

Permutelt™ v. SAS's® NPAR1WAY:

Conditional Exact Inference for Column-Ordered 2xC Contingency Tables

Ex.#	Contingency Table	Ho:	Ha:	Exact p-value	NPAR1WAY Real Time ¹	Permutelt™ Real Time ¹	Permutelt™ Relative Speed
1.A	0 1 2 7 0 5 8 2 5 1 8 0 5 0 3 4 3 3 3 3	$\mu_{\text{smaller}} = \mu_{\text{larger}}$	$\mu_{\text{smaller}} \neq \mu_{\text{larger}}$	0.120209	21.15s	0.84s	25x faster
2.A	0 1 2 7 0 5 8 2 5 1 8 0 5 0 3 4 3 3 3 3	$\mu_{\text{smaller}} \leq \mu_{\text{larger}}$	$\mu_{\text{smaller}} > \mu_{\text{larger}}$	0.061917	21.15s	0.42s	50x faster
3.A	5 9 2 7 3 5 0 2 0 1 8 0 5 0 6 4 3 3 3 3	$\mu_{\text{smaller}} \geq \mu_{\text{larger}}$	$\mu_{\text{smaller}} < \mu_{\text{larger}}$	0.023000	1m 7.85s	0.84s	81x faster
4.A	1 5 2 0 5 4 2 3 4 5 5 1 4 6 1 2 4 4 3 2	$\mu_{\text{smaller}} = \mu_{\text{larger}}$	$\mu_{\text{smaller}} \neq \mu_{\text{larger}}$	0.230033	3m 44.71s	2.25s	100x faster
5.A	1 5 2 0 5 4 2 3 4 5 5 1 4 6 1 2 4 4 3 2	$\mu_{\text{smaller}} \leq \mu_{\text{larger}}$	$\mu_{\text{smaller}} > \mu_{\text{larger}}$	0.117805	3m 44.71s	1.06s	212x faster
6.A	1 0 0 1 3 0 0 2 1 6 1 0 0 8 0 5 4 3 0 0 1 6 0 0 2 4 1 1 0 5	$\mu_{\text{smaller}} \leq \mu_{\text{larger}}$	$\mu_{\text{smaller}} > \mu_{\text{larger}}$	0.023217	7m 20.75s	1.16s	380x faster
7.A	2 0 1 5 3 2 2 2 1 0 0 1 0 6 1 4 7 4 0 0 0 3 0 0 2 8 0 1 0 3	$\mu_{\text{smaller}} = \mu_{\text{larger}}$	$\mu_{\text{smaller}} \neq \mu_{\text{larger}}$	0.439884	2h 41m 7s	12.49s	774x faster
8.A	2 0 1 5 3 2 2 2 1 0 0 1 0 6 1 4 7 4 0 0 0 3 0 0 2 8 0 1 0 3	$\mu_{\text{smaller}} \leq \mu_{\text{larger}}$	$\mu_{\text{smaller}} > \mu_{\text{larger}}$	0.225146	2h 41m 7s	6.48s	1,492x faster
9.A	0 3 4 2 1 0 0 3 2 1 2 2 4 1 4 4 1 0 2 3 4 4 1 2 3 2 2 0 3 0	$\mu_{\text{smaller}} \leq \mu_{\text{larger}}$	$\mu_{\text{smaller}} > \mu_{\text{larger}}$	0.091734	after 39h 30m, could not solve	54.1s	more than 2,628x faster
1.B	5 9 2 7 3 5 0 2 8 3 5 1 6 4 2 0	$\mu_{\text{smaller}} \leq \mu_{\text{larger}}$	$\mu_{\text{smaller}} > \mu_{\text{larger}}$	0.594438	Can't solve	0.10s	
2.B	5 1 2 7 3 5 0 2 8 1 8 0 5 0 6 4 3 3 3 3	$\mu_{\text{smaller}} \geq \mu_{\text{larger}}$	$\mu_{\text{smaller}} < \mu_{\text{larger}}$	0.676471	Can't solve	0.88s	
3.B	5 1 2 7 3 5 0 2 8 1 1 0 8 0 5 0 6 4 3 3 3 2 0 4	$\mu_{\text{smaller}} \leq \mu_{\text{larger}}$	$\mu_{\text{smaller}} > \mu_{\text{larger}}$	0.585325	Can't solve	5.71s	
4.B	5 4 3 0 0 1 6 0 0 2 4 1 1 0 5 1 5 0 1 3 0 0 2 1 6 0 1 0 3 0	$\mu_{\text{smaller}} \geq \mu_{\text{larger}}$	$\mu_{\text{smaller}} < \mu_{\text{larger}}$	0.522697	Can't solve	2.71s	
5.B	4 7 4 0 0 0 3 0 0 2 8 0 1 0 3 2 0 1 5 3 2 2 2 1 0 0 1 0 6 1	$\mu_{\text{smaller}} \geq \mu_{\text{larger}}$	$\mu_{\text{smaller}} < \mu_{\text{larger}}$	0.791081	Can't solve	6.36s	

¹ Runtimes are based on a desktop PC with 2GB of RAM and a 2Ghz Pentium® processor, and software versions 2.0 and 8.2, respectively.