

Kendall's Tau-b Rank Correlation Report

Test purpose:

Kendall's Tau-b measures monotonic association between two ordinal or continuous variables.

It is useful when Pearson correlation assumptions are weak, variables are ordinal, or ties are common.

Variables analyzed: 16

Top associations:

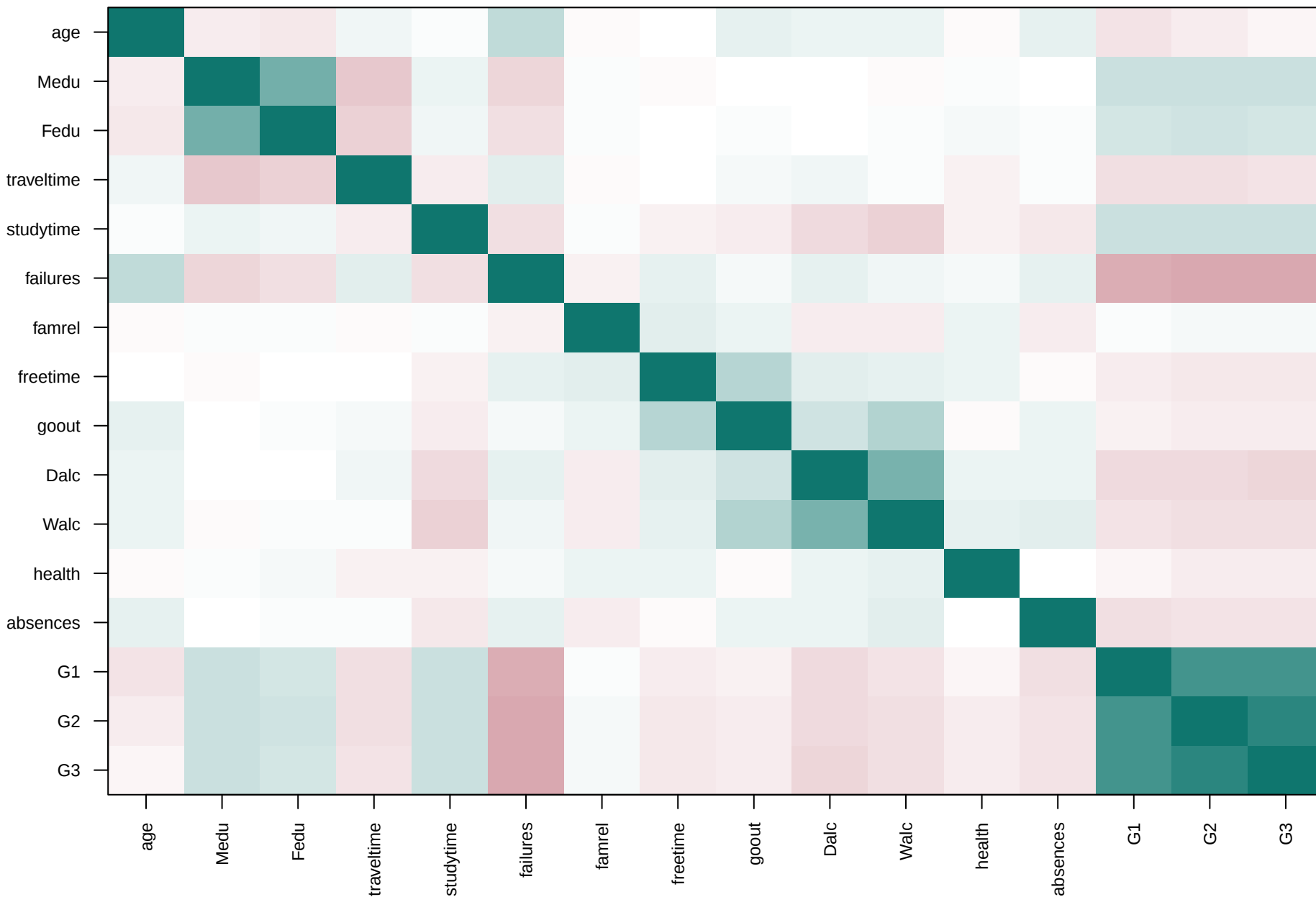
variable_1	variable_2	n_pairwise	kendalls_tau_b	p_value_two_tailed	decision
G2	G3	649	0.8695948	2.113285e-199	Significant monotonic association
G1	G2	649	0.7806392	4.403489e-161	Significant monotonic association
G1	G3	649	0.7661978	2.108694e-155	Significant monotonic association
Medu	Fedu	649	0.5699543	5.622318e-68	Significant monotonic association
Dalc	Walc	649	0.5554070	4.096093e-59	Significant monotonic association
failures	G3	649	-0.3788835	2.182742e-30	Significant monotonic association
failures	G2	649	-0.3679693	9.916502e-29	Significant monotonic association
failures	G1	649	-0.3657803	1.963360e-28	Significant monotonic association
goout	Walc	649	0.3149073	1.732229e-22	Significant monotonic association
freetime	goout	649	0.3039036	6.841912e-21	Significant monotonic association
age	failures	649	0.2583665	1.259734e-13	Significant monotonic association
Medu	traveltime	649	-0.2306261	2.076133e-11	Significant monotonic association

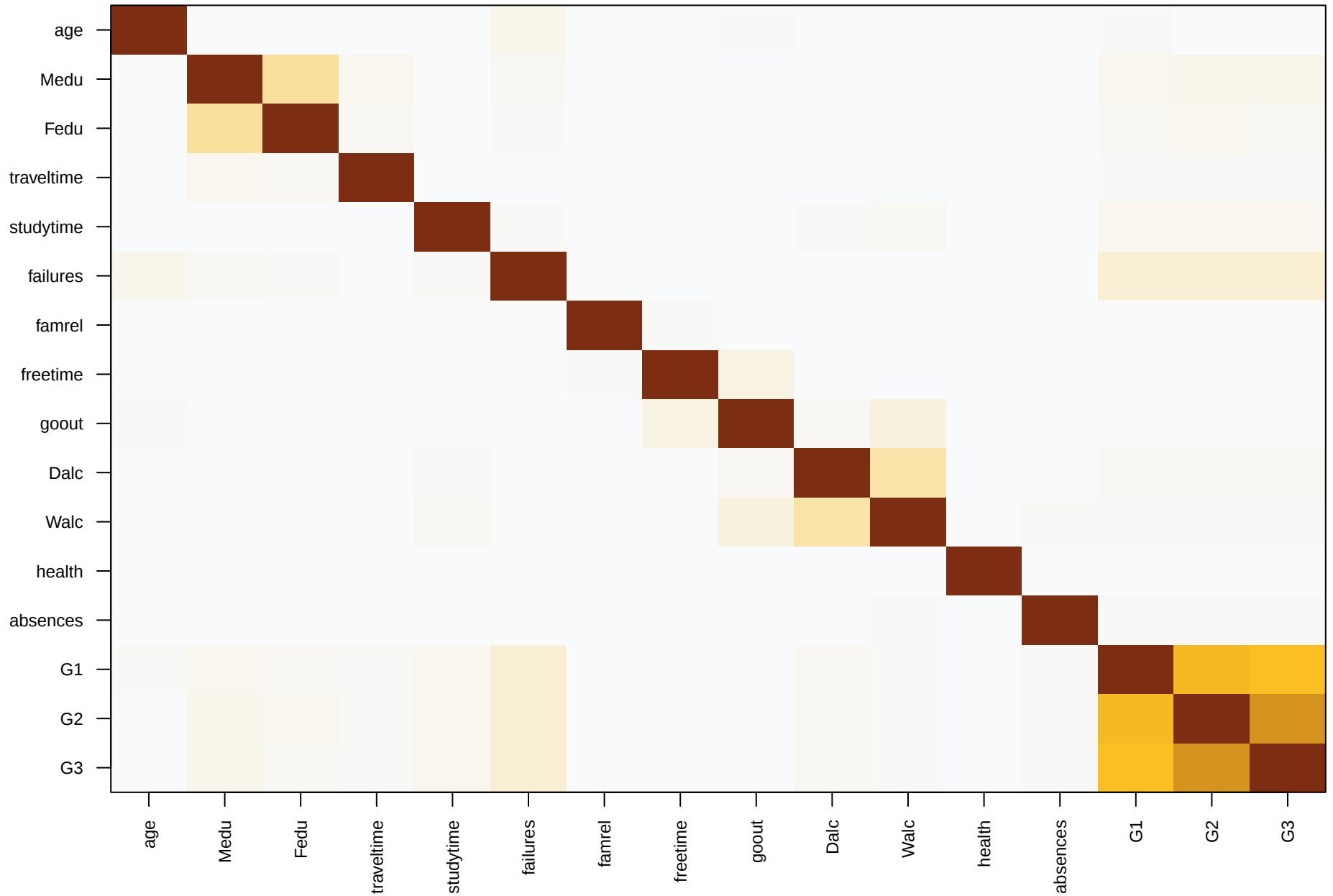
Assumption notes:

1. Observations should be paired and independent.
2. Variables should be at least ordinal.
3. Kendall's Tau-b handles ties, but heavy ties should be reported.
4. The relationship should be monotonic for substantive interpretation.

Kendall's Tau-b Correlation Heatmap

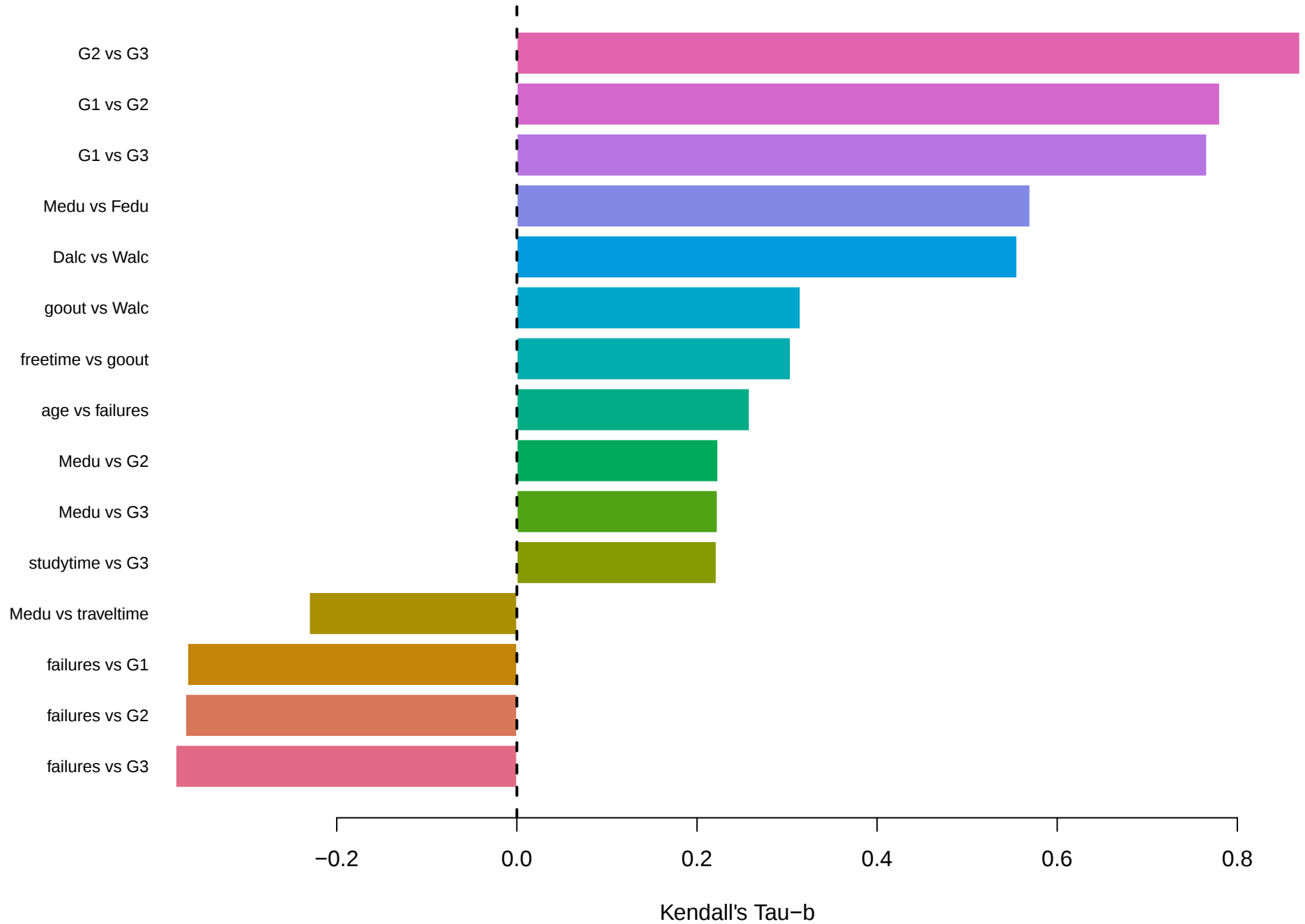
Positive values indicate increasing monotonic association; negative values indicate decreasing association.





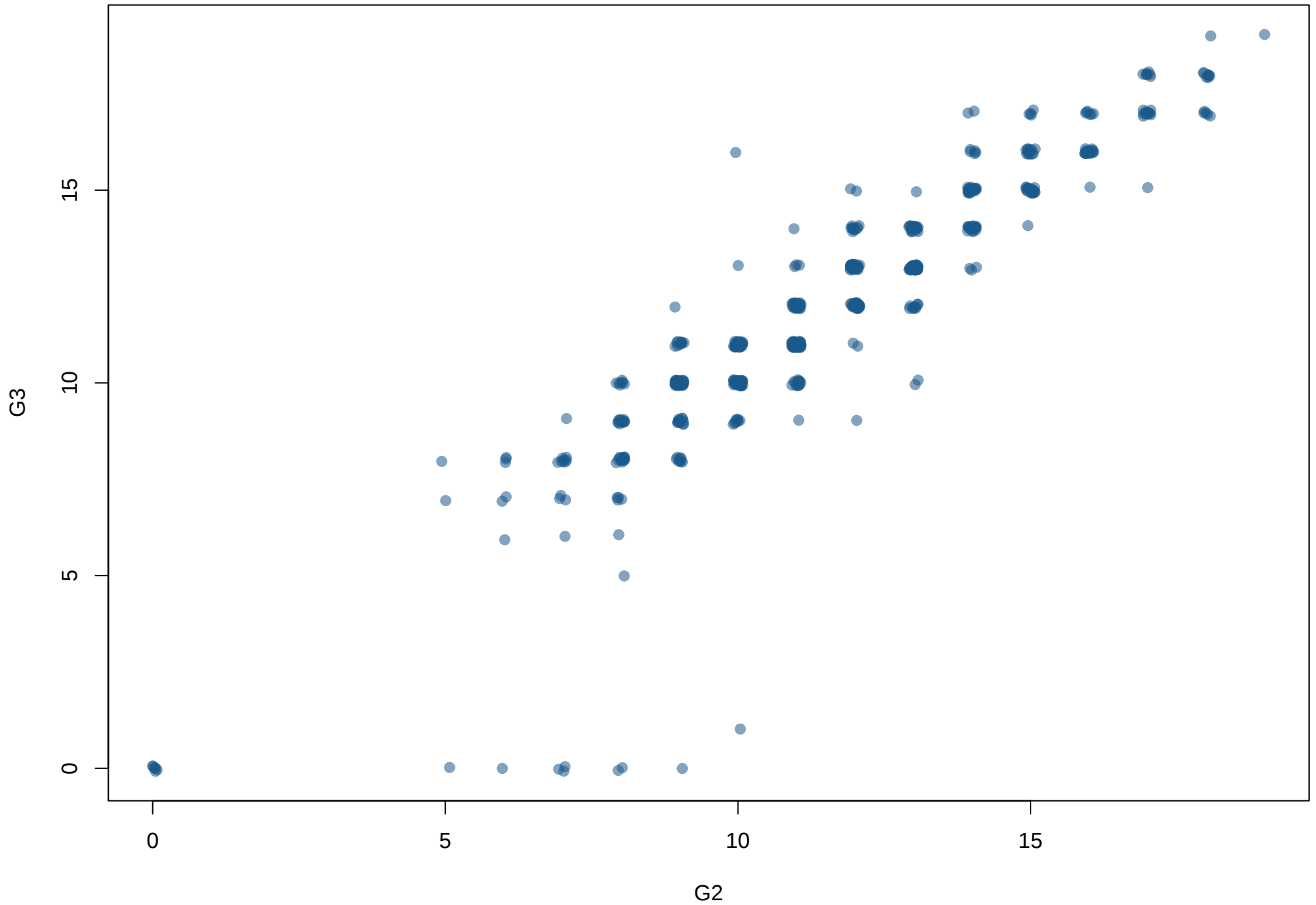
Strongest Kendall's Tau-b Associations

Pairs are ranked by the absolute size of the monotonic relationship.



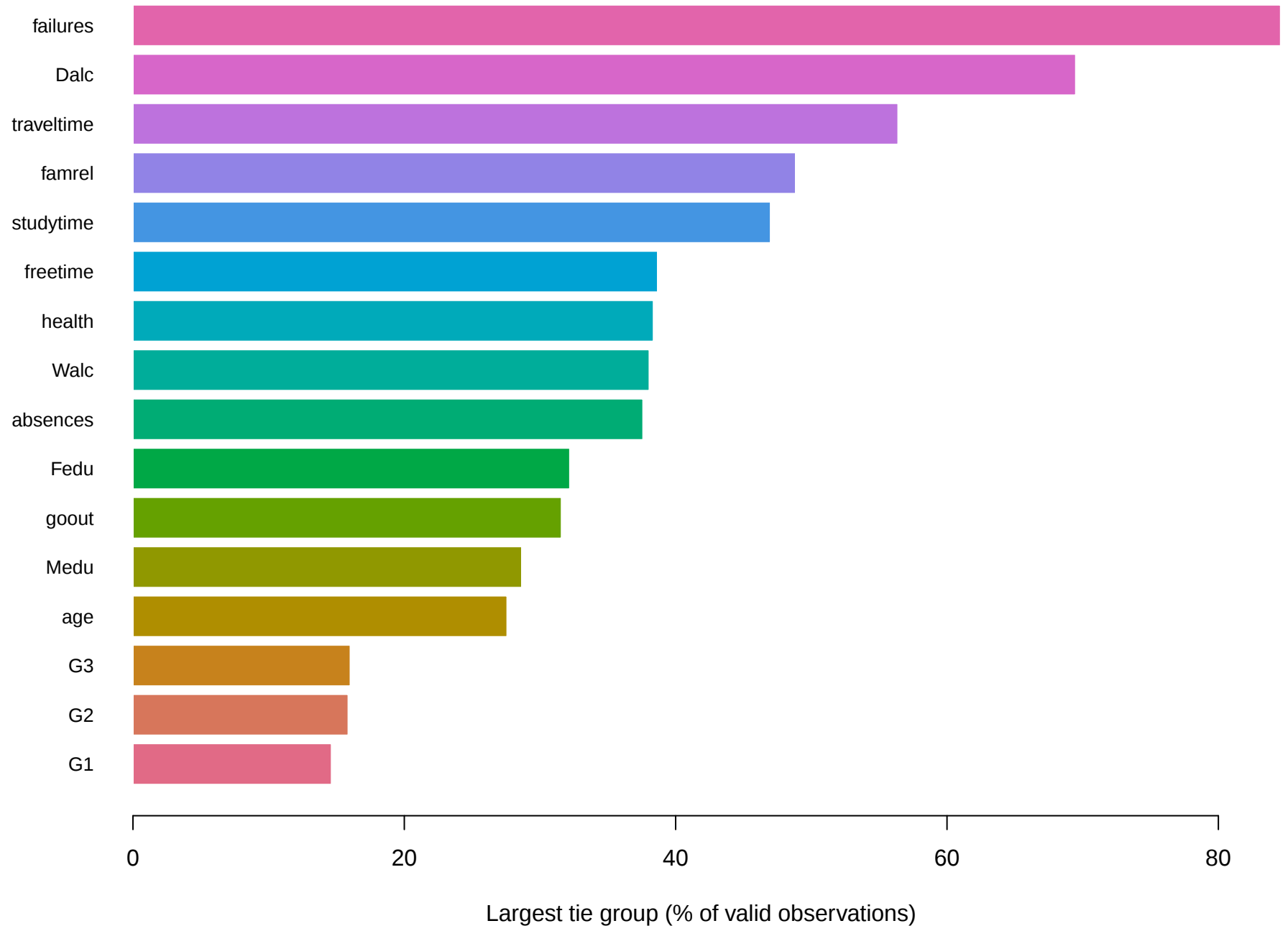
Kendall's Tau-b Worked Pair: Jittered Rank Scatter

Selected strongest pair: tau-b = 0.8696 p = 2.113e-199



Tie Profile for Kendall's Tau-b

Tau-b adjusts for tied ranks; variables with many repeated values need the tie correction.



Kendall's Tau-b Pair Classification

G2 vs G3 uses all pairwise row comparisons.

