457	2.247175e-12	649	0.2708457	Negative
studytime	Walc	-0.2678884	3.958852e-12	649	0.2678884	Negative
studytime	failures	-0.2671186	4.582367e-12	649	0.2671186	Negative
Fedu	failures	-0.2597488	1.815387e-11	649	0.2597488	Negative
studytime	Dalc	-0.2166558	2.473561e-08	649	0.2166558	Negative

decision_alpha_0_05

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Variable summary:

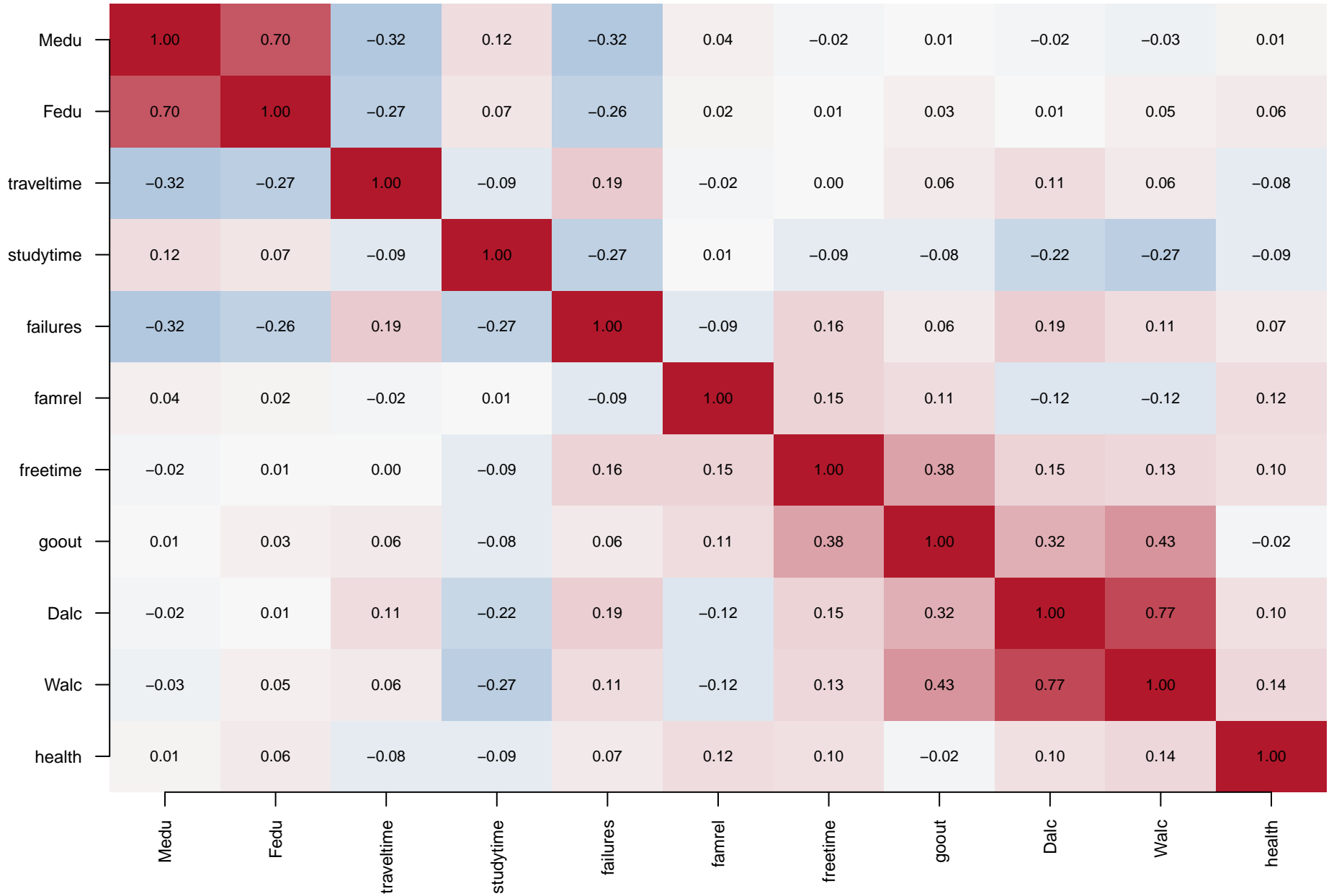
variable	n	minimum	maximum	ordered_levels	number_of_levels	mean_numeric_code	standard_deviation_numeric_code
Medu	649	0	4	0, 1, 2, 3, 4	5	2.5146379	1.1345520
Fedu	649	0	4	0, 1, 2, 3, 4	5	2.3066256	1.0999309
traveltime	649	1	4	1, 2, 3, 4	4	1.5685670	0.7486601
studytime	649	1	4	1, 2, 3, 4	4	1.9306626	0.8295096
failures	649	0	3	0, 1, 2, 3	4	0.2218798	0.5932351
famrel	649	1	5	1, 2, 3, 4, 5	5	3.9306626	0.9557169
freetime	649	1	5	1, 2, 3, 4, 5	5	3.1802773	1.0510926
goout	649	1	5	1, 2, 3, 4, 5	5	3.1848998	1.1757661
Dalc	649	1	5	1, 2, 3, 4, 5	5	1.5023112	0.9248344
Walc	649	1	5	1, 2, 3, 4, 5	5	2.2804314	1.2843800
health	649	1	5	1, 2, 3, 4, 5	5	3.5362096	1.4462591

thresholds_z_internal

- 2.3557, -0.7402, 0.0406, 0.6139
- 2.2978, -0.5861, 0.2557, 0.8516
- 0.1610, 1.2380, 1.9659

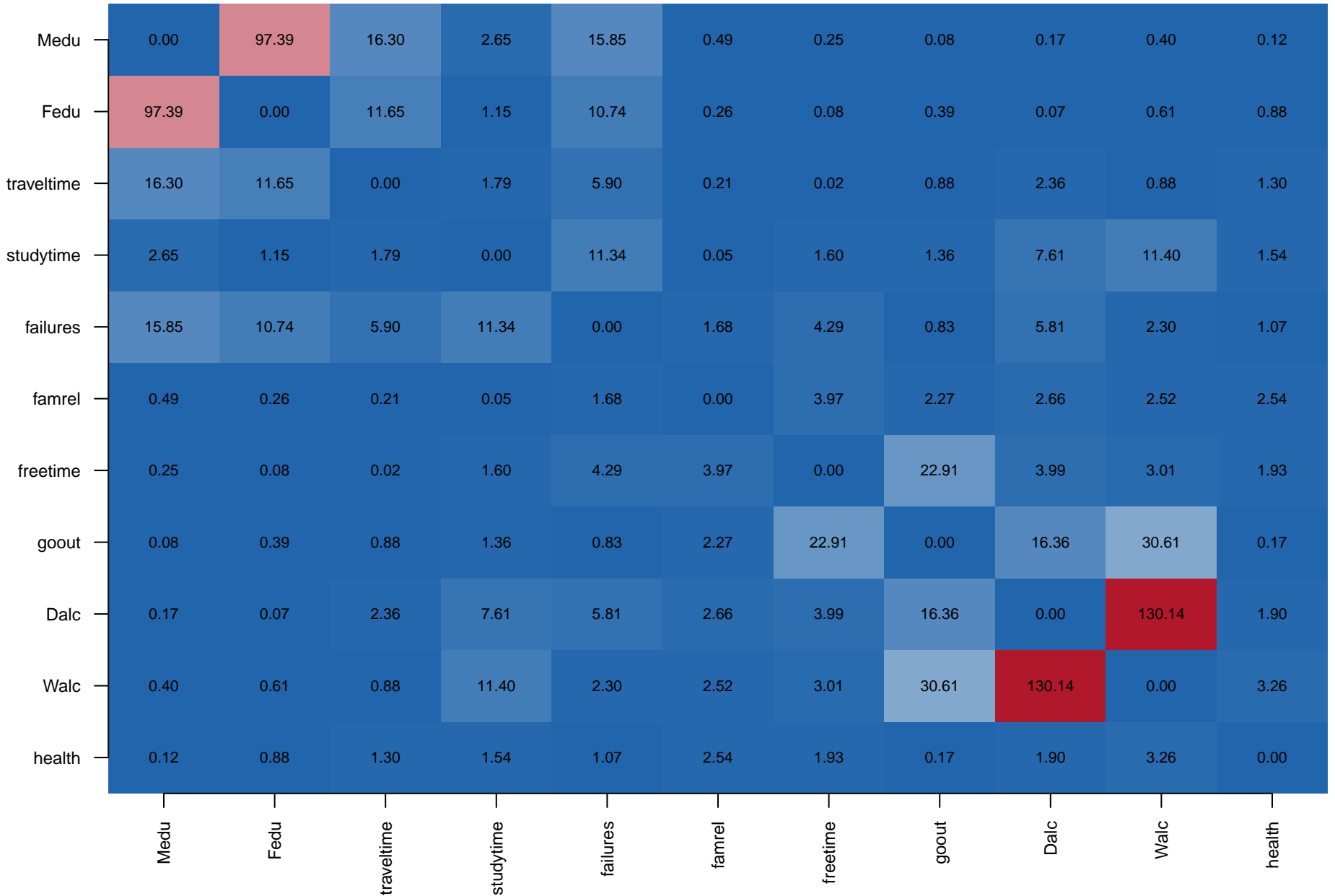
Polychoric Correlation Matrix

Estimated latent correlations among ordinal variables.



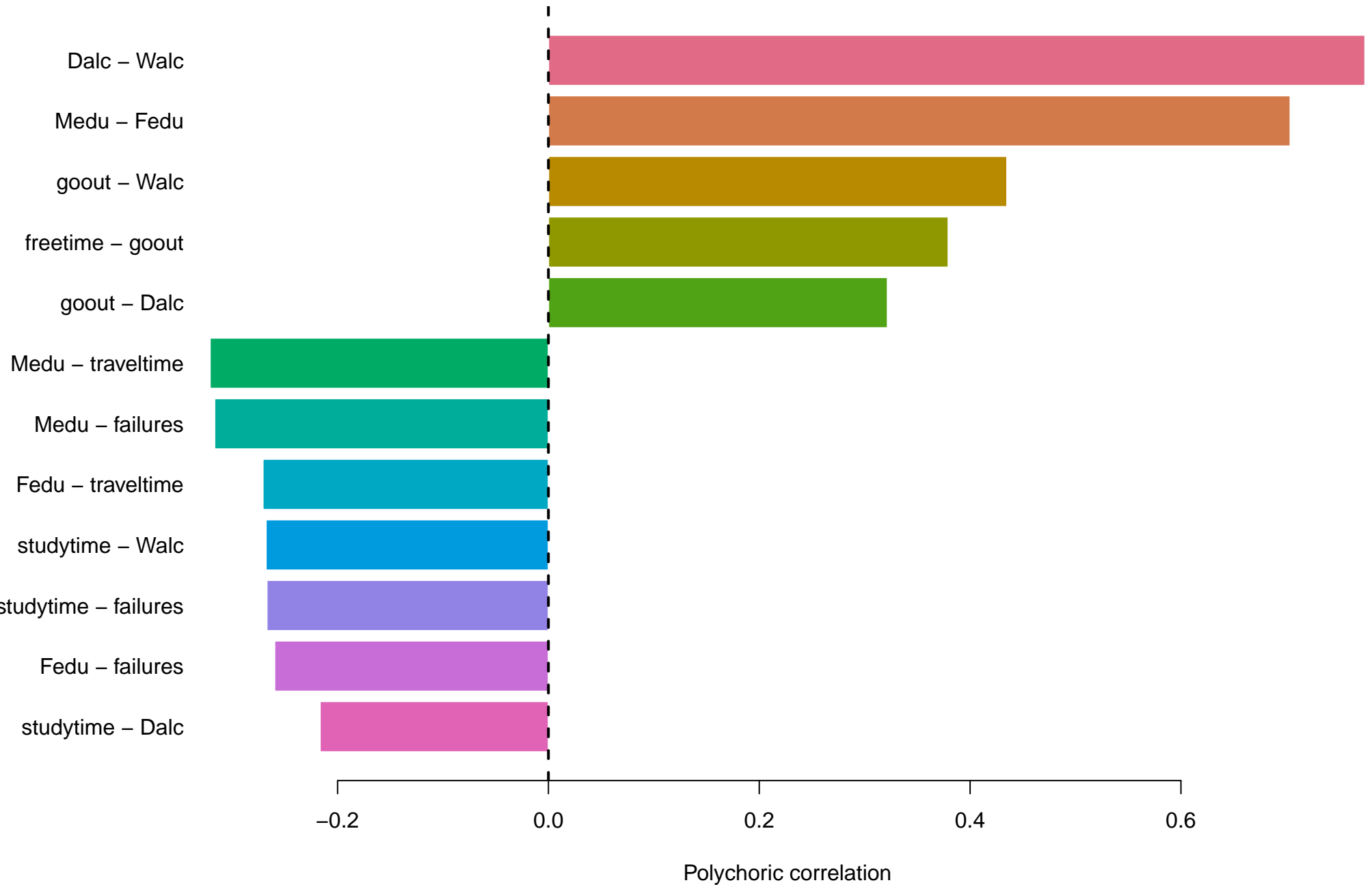
Approximate Significance Map

$-\log_{10}(p)$ context for the matrix.



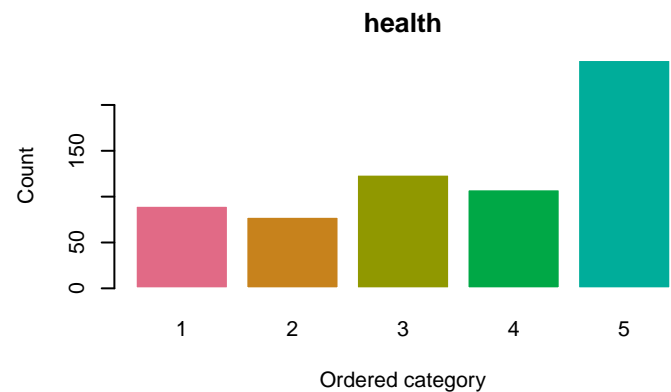
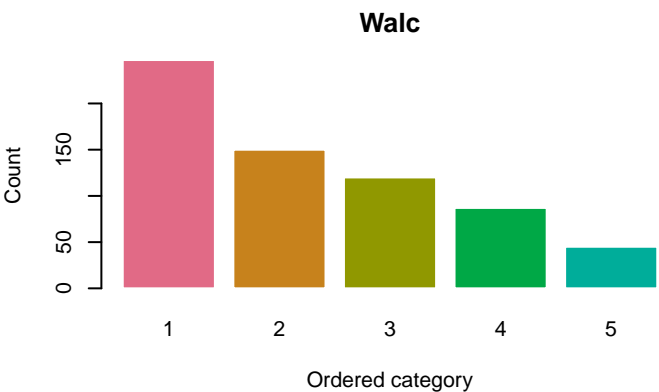
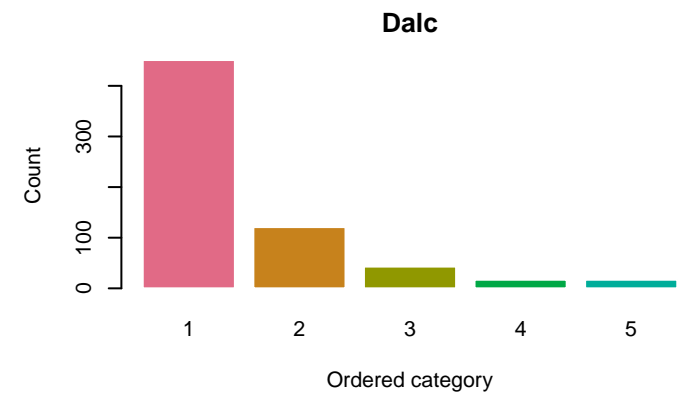
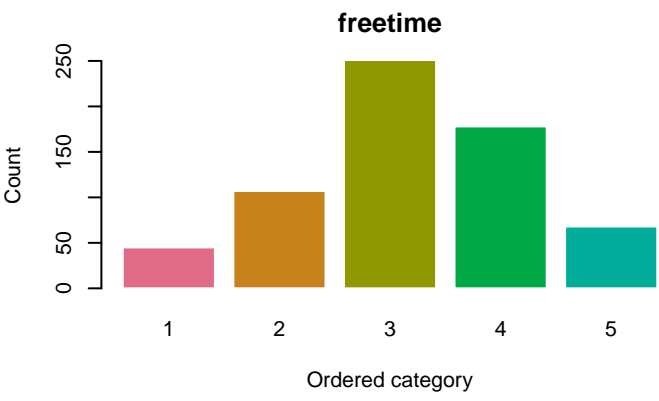
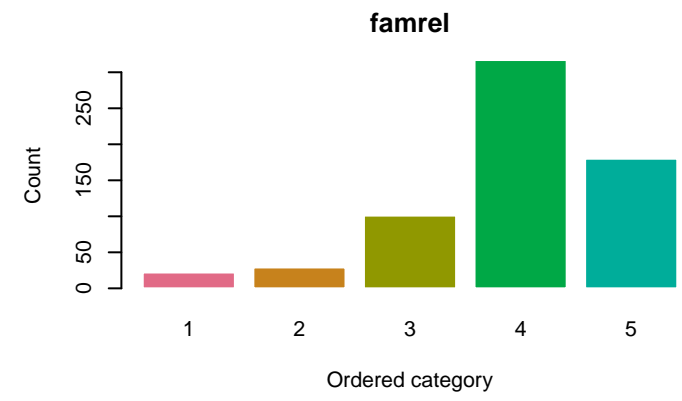
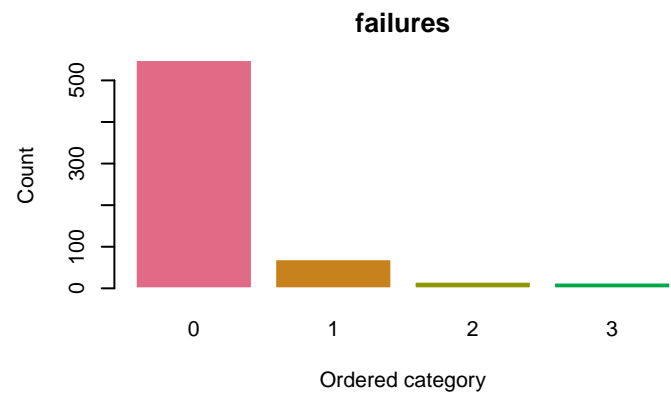
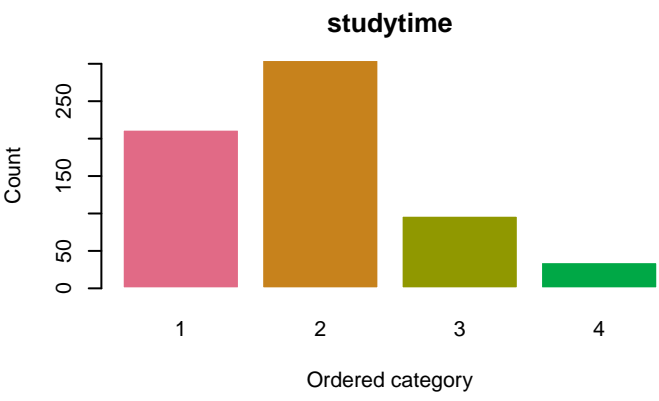
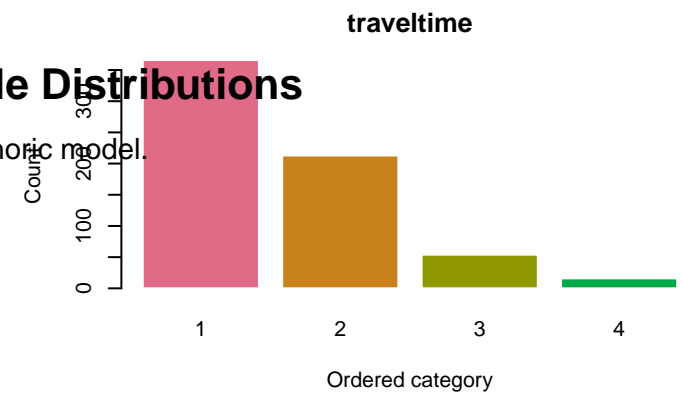
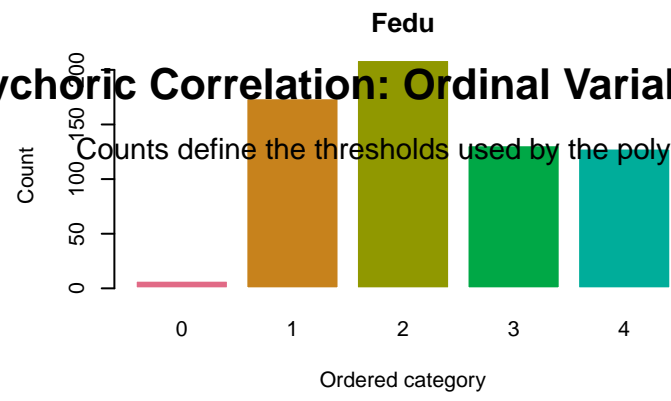
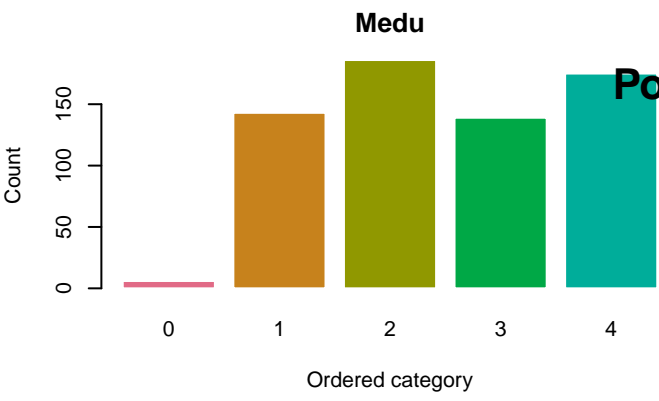
Polychoric Correlation: Strongest Pairs

Pairs are ranked by absolute latent association.



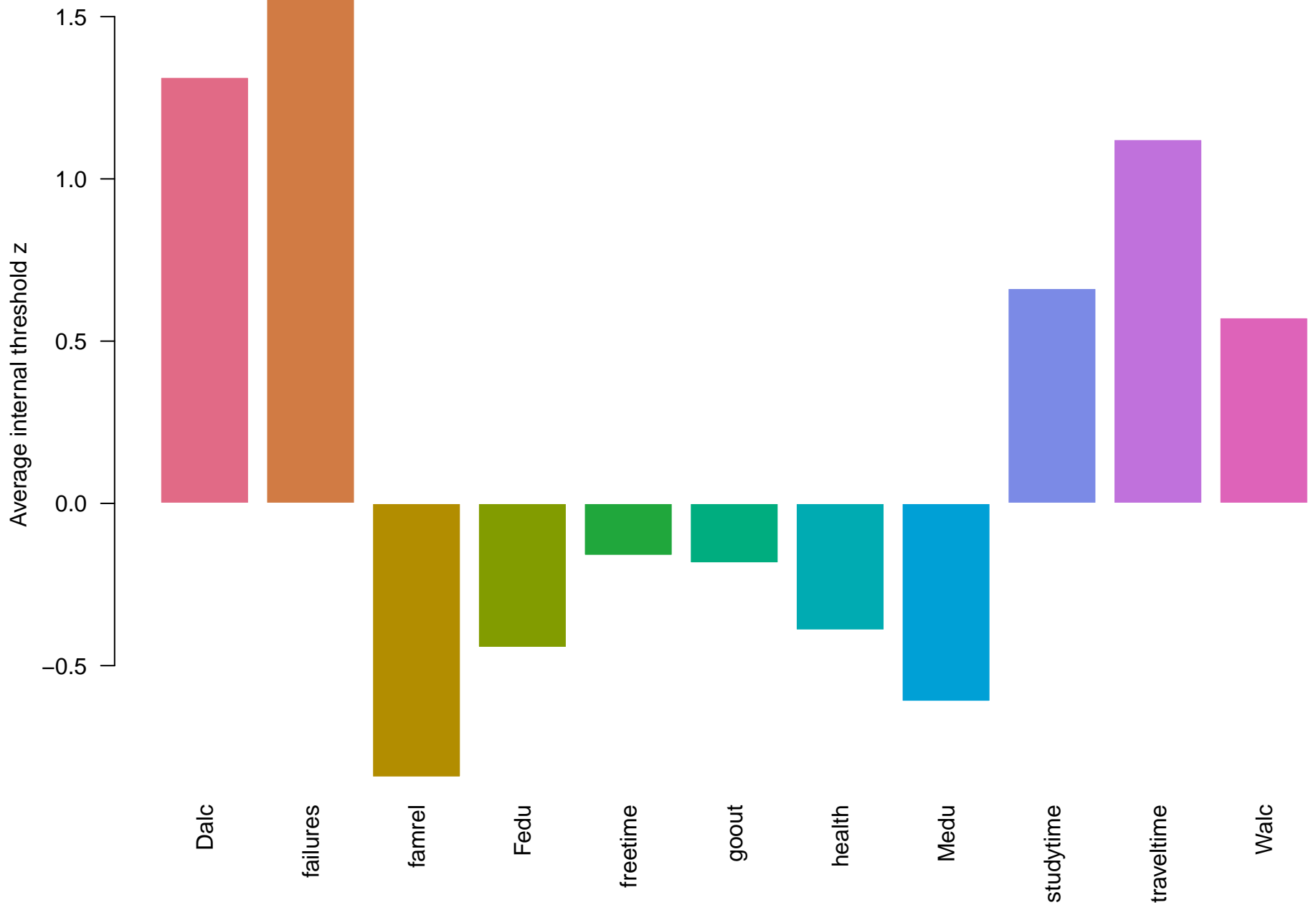
Polychoric Correlation: Ordinal Variable Distributions

Counts define the thresholds used by the polychoric model.



Polychoric Correlation: Threshold Context

Thresholds translate observed ordered categories to latent normal cut-points.



Polychoric vs Spearman Comparison

Polychoric estimates latent association; Spearman summarizes observed ranks.

