

Cochran's Q Test

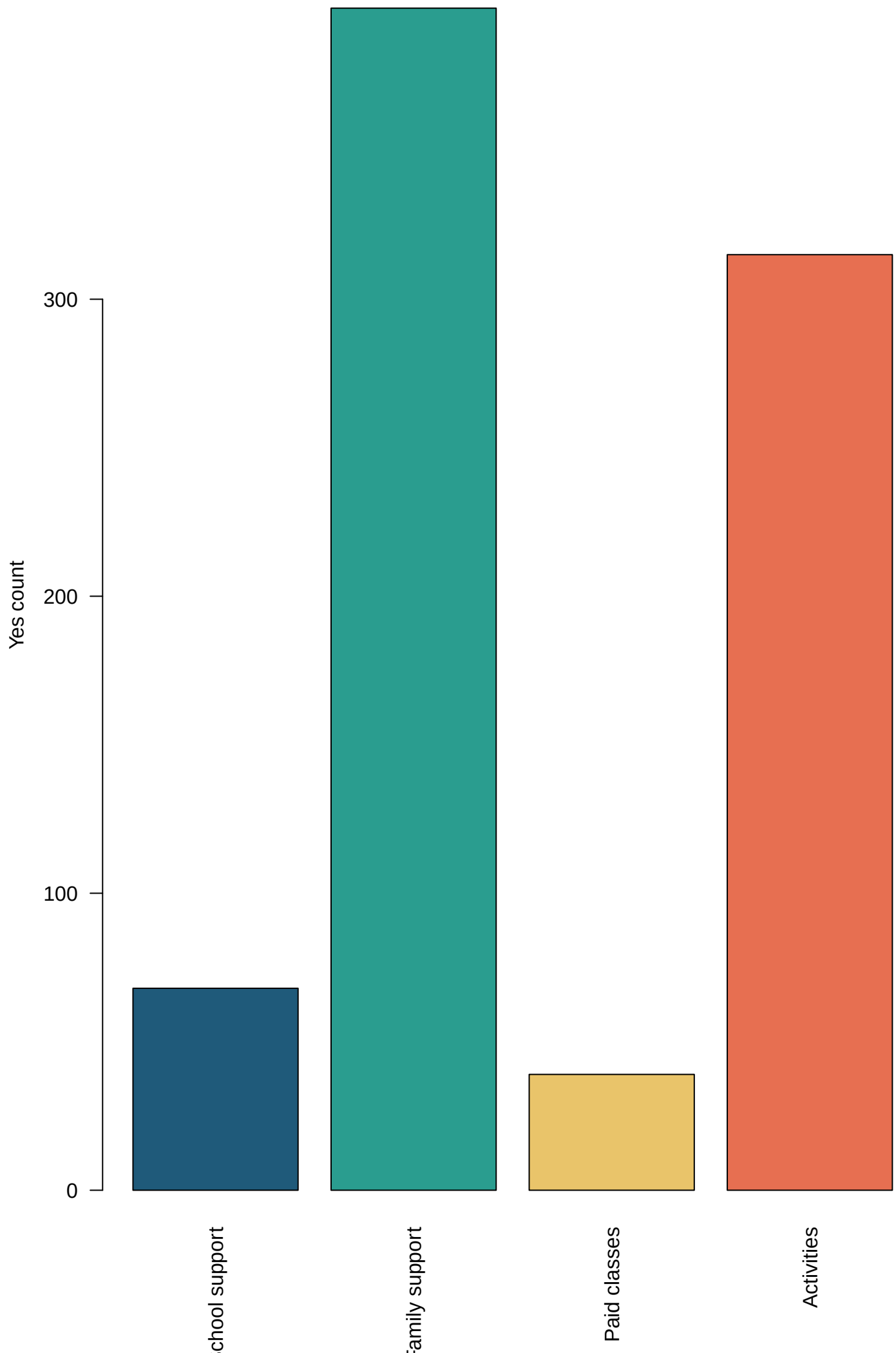
Verified R analysis transcript

Cochran's Q compares four related binary probabilities measured on the same students.

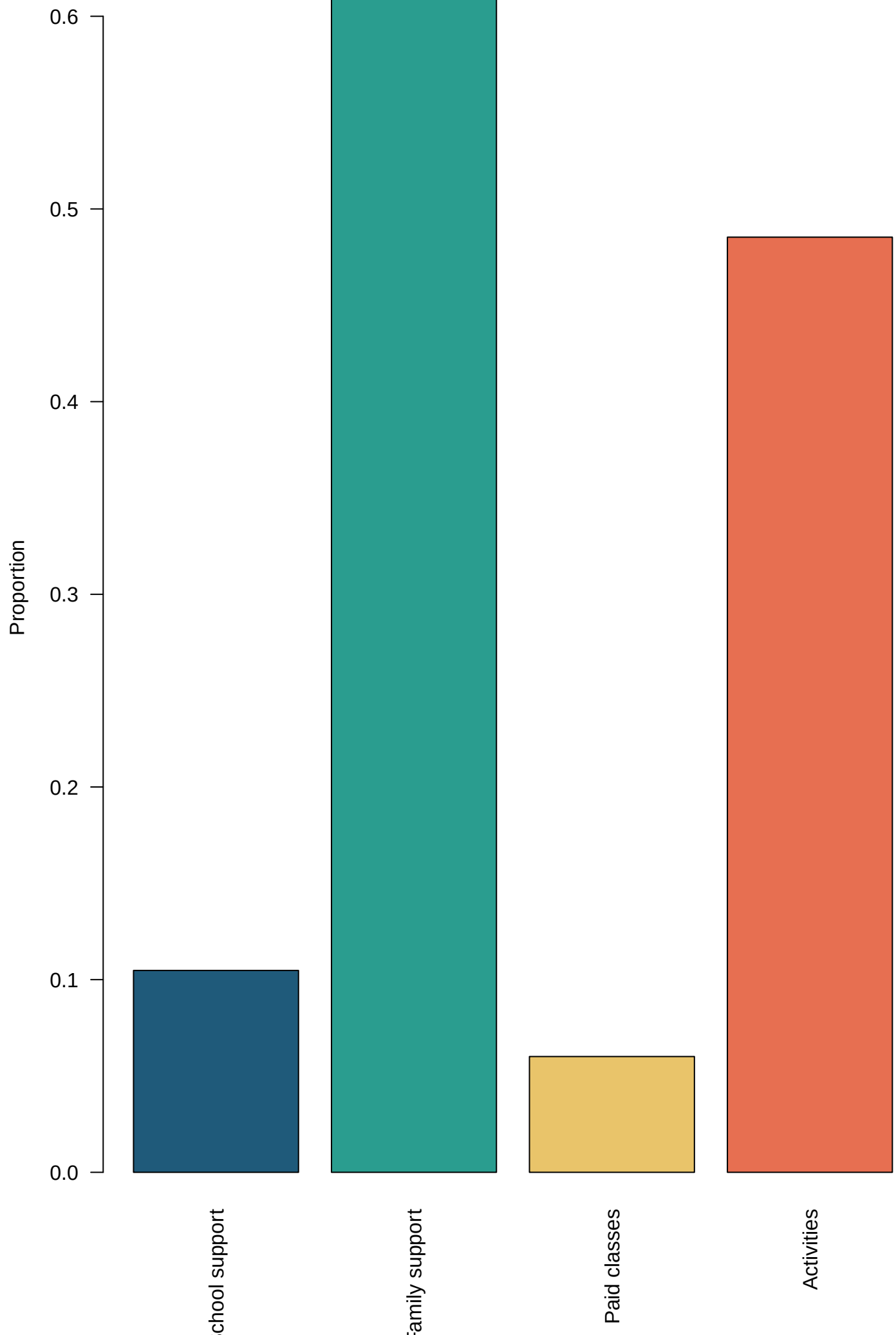
Q uses both response column totals and each student's row total; an independent-samples test would be incorrect.

$Q = 639.247216$, $df = 3$, $p = 3.123798652e-138$ across 649 students.

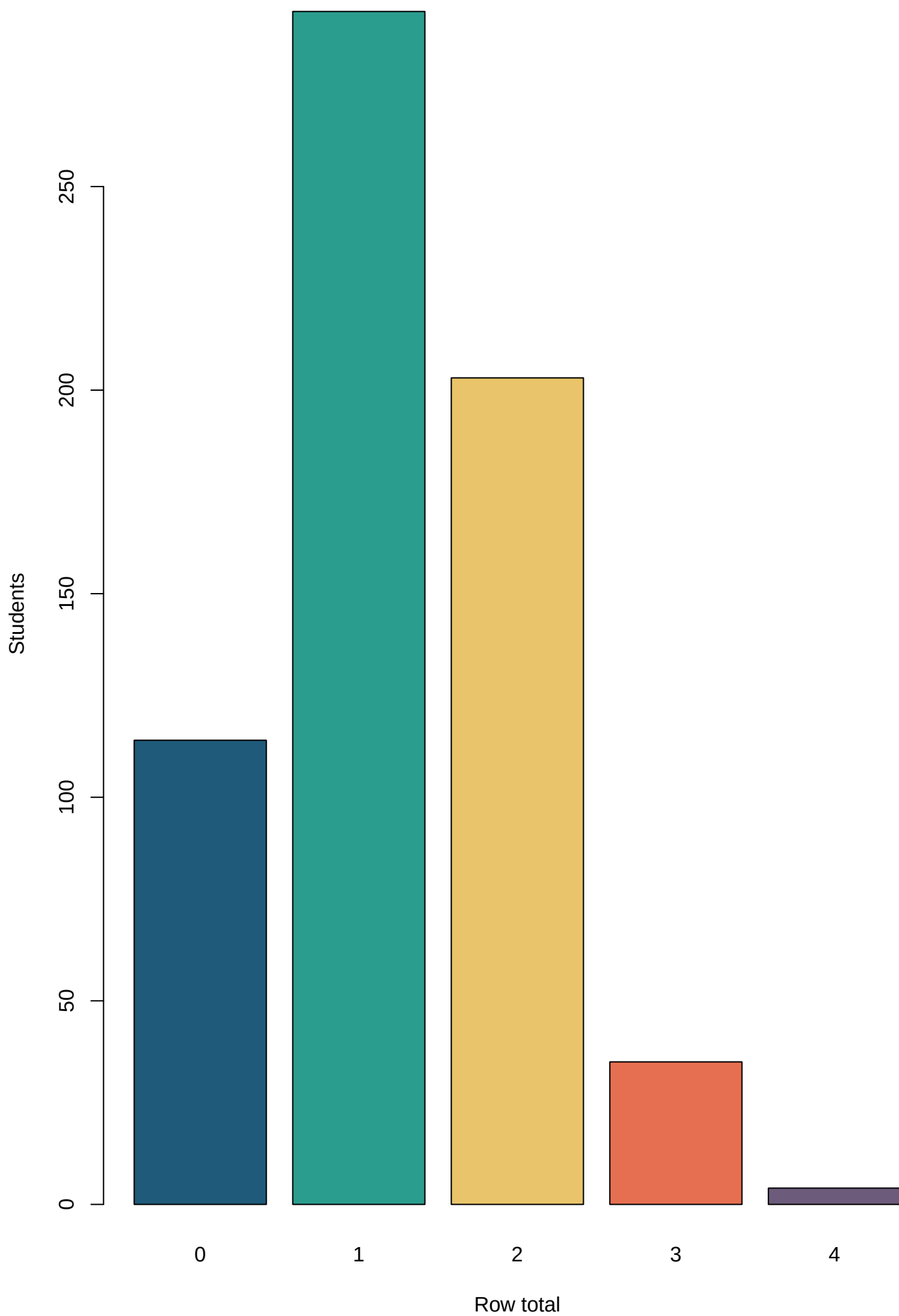
Success counts for four related responses



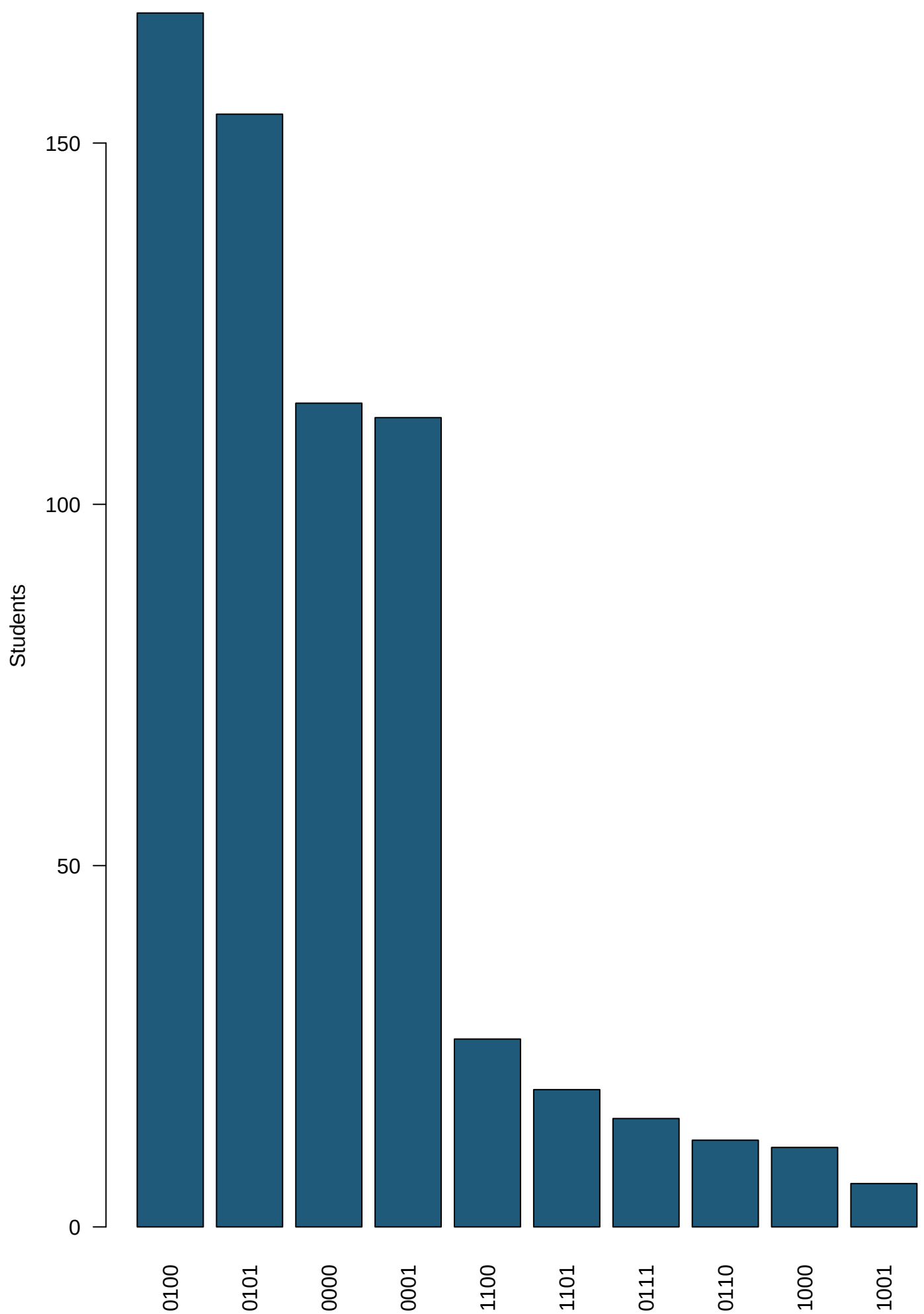
Related response proportions



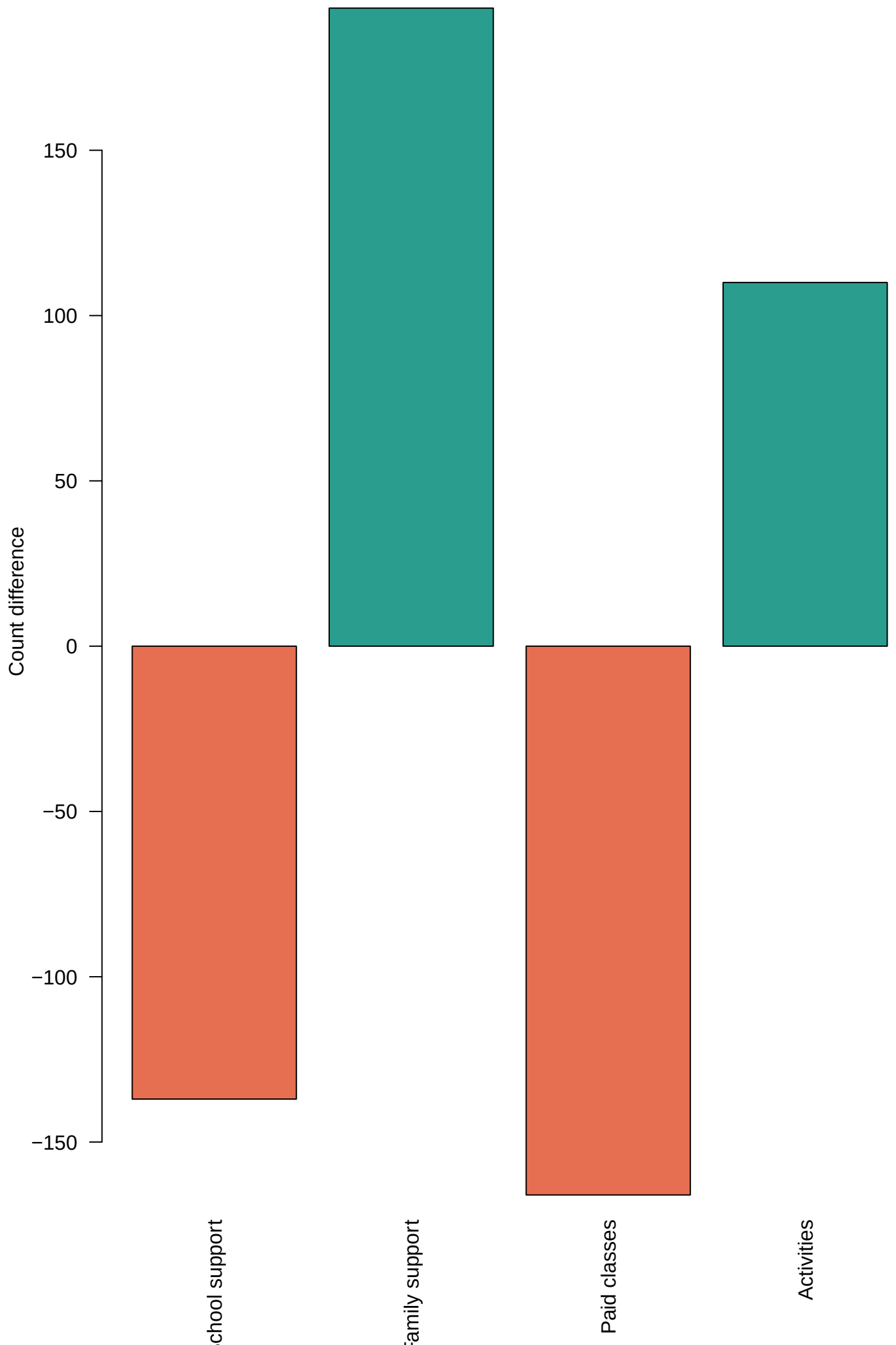
Number of positive responses per student



Most common within-student response patterns



Column totals around their common mean



Cochran's Q Test key results

