

Results

Descriptive Statistics

Descriptive Statistics

		Valid	Missing	Mean	Std. Deviation	Shapiro-Wilk	P-value of Shapiro-Wilk	Minimum	Maximum
rank	abalone	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	adult	4650	0	2.935	1.436	0.883	< .001	1.000	5.000
rank	air_quality	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	bank	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	bike	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	car	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	diabetic	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	fish_toxicity	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	forest_fires	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	housing	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	iris	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	mushroom	4650	0	2.996	1.419	0.887	< .001	1.000	5.000
rank	parkinsons	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	student_performance	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
rank	wine_quality	4650	0	3.000	1.414	0.888	< .001	1.000	5.000
test_loss	abalone	4650	0	2.429	0.542	0.714	< .001	1.900	14.273
test_loss	adult	4650	0	100.080	401.996	0.240	< .001	0.316	6186.153
test_loss	air_quality	4650	0	0.281	0.049	0.399	< .001	0.241	0.750
test_loss	bank	4650	0	0.254	0.141	0.221	< .001	0.204	1.999
test_loss	bike	4650	0	0.077	0.068	0.331	< .001	0.047	0.666
test_loss	car	4650	0	0.241	0.294	0.320	< .001	0.076	2.817
test_loss	diabetic	4650	0	1.052	0.445	0.272	< .001	0.886	15.896
test_loss	fish_toxicity	4650	0	0.114	0.042	0.362	< .001	0.079	0.548
test_loss	forest_fires	4650	0	0.083	0.100	0.553	< .001	0.007	0.884
test_loss	housing	4650	0	0.108	0.051	0.521	< .001	0.053	0.577
test_loss	iris	4650	0	0.488	1.169	0.335	< .001	2.384e-8	30.839
test_loss	mushroom	4650	0	18.432	406.693	0.021	< .001	0.000	23335.590
test_loss	parkinsons	4650	0	0.071	0.056	0.198	< .001	0.053	0.659
test_loss	student_performance	4650	0	0.211	0.055	0.720	< .001	0.138	0.600
test_loss	wine_quality	4650	0	1.161	0.246	0.342	< .001	1.010	2.963

ANOVA

ANOVA – rank

Cases	Sum of Squares	df	Mean Square	F	p
dataset	17.974	14	1.284	0.659	0.816
population	225.672	4	56.418	28.961	< .001
dataset * population	3879.662	56	69.280	35.564	< .001
Residuals	135730.233	69675	1.948		

Note. Type III Sum of Squares

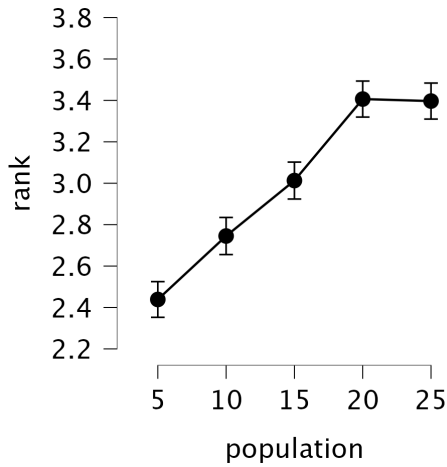
Descriptives

Descriptives – rank

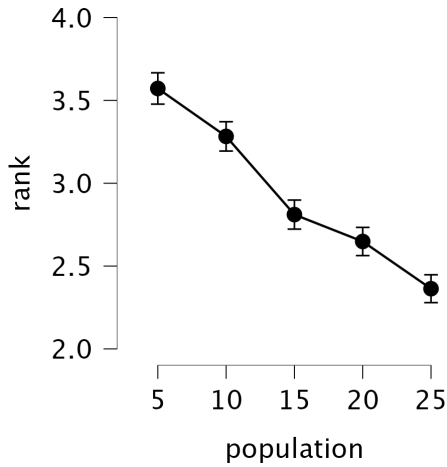
dataset	population	Mean	SD	N
abalone	10	2.745	1.392	930
	15	3.013	1.386	930
	20	3.406	1.351	930
	25	3.397	1.351	930
	5	2.439	1.340	930
adult	10	3.283	1.375	930
	15	2.811	1.363	930
	20	2.648	1.322	930
	25	2.363	1.306	930
	5	3.572	1.469	930
air_quality	10	2.926	1.390	930
	15	2.966	1.379	930
	20	3.314	1.379	930
	25	3.042	1.437	930
	5	2.753	1.428	930
bank	10	3.159	1.435	930
	15	2.999	1.420	930
	20	3.051	1.444	930
	25	2.978	1.341	930
	5	2.813	1.410	930
bike	10	2.869	1.285	930
	15	2.965	1.345	930
	20	2.743	1.376	930
	25	2.528	1.328	930
	5	3.896	1.335	930
car	10	3.041	1.394	930
	15	3.040	1.452	930
	20	2.856	1.394	930
	25	2.874	1.415	930
	5	3.189	1.391	930
diabetic	10	2.939	1.413	930
	15	3.213	1.452	930
	20	2.961	1.304	930
	25	3.089	1.353	930
	5	2.798	1.508	930
fish_toxicity	10	3.041	1.429	930
	15	3.092	1.323	930
	20	3.128	1.407	930
	25	2.924	1.463	930
	5	2.815	1.425	930
forest_fires	10	2.922	1.380	930
	15	2.981	1.383	930
	20	3.097	1.412	930
	25	2.984	1.488	930
	5	3.017	1.403	930
housing	10	2.826	1.380	930
	15	2.975	1.439	930
	20	2.985	1.411	930
	25	3.377	1.368	930
	5	2.837	1.404	930
iris	10	2.873	1.397	930
	15	3.051	1.413	930
	20	3.186	1.425	930
	25	3.060	1.499	930
	5	2.830	1.304	930
mushroom	10	2.944	1.325	930
	15	3.046	1.452	930
	20	3.137	1.494	930
	25	3.054	1.566	930
	5	2.799	1.205	930
parkinsons	10	3.106	1.327	930
	15	3.025	1.427	930
	20	3.049	1.442	930
	25	3.155	1.381	930
	5	2.665	1.441	930
student_performance	10	2.865	1.411	930
	15	3.155	1.404	930
	20	3.239	1.397	930
	25	3.104	1.340	930
	5	2.638	1.436	930
wine_quality	10	2.782	1.415	930
	15	3.158	1.384	930
	20	3.181	1.394	930
	25	3.329	1.414	930
	5	2.551	1.317	930

Descriptives plots

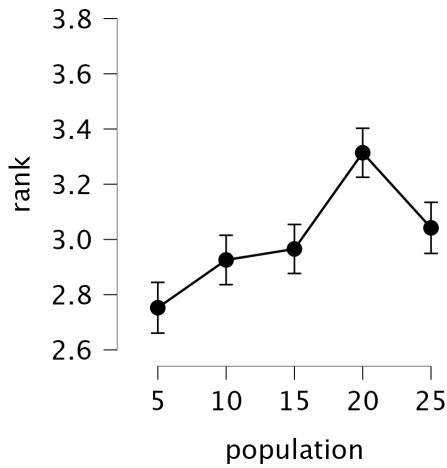
dataset: abalone



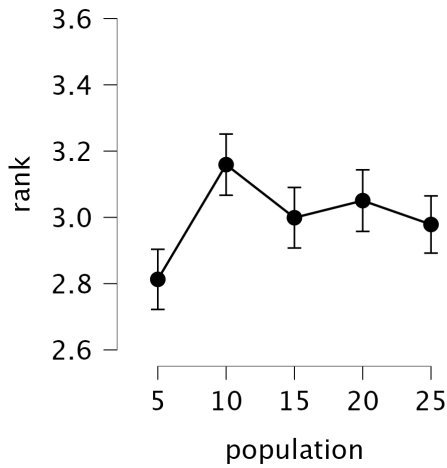
dataset: adult



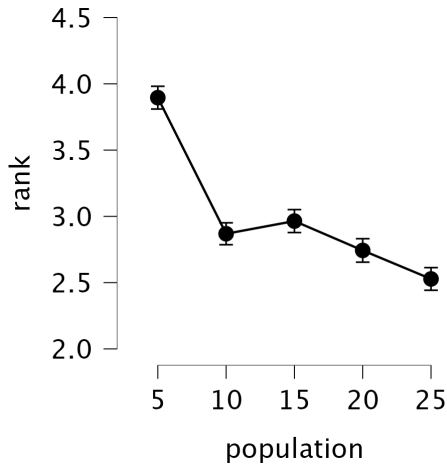
dataset: air_quality



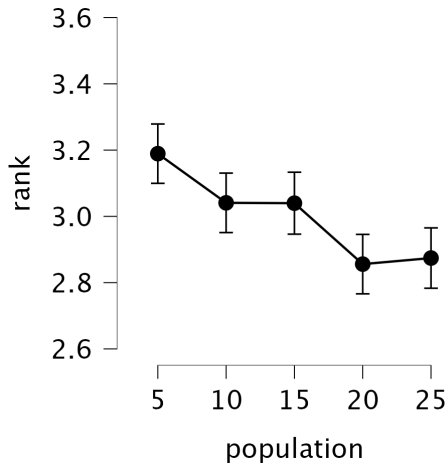
dataset: bank



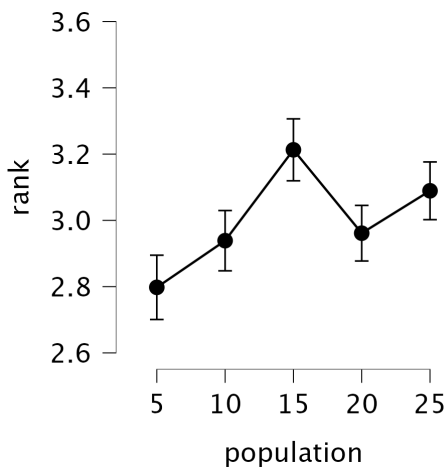
dataset: bike



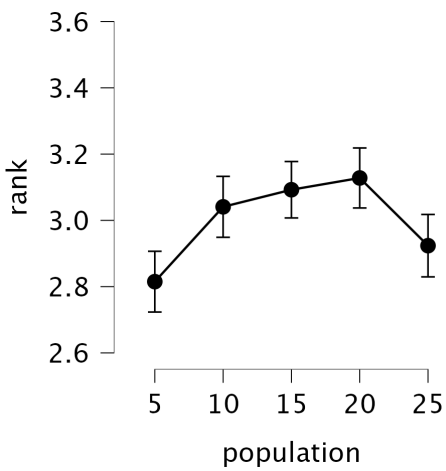
dataset: car



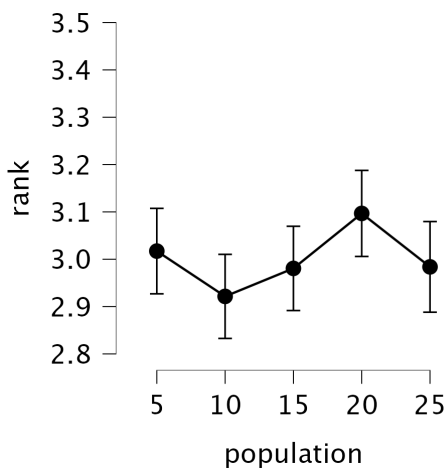
dataset: diabetic



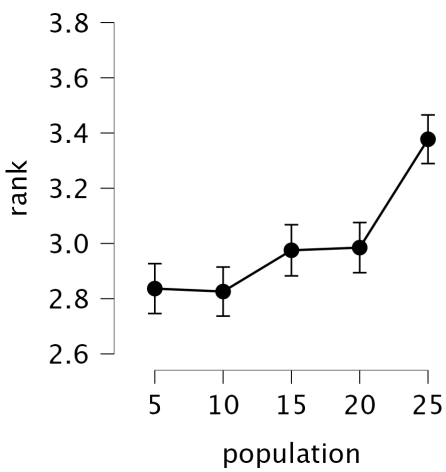
dataset: fish_toxicity



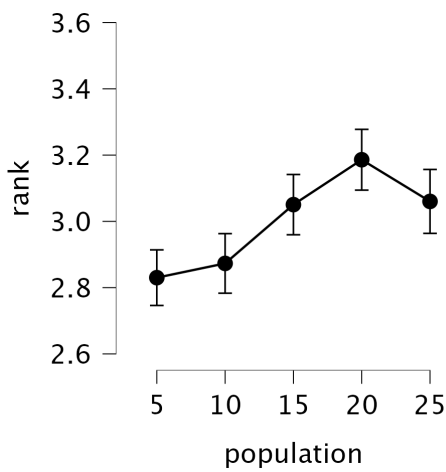
dataset: forest_fires



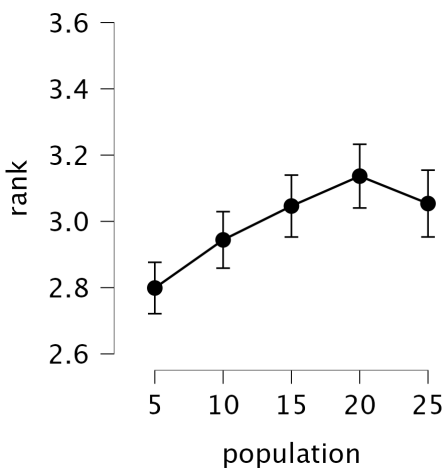
dataset: housing



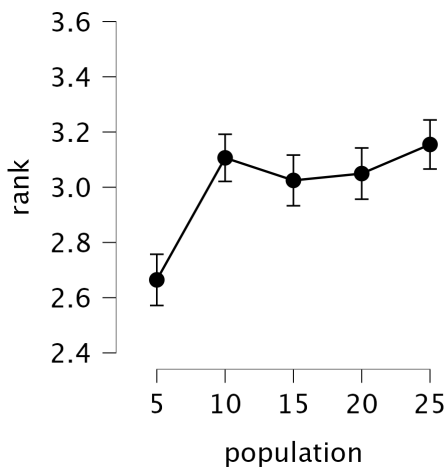
dataset: iris



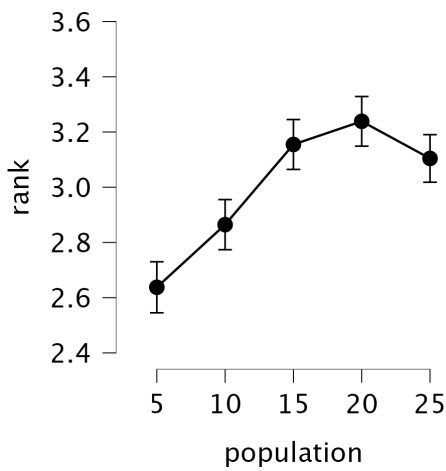
dataset: mushroom



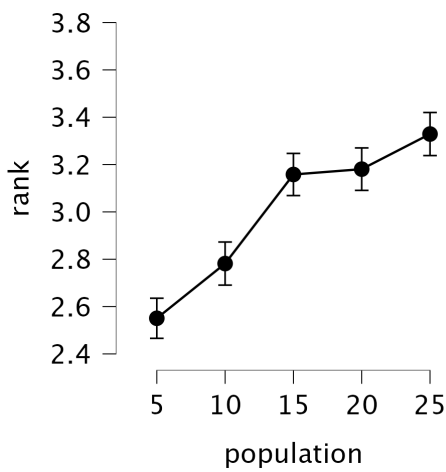
dataset: parkinsons



dataset: student_performance

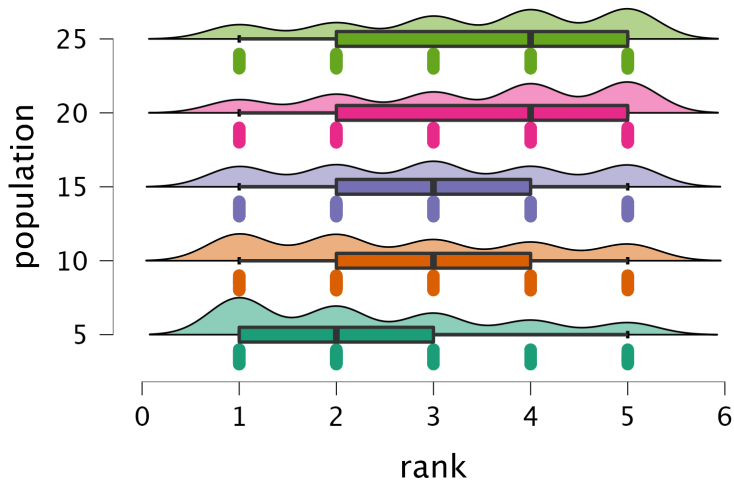


dataset: wine_quality

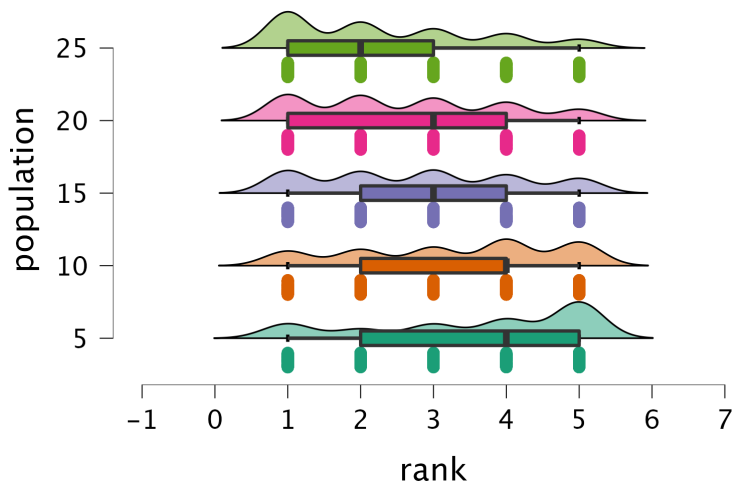


Raincloud plots

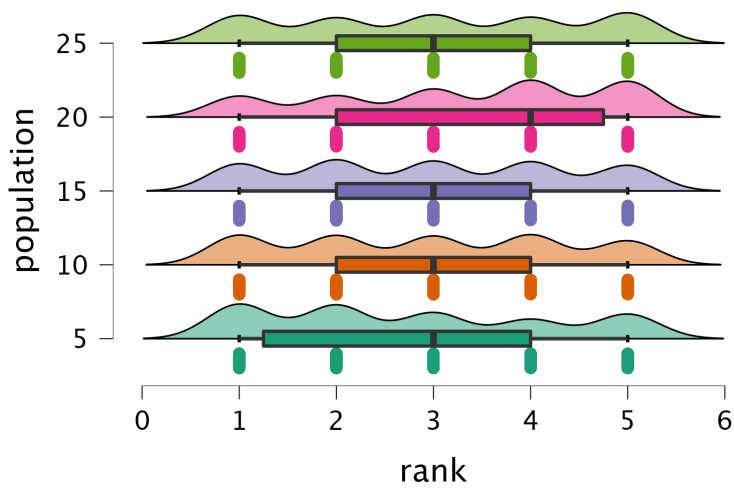
dataset: abalone



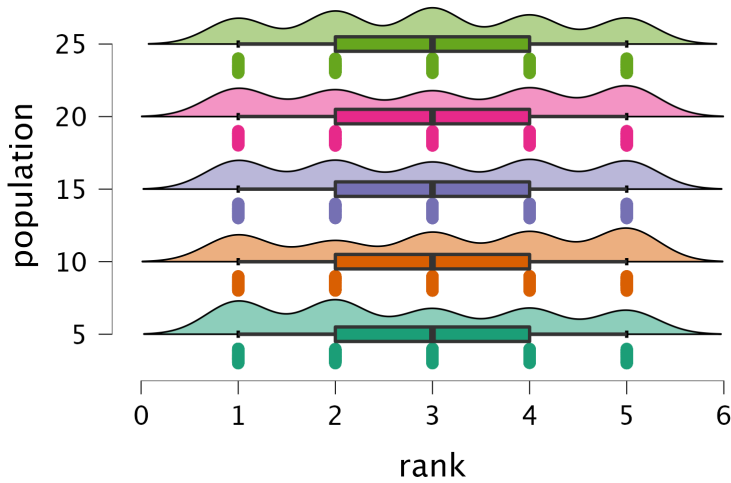
dataset: adult



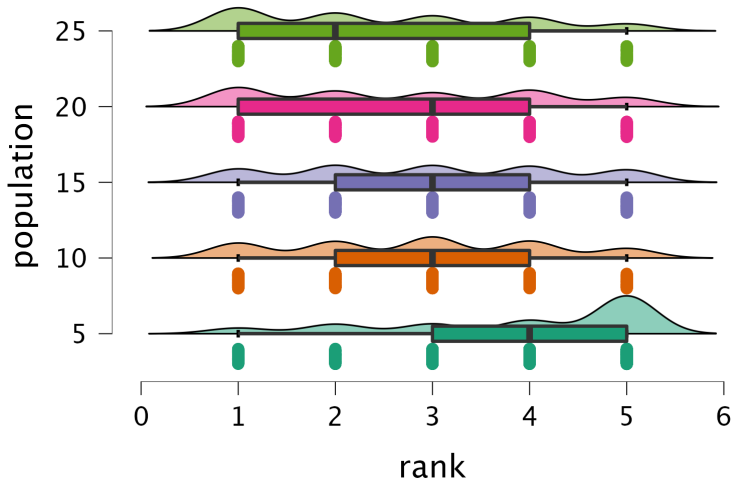
dataset: air_quality



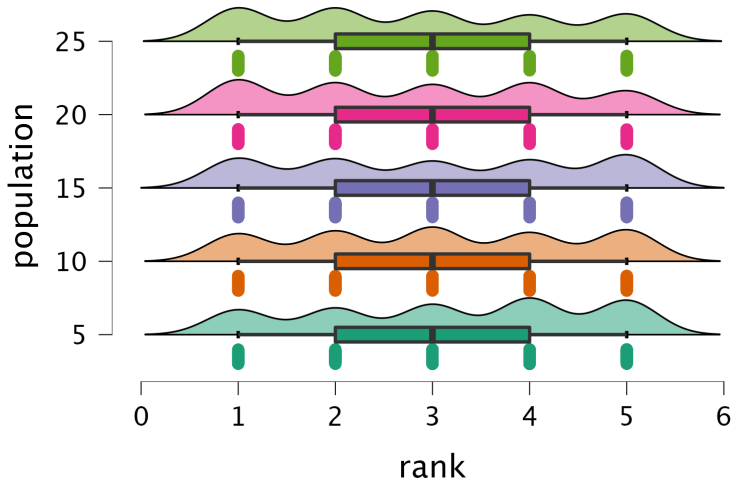
dataset: bank



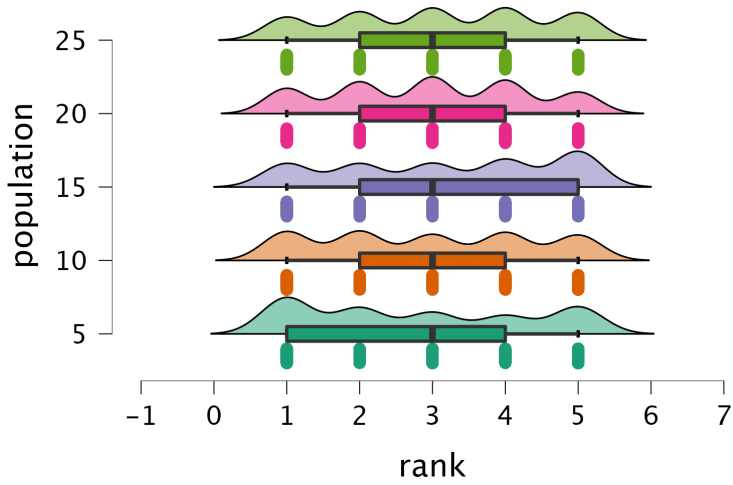
dataset: bike



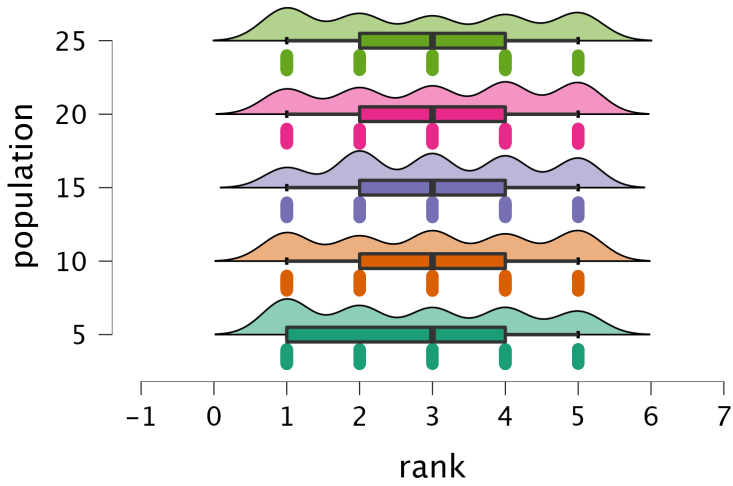
dataset: car



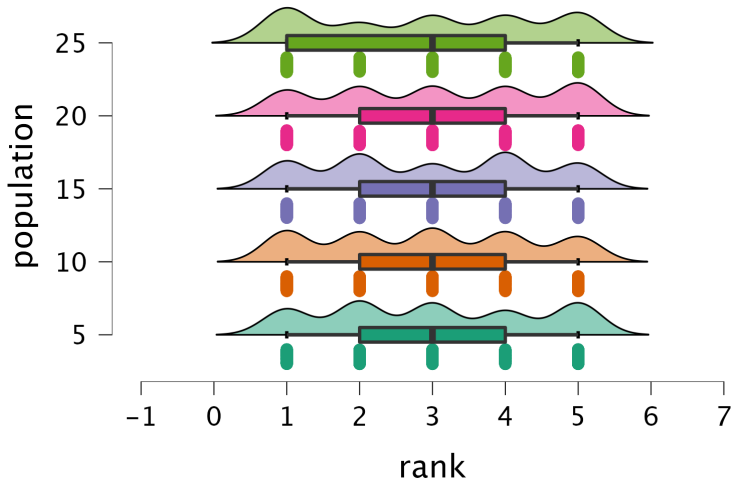
dataset: diabetic



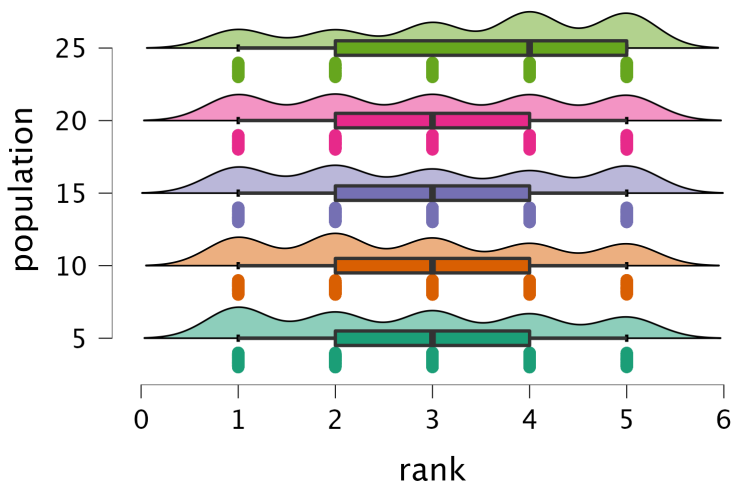
dataset: fish_toxicity



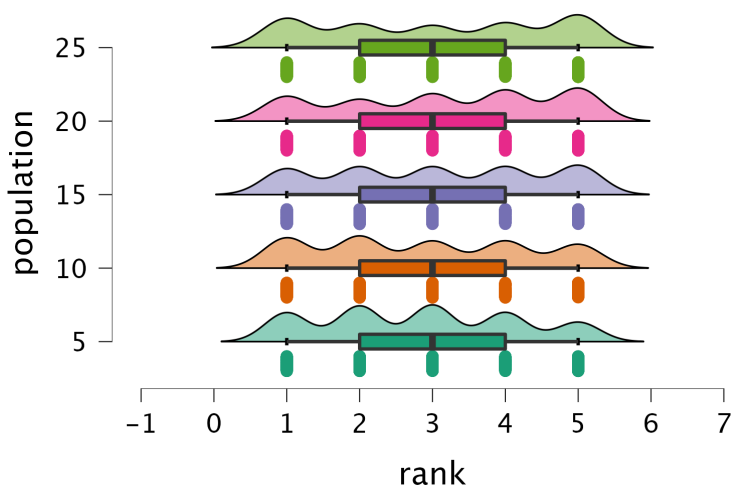
dataset: forest_fires



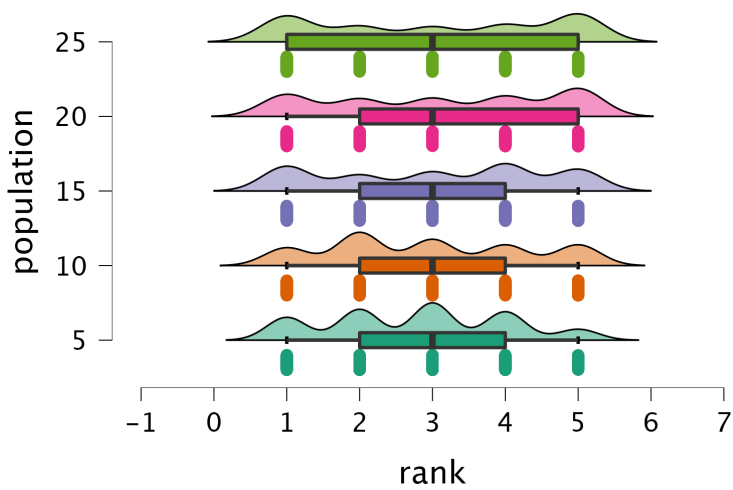
dataset: housing



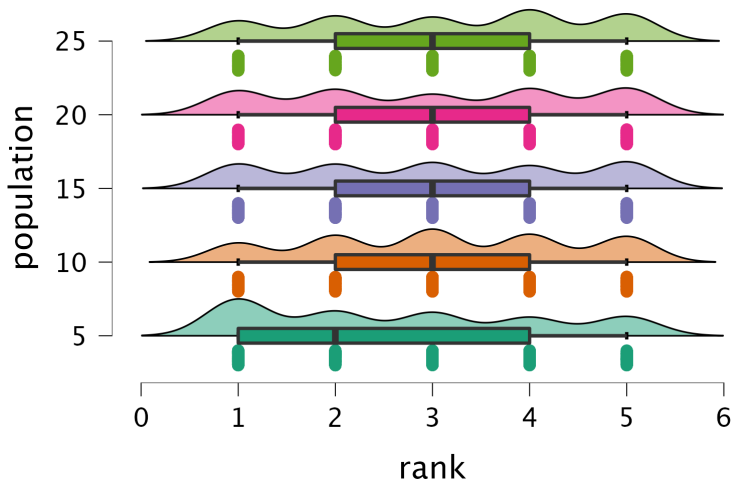
dataset: iris



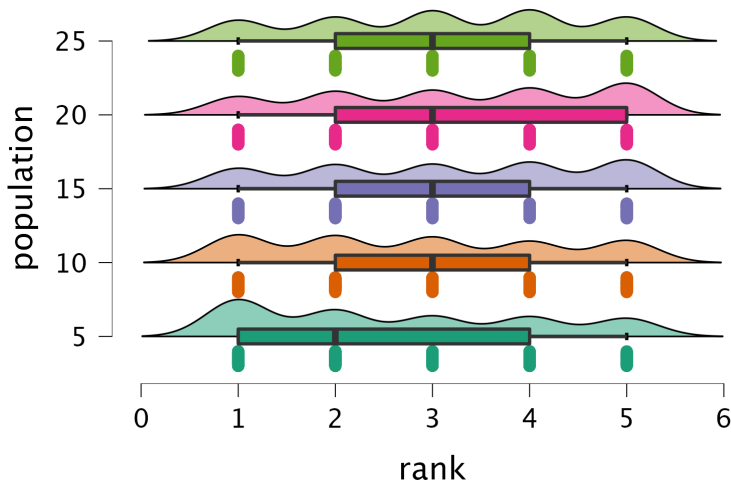
dataset: mushroom



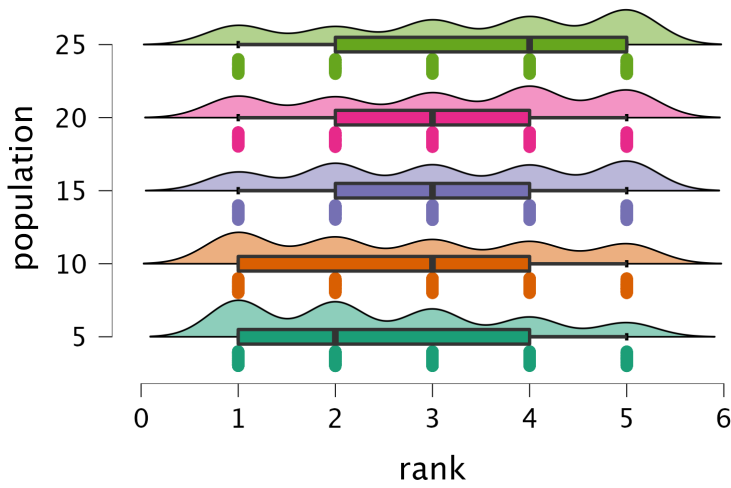
dataset: parkinsons



dataset: student_performance



dataset: wine_quality



Assumption Checks

Test for Equality of Variances (Levene's)

F	df1	df2	p
7.277	74.000	69675.000	< .001

Contrast Tables

Simple Contrast – population

Comparison	Estimate	SE	df	t	p
10 – 5	0.047	0.017	69675	2.831	0.005
15 – 5	0.125	0.017	69675	7.494	< .001
20 – 5	0.158	0.017	69675	9.458	< .001
25 – 5	0.110	0.017	69675	6.580	< .001

Post Hoc Tests

Standard

Post Hoc Comparisons – population

		95% CI for Mean Difference			SE	t	P _{tukey}
		Mean Difference	Lower	Upper			
5	10	−0.047	−0.093	−0.002	0.017	−2.831	0.037*
	15	−0.125	−0.171	−0.080	0.017	−7.494	< .001***
	20	−0.158	−0.204	−0.112	0.017	−9.458	< .001***
	25	−0.110	−0.156	−0.064	0.017	−6.580	< .001***
10	15	−0.078	−0.124	−0.032	0.017	−4.663	< .001***
	20	−0.111	−0.156	−0.065	0.017	−6.627	< .001***
	25	−0.063	−0.108	−0.017	0.017	−3.749	0.002**
15	20	−0.033	−0.078	0.013	0.017	−1.965	0.283
	25	0.015	−0.030	0.061	0.017	0.914	0.892
20	25	0.048	0.003	0.094	0.017	2.878	0.033*

Note. Results are averaged over the levels of: dataset
Note. P-value and confidence intervals adjusted for comparing a family of 5 estimates (confidence intervals corrected using the tukey method).
* p < .05, ** p < .01, *** p < .001

Kruskal–Wallis Test

Kruskal–Wallis Test

Factor	Statistic	df	p
population	112.555	4	< .001

