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to the paper

Critical values for 33 discordancy test variants for outliers in normal samples of very large sizes from 1,000 to 30,000 and evaluation of different regression models for the interpolation and extrapolation of critical values

by

Surendra P. Verma and Alfredo Quiroz-Ruiz

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Tables and interpolation equations

A1–A40: Critical values and standard errors of the mean for 33 test variants.

A41–A59: Interpolation equations for outlier tests for 1,000 $\leq n \leq$ 30,000.

This electronic supplement contains 64 pages.

Table A1. Standard errors (SE) of critical values for discordancy test **N1** (*n* from 1,000 to 30,000) of an upper or lower outlier in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.00007	0.00009	0.00011	0.00015	0.00017	0.00032	0.00040
1050		0.00008	0.00008	0.00010	0.00014	0.00016	0.00025	0.00041
1100		0.00008	0.00009	0.00011	0.00013	0.00021	0.00023	0.0005
1150		0.00008	0.00009	0.00008	0.00011	0.00019	0.00026	0.0005
1200		0.00008	0.00008	0.00013	0.00013	0.00017	0.00028	0.0005
1250		0.00008	0.00009	0.00013	0.00013	0.00019	0.00028	0.00037
1300		0.00009	0.00012	0.00011	0.00011	0.00016	0.00026	0.00037
1350		0.00010	0.00010	0.00013	0.00014	0.00019	0.00026	0.00036
1400		0.00008	0.00009	0.00012	0.00013	0.00015	0.00026	0.00042
1450		0.00009	0.00010	0.00010	0.00013	0.00015	0.00030	0.00043
1500		0.00007	0.00009	0.00012	0.00012	0.00017	0.00029	0.00040
1600		0.00008	0.00008	0.00011	0.00015	0.00019	0.00032	0.0005
1700		0.00008	0.00008	0.00009	0.00013	0.00020	0.00039	0.0005
1800		0.00007	0.00008	0.00011	0.00013	0.00019	0.00033	0.0005
1900		0.00007	0.00009	0.00011	0.00014	0.00016	0.00034	0.00043
2000		0.00008	0.00007	0.00011	0.00016	0.00025	0.00038	0.0005
2500		0.00009	0.00010	0.00010	0.00015	0.00030	0.00038	0.0006
3000		0.00007	0.00008	0.00011	0.00013	0.00027	0.00038	0.0005
3500		0.00005	0.00006	0.00009	0.00014	0.00026	0.00031	0.0005
4000		0.00006	0.00006	0.00011	0.00015	0.00024	0.00033	0.00041
4500		0.00007	0.00007	0.00013	0.00018	0.00023	0.00034	0.00044
5000		0.00005	0.00007	0.00011	0.00017	0.00021	0.00037	0.0005
6000		0.00006	0.00008	0.00008	0.00017	0.00022	0.00034	0.00043
7000		0.00006	0.00008	0.00011	0.00018	0.00025	0.00032	0.00042
8000		0.00007	0.00009	0.00011	0.00017	0.00022	0.00035	0.00035
9000		0.00006	0.00008	0.00010	0.00014	0.00022	0.00033	0.00036
10000		0.00007	0.00009	0.00010	0.00015	0.00024	0.00032	0.00035
20000		0.00006	0.00007	0.00009	0.00015	0.00018	0.00031	0.0005
30000		0.00006	0.00009	0.00006	0.00010	0.00019	0.00031	0.00040

Table A2. Critical values for discordancy test **N1** (n from 1,000 to 30,000) of an upper or lower outlier in a normal sample.

n CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000	3.37984	3.50412	3.69566	3.87156	4.08919	4.24518	4.39575
1050	3.39337	3.51733	3.70843	3.88396	4.10095	4.25683	4.40711
1100	3.40619	3.52984	3.72047	3.89550	4.11223	4.26784	4.4179
1150	3.41844	3.54184	3.73198	3.90668	4.12307	4.27854	4.4280
1200	3.43016	3.55323	3.74299	3.91730	4.13327	4.28823	4.4378
1250	3.44130	3.56413	3.75347	3.92753	4.14314	4.29794	4.44725
1300	3.45198	3.57457	3.76351	3.93723	4.15224	4.30722	4.45633
1350	3.46229	3.58463	3.77316	3.94661	4.16130	4.31581	4.46498
1400	3.47216	3.59419	3.78241	3.95552	4.16996	4.32430	4.47296
1450	3.48167	3.60348	3.79135	3.96414	4.17827	4.33251	4.48095
1500	3.49076	3.61242	3.79992	3.97256	4.18637	4.34008	4.48860
1600	3.50813	3.62936	3.81626	3.98828	4.20138	4.35485	4.5029
1700	3.52442	3.64516	3.83140	4.00289	4.21559	4.36871	4.5166
1800	3.53967	3.66004	3.84579	4.01682	4.22893	4.38165	4.5291
1900	3.55399	3.67410	3.85922	4.02984	4.24140	4.39394	4.54138
2000	3.56760	3.68725	3.87204	4.04228	4.25343	4.40545	4.5525
2500	3.62607	3.74428	3.92695	4.09542	4.30440	4.45493	4.6012
3000	3.67315	3.79018	3.97116	4.13820	4.34550	4.49493	4.6400
3500	3.71252	3.82850	4.00814	4.17386	4.37988	4.52863	4.6727
4000	3.74628	3.86151	4.03994	4.20469	4.40976	4.55794	4.70073
4500	3.77579	3.89038	4.06777	4.23168	4.43584	4.58332	4.72608
5000	3.80212	3.91604	4.09254	4.25562	4.45857	4.60569	4.7480
6000	3.84717	3.96000	4.13493	4.29676	4.49813	4.64417	4.78574
7000	3.88492	3.99693	4.17049	4.33130	4.53146	4.67657	4.81703
8000	3.91736	4.02850	4.20109	4.36082	4.55969	4.70422	4.84383
9000	3.94574	4.05622	4.22778	4.38668	4.58472	4.72868	4.86767
10000	3.97093	4.08084	4.25155	4.40977	4.60709	4.75019	4.88877
20000	4.13334	4.23964	4.40490	4.55821	4.74995	4.88902	5.0240
30000	4.22572	4.32997	4.49220	4.64297	4.83189	4.96906	5.10205

Table A3. Standard errors (SE) of critical values for discordancy test **N2** (n from 1,000 to 30,000) of an extreme outlier in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.00010	0.00009	0.00016	0.00019	0.00038	0.0005	0.0005
1050		0.00008	0.00007	0.00013	0.00020	0.00029	0.00044	0.0006
1100		0.00007	0.00010	0.00015	0.00020	0.00025	0.0005	0.0006
1150		0.00008	0.00009	0.00010	0.00025	0.00030	0.0005	0.0006
1200		0.00007	0.00009	0.00013	0.00017	0.00032	0.00040	0.0006
1250		0.00010	0.00011	0.00013	0.00022	0.00031	0.00030	0.0005
1300		0.00011	0.00011	0.00015	0.00020	0.00024	0.00025	0.0005
1350		0.00010	0.00013	0.00016	0.00018	0.00017	0.00017	0.0006
1400		0.00007	0.00014	0.00018	0.00015	0.00017	0.00036	0.0005
1450		0.00008	0.00010	0.00015	0.00015	0.00027	0.00024	0.0005
1500		0.00006	0.00011	0.00017	0.00017	0.00030	0.00024	0.0006
1600		0.00006	0.00009	0.00013	0.00013	0.00031	0.00028	0.00042
1700		0.00008	0.00009	0.00015	0.00019	0.00036	0.00035	0.0005
1800		0.00009	0.00009	0.00010	0.00016	0.00032	0.00029	0.0008
1900		0.00006	0.00011	0.00017	0.00014	0.00034	0.00036	0.0007
2000		0.00008	0.00010	0.00019	0.00023	0.00037	0.00037	0.0008
2500		0.00007	0.00009	0.00015	0.00028	0.00031	0.0007	0.0008
3000		0.00007	0.00011	0.00014	0.00031	0.00037	0.0005	0.0007
3500		0.00009	0.00011	0.00013	0.00030	0.00027	0.00045	0.0007
4000		0.00009	0.00010	0.00014	0.00030	0.00023	0.00031	0.0006
4500		0.00010	0.00012	0.00018	0.00024	0.00021	0.00026	0.0006
5000		0.00009	0.00010	0.00023	0.00026	0.00021	0.00038	0.0006
6000		0.00009	0.00009	0.00020	0.00016	0.00016	0.00035	0.0005
7000		0.00010	0.00013	0.00024	0.00018	0.00019	0.00026	0.00038
8000		0.00008	0.00010	0.00020	0.00017	0.00025	0.00027	0.00040
9000		0.00010	0.00011	0.00017	0.00015	0.00019	0.00028	0.0005
10000		0.00007	0.00009	0.00016	0.00017	0.00020	0.00029	0.00036
20000		0.00010	0.00009	0.00010	0.00007	0.00029	0.00038	0.00044
30000		0.00008	0.00007	0.00009	0.00021	0.00022	0.00021	0.00041

Table A4. Critical values for discordancy test **N2** (n from 1,000 to 30,000) of an extreme outlier in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		3.56405	3.68254	3.86584	4.03458	4.24424	4.3953	4.5419
1050		3.57707	3.69531	3.87823	4.04676	4.25594	4.40667	4.5527
1100		3.58945	3.70748	3.88982	4.05804	4.26688	4.4175	4.5632
1150		3.60116	3.71885	3.90097	4.06900	4.27762	4.4276	4.5732
1200		3.61252	3.72997	3.91159	4.07924	4.28735	4.43734	4.5824
1250		3.62315	3.74037	3.92175	4.08928	4.29694	4.44673	4.5918
1300		3.63341	3.75040	3.93148	4.09867	4.30632	4.45589	4.6010
1350		3.64329	3.76005	3.94081	4.10764	4.31484	4.46451	4.6089
1400		3.65284	3.76930	3.94971	4.11635	4.32331	4.47244	4.6170
1450		3.66183	3.77821	3.95838	4.12474	4.33152	4.48046	4.6245
1500		3.67062	3.78681	3.96672	4.13281	4.33909	4.48817	4.6323
1600		3.68736	3.80315	3.98248	4.14803	4.35388	4.50247	4.64624
1700		3.70294	3.81825	3.99716	4.16238	4.36772	4.51609	4.6597
1800		3.71746	3.83262	4.01097	4.17570	4.38063	4.52857	4.6719
1900		3.73134	3.84612	4.02403	4.18841	4.39300	4.54100	4.6835
2000		3.74430	3.85890	4.03642	4.20047	4.40447	4.55209	4.6940
2500		3.80046	3.91385	4.08958	4.25190	4.45402	4.6007	4.7421
3000		3.84577	3.95810	4.13238	4.29348	4.49393	4.6395	4.7807
3500		3.88355	3.99510	4.16808	4.32817	4.52759	4.67218	4.8118
4000		3.91612	4.02693	4.19891	4.35826	4.55694	4.70027	4.8398
4500		3.94463	4.05475	4.22586	4.38450	4.58231	4.72559	4.8638
5000		3.96998	4.07965	4.24984	4.40774	4.60471	4.74758	4.8855
6000		4.01343	4.12214	4.29100	4.44739	4.64319	4.78530	4.9223
7000		4.04975	4.15768	4.32553	4.48101	4.67553	4.81655	4.95316
8000		4.08102	4.18831	4.35514	4.50967	4.70320	4.84335	4.97904
9000		4.10842	4.21509	4.38102	4.53473	4.72769	4.86717	5.0024
10000		4.13280	4.23897	4.40409	4.55715	4.74916	4.88824	5.02322
20000		4.28967	4.39259	4.55261	4.70161	4.88799	5.02344	5.15505
30000		4.37915	4.48007	4.63746	4.78405	4.96804	5.10155	5.23124

Table A5. Standard errors (SE) of critical values for discordancy test **N3** (n from 1,000 to 30,000) of an upper or lower pair (**k=2**; two outliers) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.00026	0.00025	0.00038	0.00035	0.0006	0.0008	0.0010
1050		0.00021	0.00026	0.00039	0.00038	0.0005	0.0008	0.0009
1100		0.00025	0.00025	0.00031	0.00035	0.0007	0.0008	0.0010
1150		0.00023	0.00022	0.00027	0.00036	0.0005	0.0008	0.0011
1200		0.00023	0.00026	0.00029	0.00029	0.0005	0.0007	0.0009
1250		0.00019	0.00027	0.00033	0.00032	0.0006	0.0009	0.0015
1300		0.00025	0.00023	0.00032	0.00038	0.0005	0.0008	0.0011
1350		0.00024	0.00024	0.00025	0.00032	0.0006	0.0008	0.0012
1400		0.00023	0.00025	0.00030	0.00042	0.0006	0.0007	0.0010
1450		0.00025	0.00023	0.00026	0.00028	0.0005	0.0008	0.0010
1500		0.00021	0.00025	0.00028	0.00042	0.0005	0.0009	0.0013
1600		0.00021	0.00022	0.00026	0.00027	0.0005	0.0008	0.0012
1700		0.00022	0.00027	0.00028	0.00038	0.0005	0.0009	0.0010
1800		0.00022	0.00022	0.00027	0.00033	0.0005	0.0007	0.0011
1900		0.00019	0.00024	0.00027	0.00038	0.0005	0.0009	0.0012
2000		0.00021	0.00021	0.00028	0.00031	0.0006	0.0008	0.0012
2500		0.00020	0.00023	0.00023	0.00025	0.00042	0.0009	0.0013
3000		0.00018	0.00017	0.00026	0.00033	0.0006	0.0009	0.0011
3500		0.00018	0.00020	0.00026	0.00031	0.0005	0.0008	0.0015
4000		0.00022	0.00022	0.00026	0.00034	0.0005	0.0008	0.0013
4500		0.00020	0.00025	0.00025	0.00035	0.0006	0.0010	0.0013
5000		0.00019	0.00025	0.00031	0.00035	0.0006	0.0009	0.0011
6000		0.00024	0.00025	0.00027	0.00030	0.0008	0.0010	0.0012
7000		0.00023	0.00027	0.00031	0.00038	0.0008	0.0011	0.0014
8000		0.00022	0.00026	0.00026	0.00045	0.0007	0.0008	0.0009
9000		0.00024	0.00019	0.00030	0.0005	0.0007	0.0008	0.0011
10000		0.00023	0.00029	0.00030	0.0005	0.0007	0.0011	0.0012
20000		0.00017	0.00023	0.00033	0.0005	0.0006	0.0008	0.0012
30000		0.00017	0.00022	0.00030	0.00034	0.0006	0.0008	0.0009

Table A6. Critical values for discordancy test **N3** (*n* from 1,000 to 30,000) of an upper or lower pair (**k=2**; two outliers) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000	1000	6.43075	6.61330	6.88234	7.12026	7.4046	7.6037	7.7923
1050	1050	6.45912	6.64117	6.90995	7.14725	7.4306	7.6287	7.8173
1100	1100	6.48592	6.66763	6.93621	7.17305	7.4555	7.6539	7.8425
1150	1150	6.51182	6.69280	6.96067	7.19765	7.4796	7.6767	7.8643
1200	1200	6.53618	6.71699	6.98440	7.22078	7.5029	7.6990	7.8863
1250	1250	6.55950	6.73995	7.00691	7.24276	7.5248	7.7215	7.9075
1300	1300	6.58217	6.76163	7.02804	7.26351	7.5449	7.7415	7.9277
1350	1350	6.60377	6.78314	7.04885	7.28363	7.5646	7.7611	7.9483
1400	1400	6.62406	6.80344	7.06936	7.30352	7.5839	7.7800	7.9662
1450	1450	6.64399	6.82278	7.08826	7.32196	7.6022	7.7978	7.9836
1500	1500	6.66304	6.84164	7.10691	7.34009	7.6199	7.8162	8.0011
1600	1600	6.69946	6.87737	7.14157	7.37475	7.6534	7.8475	8.0317
1700	1700	6.73333	6.91084	7.17396	7.40655	7.6842	7.8797	8.0632
1800	1800	6.76503	6.94210	7.20463	7.43665	7.7137	7.9073	8.0919
1900	1900	6.79486	6.97142	7.23328	7.46490	7.7411	7.9350	8.1184
2000	2000	6.82320	6.99929	7.26062	7.49139	7.7680	7.9614	8.1448
2500	2500	6.94544	7.11956	7.37780	7.60623	7.87941	8.0709	8.2541
3000	3000	7.04359	7.21587	7.47199	7.69898	7.9700	8.1598	8.3421
3500	3500	7.12529	7.29638	7.55055	7.77557	8.0458	8.2356	8.4154
4000	4000	7.19544	7.36547	7.61806	7.84185	8.1094	8.2974	8.4782
4500	4500	7.25701	7.42582	7.67704	7.89954	8.1656	8.3533	8.5312
5000	5000	7.31156	7.47938	7.72937	7.95052	8.2160	8.4029	8.5801
6000	6000	7.40497	7.57168	7.81920	8.03874	8.3014	8.4873	8.6642
7000	7000	7.48308	7.64835	7.89414	8.11171	8.3733	8.5576	8.7324
8000	8000	7.55065	7.71475	7.95871	8.17482	8.4346	8.6183	8.7919
9000	9000	7.60941	7.77235	8.01484	8.2297	8.4889	8.6707	8.8458
10000	10000	7.66146	7.82372	8.06472	8.2789	8.5368	8.7186	8.8922
20000	20000	7.99712	8.15375	8.38734	8.5955	8.8455	9.0224	9.1906
30000	30000	8.18765	8.34122	8.57076	8.77456	9.0213	9.1957	9.3618

Table A7. Standard errors (SE) of critical values for discordancy test **N3** (n from 1,000 to 30,000) of three upper or lower outliers (**k=3**) in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.00029	0.00034	0.0005	0.0005	0.0008	0.0006	0.0010
1050		0.00024	0.00028	0.00044	0.00041	0.0006	0.0008	0.0010
1100		0.00025	0.00028	0.00043	0.0005	0.0007	0.0009	0.0010
1150		0.00027	0.00029	0.00036	0.00032	0.0008	0.0007	0.0008
1200		0.00030	0.00031	0.00030	0.00044	0.0006	0.0008	0.0011
1250		0.00024	0.00026	0.00026	0.00029	0.0008	0.0010	0.0015
1300		0.00028	0.00032	0.00031	0.0005	0.0006	0.0009	0.0014
1350		0.00026	0.00029	0.00026	0.00044	0.0007	0.0009	0.0013
1400		0.00025	0.00031	0.00033	0.0006	0.0005	0.0010	0.0010
1450		0.00027	0.00026	0.00030	0.00042	0.0006	0.0008	0.0011
1500		0.00029	0.00034	0.00028	0.00041	0.0005	0.0008	0.0015
1600		0.00031	0.00024	0.00028	0.00030	0.0006	0.0010	0.0015
1700		0.00027	0.00030	0.00031	0.0005	0.0006	0.0009	0.0012
1800		0.00023	0.00025	0.00038	0.0006	0.0006	0.0009	0.0014
1900		0.00027	0.00033	0.00037	0.0005	0.0006	0.0009	0.0013
2000		0.00022	0.00023	0.00041	0.0005	0.0007	0.0009	0.0012
2500		0.00026	0.00024	0.00026	0.00045	0.0005	0.0009	0.0014
3000		0.00020	0.00025	0.00030	0.00039	0.0007	0.0009	0.0011
3500		0.00019	0.00028	0.00030	0.00038	0.0007	0.0010	0.0015
4000		0.00026	0.00032	0.00042	0.0005	0.0006	0.0010	0.0014
4500		0.00026	0.00026	0.00036	0.0005	0.0007	0.0010	0.0015
5000		0.00029	0.00034	0.00038	0.0005	0.0006	0.0011	0.0014
6000		0.00023	0.00032	0.00037	0.0005	0.0007	0.0010	0.0015
7000		0.00029	0.00034	0.00039	0.00040	0.0007	0.0011	0.0014
8000		0.00033	0.00032	0.00038	0.0005	0.0006	0.0009	0.0012
9000		0.00033	0.00032	0.00045	0.0005	0.0006	0.0010	0.0009
10000		0.00030	0.00031	0.00039	0.0005	0.0007	0.0010	0.0012
20000		0.00026	0.00026	0.00035	0.0005	0.0008	0.0010	0.0015
30000		0.00022	0.00026	0.00037	0.0005	0.0008	0.0009	0.0011

Table A8. Critical values for discordancy test **N3** (n from 1,000 to 30,000) of three upper or lower outliers (**k=3**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		9.30410	9.53067	9.8604	10.1478	10.4872	10.7224	10.9432
1050		9.34812	9.57418	9.90375	10.19014	10.5288	10.7624	10.9826
1100		9.39001	9.61555	9.94462	10.2309	10.5678	10.8027	11.0230
1150		9.42980	9.65468	9.98312	10.26887	10.6068	10.8393	11.0593
1200		9.46760	9.69252	10.02009	10.30556	10.6431	10.8751	11.0942
1250		9.50377	9.72830	10.05536	10.34015	10.6768	10.9081	11.1271
1300		9.53818	9.76190	10.08870	10.3727	10.7092	10.9408	11.1600
1350		9.57181	9.79508	10.12119	10.40512	10.7405	10.9734	11.1911
1400		9.60346	9.82684	10.15241	10.4363	10.7698	11.0022	11.2196
1450		9.63438	9.85708	10.18210	10.46518	10.7996	11.0308	11.2492
1500		9.66365	9.88619	10.21129	10.49420	10.8278	11.0591	11.2775
1600		9.72009	9.94183	10.26564	10.54781	10.8804	11.1100	11.3264
1700		9.77246	9.99338	10.31632	10.5980	10.9299	11.1601	11.3755
1800		9.82146	10.04219	10.36458	10.6449	10.9759	11.2054	11.4206
1900		9.86771	10.08774	10.40927	10.6893	11.0194	11.2492	11.4640
2000		9.91129	10.13083	10.45165	10.7313	11.0613	11.2893	11.5051
2500		10.10020	10.31682	10.63446	10.91084	11.2380	11.4641	11.6788
3000		10.25128	10.46639	10.78113	11.05561	11.3804	11.6052	11.8177
3500		10.37759	10.59077	10.90347	11.17571	11.4984	11.7223	11.9341
4000		10.48586	10.69796	11.00850	11.2797	11.5992	11.8219	12.0318
4500		10.58096	10.79142	11.09984	11.3689	11.6875	11.9088	12.1176
5000		10.66489	10.87442	11.18091	11.4490	11.7665	11.9866	12.1954
6000		10.80886	11.01623	11.32095	11.5862	11.9007	12.1198	12.3278
7000		10.92875	11.13482	11.43717	11.70063	12.0133	12.2309	12.4357
8000		11.03252	11.23707	11.53700	11.7987	12.1086	12.3251	12.5292
9000		11.12292	11.32613	11.62401	11.8843	12.1935	12.4091	12.6113
10000		11.20319	11.40518	11.70160	11.9609	12.2688	12.4840	12.6867
20000		11.71806	11.91340	12.20018	12.4518	12.7506	12.9592	13.1557
30000		12.00982	12.20108	12.48286	12.7295	13.0230	13.2286	13.4220

Table A9. Standard errors (SE) of critical values for discordancy test **N3** (n from 1,000 to 30,000) of four upper or lower outliers (**k=4**) in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.00033	0.00032	0.0005	0.0005	0.0008	0.0009	0.0012
1050		0.00022	0.00025	0.0005	0.00041	0.0007	0.0009	0.0008
1100		0.00026	0.00033	0.00041	0.0005	0.0007	0.0010	0.0011
1150		0.00029	0.00032	0.00032	0.00030	0.0008	0.0008	0.0011
1200		0.00029	0.00030	0.00028	0.00044	0.0007	0.0008	0.0014
1250		0.00025	0.00027	0.00034	0.00045	0.0010	0.0014	0.0017
1300		0.00035	0.00032	0.00034	0.0005	0.0008	0.0012	0.0016
1350		0.00029	0.00030	0.00029	0.0005	0.0009	0.0010	0.0015
1400		0.00027	0.00036	0.00033	0.0005	0.0008	0.0013	0.0013
1450		0.00028	0.00026	0.00035	0.0005	0.0008	0.0011	0.0015
1500		0.00031	0.00032	0.00034	0.0005	0.0007	0.0009	0.0018
1600		0.00032	0.00031	0.00022	0.00042	0.0008	0.0013	0.0016
1700		0.00023	0.00030	0.00039	0.0005	0.0005	0.0009	0.0015
1800		0.00029	0.00030	0.00036	0.0007	0.0008	0.0012	0.0013
1900		0.00031	0.00034	0.0005	0.0005	0.0007	0.0009	0.0016
2000		0.00029	0.00029	0.00040	0.0006	0.0007	0.0011	0.0013
2500		0.00026	0.00027	0.0005	0.0005	0.0006	0.0011	0.0015
3000		0.00021	0.00023	0.00034	0.0005	0.0007	0.0010	0.0012
3500		0.00026	0.00031	0.00037	0.0005	0.0008	0.0013	0.0019
4000		0.00034	0.00033	0.00038	0.0007	0.0007	0.0010	0.0013
4500		0.00028	0.00033	0.0005	0.0006	0.0010	0.0013	0.0017
5000		0.00040	0.00040	0.0005	0.0005	0.0007	0.0011	0.0014
6000		0.00029	0.00044	0.0005	0.0006	0.0008	0.0010	0.0017
7000		0.00036	0.00040	0.00041	0.0005	0.0009	0.0012	0.0016
8000		0.00034	0.00036	0.0005	0.0005	0.0008	0.0009	0.0014
9000		0.00039	0.00040	0.0006	0.00044	0.0007	0.0011	0.0015
10000		0.00036	0.00038	0.0005	0.0005	0.0008	0.0012	0.0011
20000		0.00028	0.00027	0.00041	0.0006	0.0007	0.0010	0.0015
30000		0.00028	0.00031	0.00034	0.0006	0.0008	0.0012	0.0014

Table A10. Critical values for discordancy test **N3** (*n* from 1,000 to 30,000) of four upper or lower outliers (**k=4**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		12.05801	12.32133	12.7026	13.0317	13.4177	13.6834	13.9320
1050		12.11801	12.38131	12.7622	13.09011	13.4748	13.7392	13.9878
1100		12.17544	12.43818	12.81785	13.1462	13.5294	13.7945	14.0440
1150		12.22956	12.49166	12.87090	13.19868	13.5825	13.8475	14.0952
1200		12.28130	12.54338	12.92191	13.24917	13.6326	13.8972	14.1443
1250		12.33103	12.59216	12.97095	13.29676	13.6793	13.9429	14.1898
1300		12.37808	12.63844	13.01594	13.3427	13.7249	13.9881	14.2366
1350		12.42369	12.68393	13.06116	13.3869	13.7692	14.0313	14.2779
1400		12.46715	12.72756	13.10391	13.4293	13.8100	14.0719	14.3173
1450		12.50903	12.76889	13.14489	13.4698	13.8505	14.1126	14.3567
1500		12.54901	12.80875	13.18489	13.5092	13.8896	14.1520	14.3975
1600		12.62604	12.88468	13.25932	13.58371	13.9623	14.2234	14.4682
1700		12.69780	12.95544	13.32927	13.6525	14.0311	14.2910	14.5351
1800		12.76441	13.02206	13.39492	13.7171	14.0943	14.3546	14.5980
1900		12.82798	13.08466	13.4563	13.7780	14.1551	14.4150	14.6594
2000		12.88734	13.14337	13.51510	13.8356	14.2121	14.4718	14.7145
2500		13.14448	13.39774	13.7656	14.0831	14.4549	14.7131	14.9552
3000		13.35081	13.60200	13.96656	14.2812	14.6516	14.9063	15.1468
3500		13.52274	13.77161	14.13363	14.4466	14.8146	15.0694	15.3070
4000		13.67026	13.91802	14.27777	14.5888	14.9538	15.2055	15.4417
4500		13.79953	14.04524	14.4027	14.7113	15.0753	15.3258	15.5624
5000		13.91360	14.15839	14.5136	14.8218	15.1845	15.4334	15.6704
6000		14.10940	14.35151	14.7046	15.0099	15.3684	15.6171	15.8498
7000		14.27262	14.51347	14.86388	15.1665	15.5241	15.7696	16.0020
8000		14.41348	14.65254	15.0000	15.3009	15.6542	15.8996	16.1318
9000		14.53624	14.77352	15.1191	15.41817	15.7707	16.0140	16.2426
10000		14.64496	14.88108	15.2249	15.5226	15.8739	16.1176	16.3473
20000		15.34394	15.57210	15.90420	16.1932	16.5338	16.7695	16.9920
30000		15.73932	15.96260	16.28865	16.5721	16.9063	17.1389	17.3558

Table A11. Standard errors (SE) of critical values for discordancy test N4 (n from 1,000 to 30,000) of an upper or lower outlier (**k=1**) in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.0000012	0.0000015	0.0000019	0.0000021	0.0000032	0.0000044	0.000007
1050		0.0000009	0.0000013	0.0000014	0.0000012	0.0000022	0.0000044	0.000008
1100		0.0000009	0.0000012	0.0000015	0.0000017	0.0000021	0.0000038	0.000007
1150		0.0000009	0.0000012	0.0000014	0.0000017	0.0000024	0.000005	0.000005
1200		0.0000009	0.0000011	0.0000013	0.0000016	0.0000023	0.0000045	0.000006
1250		0.0000008	0.0000012	0.0000014	0.0000016	0.0000022	0.0000044	0.000007
1300		0.0000008	0.0000012	0.0000012	0.0000015	0.0000026	0.0000036	0.000005
1350		0.0000008	0.0000012	0.0000011	0.0000014	0.0000027	0.0000040	0.000006
1400		0.0000008	0.0000009	0.0000010	0.0000012	0.0000029	0.0000032	0.0000045
1450		0.0000008	0.0000010	0.0000011	0.0000013	0.0000026	0.0000035	0.000005
1500		0.0000007	0.0000008	0.0000010	0.0000012	0.0000023	0.0000036	0.0000043
1600		0.0000007	0.0000009	0.0000010	0.0000011	0.0000023	0.0000029	0.000005
1700		0.0000007	0.0000008	0.0000006	0.0000010	0.0000022	0.0000036	0.000005
1800		0.0000007	0.0000006	0.0000009	0.0000011	0.0000019	0.0000026	0.0000042
1900		0.0000006	0.0000006	0.0000007	0.0000010	0.0000015	0.0000025	0.0000037
2000		0.0000006	0.0000006	0.0000006	0.0000009	0.0000015	0.0000024	0.0000036
2500		0.00000042	0.00000045	0.0000005	0.0000009	0.0000014	0.0000021	0.0000034
3000		0.00000035	0.00000040	0.00000034	0.0000007	0.0000012	0.0000020	0.0000031
3500		0.00000029	0.00000032	0.00000034	0.0000005	0.0000014	0.0000018	0.0000026
4000		0.00000028	0.00000029	0.00000033	0.0000005	0.0000011	0.0000015	0.0000021
4500		0.00000025	0.00000026	0.00000038	0.00000041	0.0000008	0.0000011	0.0000021
5000		0.00000020	0.00000026	0.00000033	0.00000039	0.0000008	0.0000012	0.0000019
6000		0.00000015	0.00000021	0.00000023	0.00000031	0.0000006	0.0000010	0.0000017
7000		0.00000013	0.00000017	0.00000018	0.00000040	0.0000007	0.0000008	0.0000015
8000		0.00000014	0.00000016	0.00000020	0.00000039	0.0000006	0.0000009	0.0000012
9000		0.00000011	0.00000015	0.00000018	0.00000028	0.0000005	0.0000007	0.0000010
10000		0.00000009	0.00000012	0.00000017	0.00000031	0.0000006	0.0000006	0.0000010
20000		0.000000040	0.00000006	0.00000011	0.00000014	0.00000023	0.00000027	0.0000005
30000		0.000000030	0.00000005	0.00000006	0.00000010	0.00000014	0.00000019	0.00000030

Table A12. Critical values for discordancy test **N4** (*n* from 1,000 to 30,000) of an upper or lower outlier (**k=1**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.9885552	0.9876988	0.9863164	0.9849850	0.9832550	0.9819520	0.980652
1050		0.9890132	0.9881963	0.9868783	0.9856080	0.9839590	0.9827188	0.981479
1100		0.9894344	0.9886538	0.9873952	0.9861809	0.9846051	0.9834177	0.982238
1150		0.9898216	0.9890727	0.9878687	0.9867074	0.9851962	0.984062	0.982937
1200		0.9901791	0.9894620	0.9883070	0.9871927	0.9857457	0.9846582	0.983571
1250		0.9905108	0.9898215	0.9887119	0.9876411	0.9862497	0.9852044	0.984163
1300		0.9908202	0.9901563	0.9890891	0.9880601	0.9867226	0.9857110	0.984708
1350		0.9911075	0.9904678	0.9894401	0.9884481	0.9871566	0.9861838	0.985220
1400		0.9913767	0.9907600	0.9897672	0.9888102	0.9875633	0.9866252	0.9856976
1450		0.9916290	0.9910328	0.9900740	0.9891498	0.9879469	0.9870422	0.986143
1500		0.9918659	0.9912886	0.9903625	0.9894666	0.9883028	0.9874288	0.9865597
1600		0.9922984	0.9917569	0.9908866	0.9900481	0.9889560	0.9881397	0.987321
1700		0.9926849	0.9921743	0.9913549	0.9905640	0.9895355	0.9887650	0.987998
1800		0.9930321	0.9925497	0.9917753	0.9910272	0.9900556	0.9893268	0.9885979
1900		0.9933455	0.9928880	0.9921540	0.9914447	0.9905216	0.9898322	0.9891386
2000		0.9936301	0.9931946	0.9924968	0.9918230	0.9909460	0.9902893	0.9896310
2500		0.99473628	0.99438734	0.9938263	0.9932858	0.9925830	0.9920584	0.9915295
3000		0.99549934	0.99520812	0.99474000	0.9942890	0.9937011	0.9932617	0.9928189
3500		0.99605950	0.99580983	0.99540742	0.9950199	0.9945165	0.9941375	0.9937590
4000		0.99648939	0.99627030	0.99591765	0.9955786	0.9951366	0.9948036	0.9944735
4500		0.99683032	0.99663515	0.99632131	0.99601913	0.9956261	0.9953302	0.9950364
5000		0.99710748	0.99693171	0.99664897	0.99637702	0.9960234	0.9957568	0.9954916
6000		0.99753233	0.99738566	0.99714965	0.99692248	0.9966273	0.9964050	0.9961843
7000		0.99784337	0.99771731	0.99751496	0.99732006	0.9970666	0.9968760	0.9966867
8000		0.99808128	0.99797080	0.99779351	0.99762295	0.9974009	0.9972342	0.9970678
9000		0.99826979	0.99817154	0.99801399	0.99786202	0.9976645	0.9975163	0.9973681
10000		0.99842288	0.99833434	0.99819250	0.99805552	0.9978777	0.9977443	0.9976111
20000		0.999145650	0.99910118	0.99902970	0.99896105	0.99887160	0.99880471	0.9987382
30000		0.999404720	0.99937498	0.99932733	0.99928141	0.99922157	0.99917689	0.99913265

Table A13. Standard errors (SE) of critical values for discordancy test **N4** (*n* from 1,000 to 30,000) of two upper or lower outliers (**k=2**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.0000016	0.0000017	0.0000025	0.0000027	0.000005	0.000005	0.000008
1050		0.0000013	0.0000017	0.0000022	0.0000021	0.0000030	0.000007	0.000008
1100		0.0000015	0.0000015	0.0000019	0.0000021	0.0000042	0.000006	0.000008
1150		0.0000014	0.0000013	0.0000016	0.0000020	0.0000033	0.000005	0.000006
1200		0.0000013	0.0000015	0.0000019	0.0000017	0.0000028	0.000005	0.000007
1250		0.0000011	0.0000015	0.0000018	0.0000020	0.0000030	0.000006	0.000010
1300		0.0000013	0.0000013	0.0000018	0.0000020	0.0000036	0.000005	0.000007
1350		0.0000012	0.0000012	0.0000013	0.0000018	0.0000034	0.000005	0.000008
1400		0.0000011	0.0000012	0.0000016	0.0000022	0.0000035	0.000005	0.000006
1450		0.0000011	0.0000012	0.0000015	0.0000016	0.0000030	0.0000042	0.000006
1500		0.0000009	0.0000012	0.0000015	0.0000018	0.0000030	0.000005	0.000007
1600		0.0000009	0.0000010	0.0000012	0.0000012	0.0000028	0.0000044	0.000007
1700		0.0000009	0.0000012	0.0000011	0.0000014	0.0000021	0.0000042	0.000005
1800		0.0000008	0.0000009	0.0000011	0.0000013	0.0000018	0.0000033	0.000005
1900		0.0000007	0.0000009	0.0000010	0.0000014	0.0000020	0.0000036	0.000005
2000		0.0000008	0.0000008	0.0000011	0.0000012	0.0000021	0.0000036	0.000005
2500		0.0000005	0.0000006	0.0000006	0.0000008	0.0000016	0.0000030	0.000005
3000		0.0000005	0.00000042	0.0000006	0.0000009	0.0000016	0.0000024	0.0000033
3500		0.00000037	0.0000005	0.0000006	0.0000007	0.0000012	0.0000022	0.0000035
4000		0.00000042	0.00000041	0.0000005	0.0000007	0.0000012	0.0000018	0.0000030
4500		0.00000033	0.00000038	0.00000042	0.0000007	0.0000011	0.0000019	0.0000021
5000		0.00000029	0.00000039	0.0000005	0.0000006	0.0000012	0.0000016	0.0000020
6000		0.00000030	0.00000030	0.00000032	0.00000039	0.0000010	0.0000014	0.0000019
7000		0.00000024	0.00000029	0.00000034	0.00000044	0.0000009	0.0000013	0.0000018
8000		0.00000021	0.00000026	0.00000026	0.00000044	0.0000008	0.0000009	0.0000010
9000		0.00000020	0.00000017	0.00000027	0.00000044	0.0000007	0.0000008	0.0000010
10000		0.00000017	0.00000023	0.00000025	0.00000044	0.0000007	0.0000008	0.0000012
20000		0.00000007	0.00000009	0.00000014	0.00000023	0.00000025	0.00000035	0.0000005
30000		0.00000005	0.00000006	0.00000009	0.00000011	0.00000018	0.00000023	0.00000029

Table A14. Critical values for discordancy test **N4** (*n* from 1,000 to 30,000) of two upper or lower outliers (**k=2**) in a normal sample.

n CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000	0.9791733	0.9779536	0.9760838	0.9743595	0.972213	0.970658	0.969138
1050	0.9799939	0.9788303	0.9770438	0.9754008	0.9733553	0.971875	0.970431
1100	0.9807483	0.9796349	0.9779259	0.9763556	0.9744042	0.972984	0.971599
1150	0.9814412	0.9803768	0.9787407	0.9772343	0.9753652	0.974009	0.972687
1200	0.9820841	0.9810620	0.9794916	0.9780457	0.9762488	0.974953	0.973684
1250	0.9826806	0.9816975	0.9801876	0.9787989	0.9770708	0.975821	0.974602
1300	0.9832333	0.9822907	0.9808377	0.9795022	0.9778365	0.976635	0.975465
1350	0.9837505	0.9828406	0.9814412	0.9801550	0.9785520	0.977390	0.976255
1400	0.9842365	0.9833563	0.9820026	0.9807619	0.9792152	0.978094	0.977008
1450	0.9846902	0.9838409	0.9825330	0.9813337	0.9798386	0.9787590	0.977708
1500	0.9851171	0.9842946	0.9830282	0.9818693	0.9804236	0.979375	0.978357
1600	0.9858969	0.9851252	0.9839374	0.9828456	0.9814901	0.9805120	0.979559
1700	0.9865947	0.9858663	0.9847476	0.9837197	0.9824427	0.9815148	0.980617
1800	0.9872219	0.9865328	0.9854749	0.9845024	0.9832945	0.9824209	0.981569
1900	0.9877892	0.9871354	0.9861319	0.9852084	0.9840628	0.9832339	0.982424
2000	0.9883041	0.9876828	0.9867274	0.9858496	0.9847591	0.9839701	0.983202
2500	0.9903101	0.9898104	0.9890437	0.9883387	0.9874640	0.9868313	0.986207
3000	0.9916982	0.99128063	0.9906391	0.9900489	0.9893181	0.9887883	0.9882677
3500	0.99272016	0.9923610	0.9918098	0.9913033	0.9906734	0.9902167	0.9897706
4000	0.99350540	0.99319027	0.9927065	0.9922622	0.9917119	0.9913125	0.9909196
4500	0.99412891	0.99384857	0.99341750	0.9930221	0.9925325	0.9921757	0.9918297
5000	0.99463693	0.99438429	0.9939957	0.9936401	0.9931987	0.9928763	0.9925634
6000	0.99541685	0.99520525	0.99488101	0.99458356	0.9942146	0.9939463	0.9936838
7000	0.99598901	0.99580737	0.99552881	0.99527403	0.9949568	0.9947263	0.9945020
8000	0.99642723	0.99626802	0.99602413	0.99580094	0.9955233	0.9953209	0.9951244
9000	0.99677491	0.99663338	0.99641639	0.99621775	0.9959703	0.9957915	0.9956151
10000	0.99705784	0.99693013	0.99673494	0.99655575	0.9963329	0.9961710	0.9960125
20000	0.99839794	0.99833377	0.99823543	0.99814506	0.99803305	0.99795179	0.9978726
30000	0.99888072	0.99883777	0.99877195	0.99871180	0.99863666	0.99858220	0.99852918

Table A15. Standard errors (SE) of critical values for discordancy test **N4** (*n* from 1,000 to 30,000) of three upper or lower outliers (**k=3**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.0000019	0.0000022	0.0000032	0.0000033	0.000006	0.000005	0.000007
1050		0.0000015	0.0000018	0.0000028	0.0000028	0.0000035	0.000006	0.000010
1100		0.0000017	0.0000014	0.0000026	0.0000028	0.0000042	0.000007	0.000006
1150		0.0000015	0.0000017	0.0000019	0.0000024	0.000005	0.0000044	0.000006
1200		0.0000016	0.0000017	0.0000017	0.0000023	0.0000035	0.000005	0.000007
1250		0.0000012	0.0000015	0.0000015	0.0000018	0.000005	0.000006	0.000010
1300		0.0000015	0.0000017	0.0000017	0.0000027	0.0000036	0.000006	0.000008
1350		0.0000014	0.0000015	0.0000013	0.0000024	0.0000038	0.0000044	0.000008
1400		0.0000011	0.0000016	0.0000016	0.0000025	0.0000033	0.000005	0.000006
1450		0.0000012	0.0000013	0.0000014	0.0000022	0.0000026	0.0000038	0.000006
1500		0.0000012	0.0000014	0.0000014	0.0000016	0.0000029	0.0000040	0.000008
1600		0.0000012	0.0000011	0.0000012	0.0000012	0.0000036	0.000005	0.000007
1700		0.0000010	0.0000012	0.0000013	0.0000019	0.0000028	0.0000040	0.000006
1800		0.0000009	0.0000010	0.0000016	0.0000019	0.0000023	0.0000034	0.000006
1900		0.0000009	0.0000011	0.0000013	0.0000019	0.0000024	0.0000040	0.000005
2000		0.0000008	0.0000009	0.0000014	0.0000016	0.0000026	0.0000037	0.0000044
2500		0.0000008	0.0000007	0.0000009	0.0000012	0.0000015	0.0000027	0.0000045
3000		0.0000005	0.0000006	0.0000007	0.0000010	0.0000020	0.0000024	0.0000035
3500		0.00000042	0.0000006	0.0000007	0.0000008	0.0000015	0.0000023	0.0000035
4000		0.0000005	0.0000006	0.0000007	0.0000008	0.0000013	0.0000017	0.0000027
4500		0.00000039	0.00000041	0.0000006	0.0000009	0.0000011	0.0000018	0.0000028
5000		0.00000044	0.0000005	0.0000006	0.0000007	0.0000010	0.0000018	0.0000025
6000		0.00000029	0.00000040	0.0000005	0.0000007	0.0000009	0.0000014	0.0000019
7000		0.00000032	0.00000035	0.00000041	0.0000005	0.0000009	0.0000012	0.0000018
8000		0.00000030	0.00000029	0.00000033	0.0000005	0.0000007	0.0000010	0.0000014
9000		0.00000029	0.00000026	0.00000039	0.0000005	0.0000006	0.0000008	0.0000010
10000		0.00000022	0.00000025	0.00000032	0.00000043	0.0000006	0.0000008	0.0000011
20000		0.00000010	0.00000011	0.00000016	0.00000021	0.00000031	0.0000005	0.0000006
30000		0.00000006	0.00000008	0.00000010	0.00000014	0.00000022	0.00000027	0.00000039

Table A16. Critical values for discordancy test **N4** (n from 1,000 to 30,000) of three upper or lower outliers (**k=3**) in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.9708394	0.9693678	0.9671497	0.9651481	0.962699	0.960947	0.959261
1050		0.9719735	0.9705681	0.9684502	0.9665398	0.9642047	0.962543	0.960934
1100		0.9730150	0.9716714	0.9696440	0.9678193	0.9655898	0.963992	0.962456
1150		0.9739756	0.9726881	0.9707484	0.9689974	0.966857	0.9653341	0.963861
1200		0.9748650	0.9736281	0.9717664	0.9700829	0.9680282	0.966570	0.965150
1250		0.9756914	0.9745020	0.9727104	0.9710956	0.969122	0.967716	0.966369
1300		0.9764610	0.9753174	0.9735925	0.9720387	0.9701374	0.968784	0.967467
1350		0.9771771	0.9760737	0.9744127	0.9729142	0.9710806	0.9697685	0.968512
1400		0.9778504	0.9767837	0.9751778	0.9737285	0.9719669	0.970702	0.969485
1450		0.9784797	0.9774499	0.9758979	0.9744980	0.9727901	0.9715717	0.970395
1500		0.9790736	0.9780767	0.9765719	0.9752170	0.9735660	0.9723836	0.971247
1600		0.9801574	0.9792208	0.9778094	0.9765349	0.9749861	0.973879	0.972819
1700		0.9811272	0.9802449	0.9789138	0.9777128	0.9762500	0.9752029	0.974196
1800		0.9820010	0.9811644	0.9799044	0.9787720	0.9773845	0.9764009	0.975449
1900		0.9827912	0.9819976	0.9808024	0.9797258	0.9784124	0.9774713	0.976571
2000		0.9835101	0.9827547	0.9816170	0.9805920	0.9793415	0.9784505	0.9775906
2500		0.9863105	0.9857042	0.9847883	0.9839649	0.9829580	0.9822431	0.9815469
3000		0.9882543	0.9877460	0.9869801	0.9862901	0.9854470	0.9848482	0.9842688
3500		0.98968693	0.9892499	0.9885904	0.9879973	0.9872728	0.9867560	0.9862576
4000		0.9907895	0.9904054	0.9898271	0.9893061	0.9886740	0.9882196	0.9877836
4500		0.99166596	0.99132427	0.9908094	0.9903462	0.9897816	0.9893778	0.9889886
5000		0.99238134	0.9920730	0.9916094	0.9911911	0.9906816	0.9903188	0.9899663
6000		0.99348074	0.99322319	0.9928345	0.9924856	0.9920608	0.9917556	0.9914613
7000		0.99428877	0.99406720	0.99373346	0.9934335	0.9930677	0.9928064	0.9925552
8000		0.99490835	0.99471408	0.99442170	0.9941596	0.9938396	0.9936105	0.9933901
9000		0.99540040	0.99522756	0.99496758	0.9947342	0.9944489	0.9942445	0.9940492
10000		0.99580090	0.99564526	0.99541099	0.99520023	0.9949429	0.9947585	0.9945814
20000		0.99770464	0.99762614	0.99750807	0.99740176	0.99727230	0.9971798	0.9970906
30000		0.99839311	0.99834067	0.99826158	0.99819063	0.99810393	0.99804195	0.99798248

Table A17. Standard errors (SE) of critical values for discordancy test **N4** (*n* from 1,000 to 30,000) of four upper or lower outliers (**k=4**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.0000021	0.0000023	0.0000033	0.0000033	0.000006	0.000007	0.000008
1050		0.0000014	0.0000016	0.0000034	0.0000026	0.000005	0.000007	0.000008
1100		0.0000017	0.0000020	0.0000028	0.0000028	0.000005	0.000007	0.000007
1150		0.0000018	0.0000018	0.0000018	0.0000023	0.000005	0.000005	0.000008
1200		0.0000016	0.0000017	0.0000017	0.0000023	0.0000041	0.000005	0.000007
1250		0.0000013	0.0000016	0.0000019	0.0000021	0.000005	0.000008	0.000012
1300		0.0000017	0.0000017	0.0000016	0.0000026	0.000005	0.000006	0.000009
1350		0.0000015	0.0000016	0.0000016	0.0000029	0.0000044	0.000005	0.000008
1400		0.0000013	0.0000015	0.0000016	0.0000026	0.000005	0.000007	0.000008
1450		0.0000013	0.0000012	0.0000015	0.0000026	0.0000038	0.000005	0.000008
1500		0.0000013	0.0000015	0.0000015	0.0000021	0.0000034	0.000005	0.000008
1600		0.0000014	0.0000012	0.0000009	0.0000017	0.0000029	0.000006	0.000007
1700		0.0000010	0.0000013	0.0000016	0.0000023	0.0000022	0.0000035	0.000007
1800		0.0000010	0.0000013	0.0000014	0.0000028	0.0000032	0.000005	0.000007
1900		0.0000011	0.0000013	0.0000016	0.0000019	0.0000024	0.0000030	0.000006
2000		0.0000009	0.0000010	0.0000016	0.0000018	0.0000026	0.0000036	0.000005
2500		0.0000008	0.0000007	0.0000011	0.0000014	0.0000016	0.0000027	0.000005
3000		0.0000005	0.0000007	0.0000009	0.0000012	0.0000018	0.0000023	0.0000038
3500		0.00000044	0.0000007	0.0000007	0.0000011	0.0000014	0.0000028	0.0000042
4000		0.0000007	0.0000007	0.0000008	0.0000011	0.0000012	0.0000019	0.0000030
4500		0.00000042	0.0000005	0.0000008	0.0000010	0.0000015	0.0000019	0.0000031
5000		0.0000006	0.0000006	0.0000006	0.0000008	0.0000011	0.0000021	0.0000026
6000		0.00000035	0.0000005	0.0000006	0.0000009	0.0000010	0.0000017	0.0000022
7000		0.00000033	0.00000045	0.0000005	0.0000005	0.0000010	0.0000015	0.0000018
8000		0.00000030	0.00000034	0.00000044	0.0000006	0.0000007	0.0000008	0.0000014
9000		0.00000033	0.00000030	0.0000005	0.00000045	0.0000006	0.0000010	0.0000013
10000		0.00000028	0.00000030	0.00000037	0.00000041	0.0000008	0.0000010	0.0000011
20000		0.00000011	0.00000010	0.00000017	0.00000023	0.00000031	0.00000041	0.0000006
30000		0.00000007	0.00000010	0.00000010	0.00000015	0.00000024	0.00000034	0.00000044

Table A18. Critical values for discordancy test **N4** (n from 1,000 to 30,000) of four upper or lower outliers (**k=4**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.9631725	0.9615002	0.9590066	0.9567835	0.954092	0.952184	0.950358
1050		0.9645891	0.9629910	0.9606090	0.9584890	0.955925	0.954108	0.952372
1100		0.9658904	0.9643611	0.9620841	0.9600526	0.957600	0.955861	0.954192
1150		0.9670922	0.9656286	0.9634458	0.9614986	0.959144	0.957477	0.955881
1200		0.9682057	0.9667971	0.9647014	0.9628316	0.9605705	0.958966	0.957441
1250		0.9692394	0.9678862	0.9658669	0.9640713	0.961901	0.960365	0.958893
1300		0.9702027	0.9689034	0.9669599	0.9652278	0.963135	0.961652	0.960227
1350		0.9711024	0.9698462	0.9679722	0.9663024	0.9642775	0.962852	0.961487
1400		0.9719450	0.9707298	0.9689204	0.9673067	0.965362	0.963982	0.962668
1450		0.9727355	0.9715612	0.9698116	0.9682514	0.9663660	0.965037	0.963766
1500		0.9734805	0.9723427	0.9706475	0.9691375	0.9673140	0.966022	0.964789
1600		0.9748413	0.9737724	0.9721803	0.9707579	0.9690466	0.967839	0.966685
1700		0.9760588	0.9750516	0.9735498	0.9722110	0.9705935	0.9694550	0.968364
1800		0.9771573	0.9762027	0.9747806	0.9735148	0.9719865	0.970903	0.969874
1900		0.9781498	0.9772447	0.9758963	0.9746931	0.9732428	0.9722138	0.971233
2000		0.9790552	0.9781930	0.9769078	0.9757626	0.9743816	0.9734027	0.972473
2500		0.9825849	0.9818904	0.9808551	0.9799348	0.9788252	0.9780338	0.977283
3000		0.9850380	0.9844562	0.9835890	0.9828186	0.9818865	0.9812296	0.9805986
3500		0.98684956	0.9863495	0.9856030	0.9849394	0.9841361	0.9835680	0.9830281
4000		0.9882457	0.9878055	0.9871505	0.9865675	0.9858666	0.9853696	0.9848941
4500		0.98935633	0.9889651	0.9883815	0.9878636	0.9872361	0.9867941	0.9863696
5000		0.9902642	0.9899107	0.9893849	0.9889163	0.9883513	0.9879517	0.9875677
6000		0.99166042	0.9913652	0.9909242	0.9905327	0.9900605	0.9897256	0.9894062
7000		0.99268755	0.99243349	0.9920543	0.9917186	0.9913119	0.9910250	0.9907493
8000		0.99347633	0.99325336	0.99292181	0.9926271	0.9922722	0.9920206	0.9917777
9000		0.99410321	0.99390487	0.9936096	0.99334718	0.9930305	0.9928064	0.9925917
10000		0.99461403	0.99443531	0.99416891	0.99393282	0.9936468	0.9934432	0.9932495
20000		0.99704645	0.99695621	0.99682204	0.99670256	0.99655829	0.99645652	0.9963589
30000		0.99792897	0.99786866	0.99777876	0.99769881	0.99760249	0.99753406	0.99746934

Table A19. Standard errors (SE) of critical values for discordancy test **N5** (*n* from 1,000 to 30,000) of two upper or lower outliers (**k=2**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.0000014	0.0000021	0.0000032	0.000005	0.000010	0.000014	0.000016
1050		0.0000016	0.0000018	0.0000019	0.0000034	0.000006	0.000009	0.000013
1100		0.0000014	0.0000015	0.0000024	0.0000040	0.000007	0.000011	0.000011
1150		0.0000019	0.0000016	0.0000015	0.0000041	0.000007	0.000008	0.000011
1200		0.0000022	0.0000017	0.0000019	0.0000036	0.000006	0.000006	0.000010
1250		0.0000018	0.0000020	0.0000025	0.0000039	0.000007	0.000006	0.000008
1300		0.0000016	0.0000019	0.0000019	0.0000036	0.000005	0.000007	0.000012
1350		0.0000014	0.0000020	0.0000017	0.0000034	0.0000042	0.000009	0.000010
1400		0.0000012	0.0000015	0.0000024	0.0000034	0.000005	0.000008	0.000011
1450		0.0000010	0.0000018	0.0000022	0.0000034	0.000005	0.000005	0.000008
1500		0.0000012	0.0000015	0.0000019	0.0000023	0.000005	0.000006	0.000007
1600		0.0000011	0.0000013	0.0000022	0.0000020	0.0000030	0.0000040	0.000008
1700		0.0000010	0.0000012	0.0000016	0.0000012	0.0000037	0.000006	0.000008
1800		0.0000009	0.0000011	0.0000018	0.0000017	0.0000039	0.000006	0.000007
1900		0.0000007	0.0000005	0.0000016	0.0000012	0.0000023	0.0000035	0.000007
2000		0.0000007	0.0000009	0.0000012	0.0000016	0.0000038	0.000005	0.000008
2500		0.00000040	0.0000007	0.0000009	0.0000014	0.0000016	0.000005	0.000006
3000		0.0000006	0.0000005	0.0000009	0.0000010	0.0000026	0.0000034	0.000005
3500		0.00000044	0.0000006	0.0000008	0.0000006	0.0000017	0.0000017	0.0000029
4000		0.0000005	0.00000043	0.0000007	0.0000012	0.0000016	0.0000014	0.0000032
4500		0.00000034	0.00000040	0.0000005	0.0000008	0.0000013	0.0000020	0.0000019
5000		0.00000031	0.00000039	0.00000044	0.0000007	0.0000011	0.0000020	0.0000029
6000		0.00000027	0.00000028	0.00000040	0.0000008	0.0000014	0.0000025	0.0000030
7000		0.00000017	0.00000028	0.00000034	0.0000006	0.0000011	0.0000013	0.0000027
8000		0.00000019	0.00000023	0.00000043	0.0000005	0.0000008	0.0000012	0.0000021
9000		0.00000023	0.00000023	0.00000042	0.0000008	0.0000007	0.0000014	0.0000015
10000		0.00000018	0.00000028	0.00000040	0.0000005	0.0000006	0.0000012	0.0000011
20000		0.00000011	0.00000015	0.00000018	0.00000022	0.00000025	0.00000035	0.0000006
30000		0.00000008	0.00000010	0.00000013	0.00000016	0.00000016	0.00000014	0.00000030

Table A20. Critical values for discordancy test **N5** (n from 1,000 to 30,000) of two upper or lower outliers (**k=2**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.9774417	0.9762720	0.9744637	0.972790	0.970691	0.969174	0.967672
1050		0.9783393	0.9772233	0.9755014	0.9739049	0.971909	0.970454	0.969036
1100		0.9791668	0.9781002	0.9764537	0.9749262	0.973011	0.971613	0.970256
1150		0.9799268	0.9789034	0.9773242	0.9758617	0.974032	0.972698	0.971399
1200		0.9806300	0.9796489	0.9781342	0.9767303	0.974970	0.973696	0.972446
1250		0.9812827	0.9803391	0.9788813	0.9775309	0.975845	0.974616	0.973418
1300		0.9818906	0.9809836	0.9795811	0.9782792	0.976661	0.975475	0.974318
1350		0.9824567	0.9815821	0.9802281	0.9789736	0.9774063	0.976262	0.975162
1400		0.9829860	0.9821402	0.9808333	0.9796253	0.978119	0.977020	0.975953
1450		0.9834812	0.9826652	0.9814032	0.9802339	0.978771	0.977711	0.976681
1500		0.9839486	0.9831581	0.9819370	0.9808048	0.979391	0.978367	0.977360
1600		0.9848002	0.9840576	0.9829107	0.9818502	0.9805266	0.9795643	0.978620
1700		0.9855602	0.9848624	0.9837792	0.9827804	0.9815328	0.980630	0.979745
1800		0.9862430	0.9855822	0.9845601	0.9836155	0.9824291	0.981572	0.980734
1900		0.9868614	0.9862328	0.9852619	0.9843670	0.9832476	0.9824346	0.981631
2000		0.9874221	0.9868244	0.9859025	0.9850493	0.9839767	0.983202	0.982444
2500		0.98960127	0.9891213	0.9883786	0.9876949	0.9868370	0.986210	0.985600
3000		0.9911068	0.9907048	0.9900838	0.9895100	0.9887936	0.9882739	0.987763
3500		0.99221194	0.9918659	0.9913329	0.9908396	0.9902243	0.9897755	0.9893346
4000		0.9930592	0.99275614	0.9922886	0.9918560	0.9913168	0.9909228	0.9905378
4500		0.99373147	0.99346210	0.9930458	0.9926596	0.9921786	0.9918239	0.9914817
5000		0.99427881	0.99403613	0.99365990	0.9933123	0.9928798	0.9925639	0.9922560
6000		0.99511801	0.99491483	0.99460110	0.9943119	0.9939503	0.9936881	0.9934310
7000		0.99573218	0.99555770	0.99528850	0.9950398	0.9947286	0.9945041	0.9942840
8000		0.99620217	0.99604950	0.99581347	0.9955959	0.9953236	0.9951261	0.9949343
9000		0.99657485	0.99643864	0.99622881	0.9960351	0.9957935	0.9956168	0.9954450
10000		0.99687758	0.99675475	0.99656597	0.9963911	0.9961743	0.9960154	0.9958620
20000		0.99830722	0.99824545	0.99815035	0.99806290	0.99795345	0.99787366	0.9977956
30000		0.99882007	0.99877882	0.99871524	0.99865657	0.99858342	0.99852985	0.99847778

Table A21. Standard errors (SE) of critical values for discordancy test **N6** (n from 1,000 to 30,000) of upper and lower outlier pair (**k=2**) in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.00012	0.00012	0.00018	0.00019	0.00035	0.0007	0.0012
1050		0.00011	0.00010	0.00020	0.00025	0.00037	0.0006	0.0008
1100		0.00013	0.00014	0.00021	0.00032	0.0006	0.0008	0.0010
1150		0.00014	0.00016	0.00020	0.00022	0.00041	0.00043	0.0008
1200		0.00014	0.00012	0.00020	0.00019	0.0005	0.0005	0.0010
1250		0.00013	0.00011	0.00011	0.00031	0.0005	0.0007	0.0006
1300		0.00013	0.00018	0.00012	0.00023	0.00044	0.0006	0.0008
1350		0.00013	0.00016	0.00018	0.00024	0.00034	0.0008	0.0010
1400		0.00014	0.00012	0.00016	0.00025	0.00036	0.0007	0.0006
1450		0.00012	0.00015	0.00017	0.00028	0.0005	0.0007	0.0007
1500		0.00009	0.00017	0.00018	0.00021	0.0005	0.0007	0.0009
1600		0.00010	0.00014	0.00017	0.00031	0.00034	0.0006	0.0010
1700		0.00012	0.00010	0.00022	0.00015	0.00044	0.0006	0.0005
1800		0.00013	0.00010	0.00017	0.00022	0.0005	0.0007	0.0006
1900		0.00011	0.00010	0.00018	0.00026	0.0005	0.0006	0.0009
2000		0.00013	0.00013	0.00013	0.00028	0.0006	0.0007	0.0009
2500		0.00012	0.00014	0.00012	0.00025	0.0005	0.0006	0.0006
3000		0.00009	0.00011	0.00018	0.00035	0.0007	0.0007	0.0009
3500		0.00009	0.00012	0.00014	0.00030	0.00040	0.0006	0.0006
4000		0.00013	0.00008	0.00025	0.00038	0.00039	0.00043	0.0006
4500		0.00014	0.00014	0.00022	0.00038	0.00026	0.00040	0.0007
5000		0.00013	0.00019	0.00025	0.00035	0.00039	0.00043	0.0006
6000		0.00010	0.00016	0.00019	0.00024	0.00038	0.00041	0.0006
7000		0.00010	0.00013	0.00017	0.00031	0.0005	0.0005	0.0007
8000		0.00011	0.00013	0.00019	0.00027	0.00039	0.0006	0.0006
9000		0.00009	0.00008	0.00018	0.00030	0.00033	0.00039	0.0006
10000		0.00012	0.00015	0.00021	0.00037	0.00040	0.0006	0.0005
20000		0.00015	0.00019	0.00021	0.00025	0.00031	0.00036	0.0008
30000		0.00011	0.00014	0.00024	0.00039	0.00021	0.00042	0.0005

Table A22. Critical values for discordancy test **N6** (*n* from 1,000 to 30,000) of upper and lower outlier pair (**k=2**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		6.69356	6.86185	7.11327	7.33741	7.60717	7.7971	7.9787
1050		6.72107	6.88901	7.13987	7.36350	7.63291	7.8226	8.0031
1100		6.74702	6.91472	7.16512	7.38821	7.6571	7.8474	8.0279
1150		6.77205	6.93930	7.18906	7.41204	7.68040	7.87015	8.0507
1200		6.79583	6.96295	7.21223	7.43443	7.7022	7.8910	8.0715
1250		6.81832	6.98514	7.23403	7.45602	7.7238	7.9124	8.0922
1300		6.84000	7.00643	7.25482	7.47679	7.74399	7.9329	8.1119
1350		6.86078	7.02705	7.27512	7.49646	7.76377	7.9524	8.1309
1400		6.88080	7.04669	7.29452	7.51518	7.78169	7.9702	8.1495
1450		6.90016	7.06559	7.31297	7.53394	7.8002	7.9879	8.1672
1500		6.91846	7.08380	7.33076	7.55154	7.8173	8.0047	8.1849
1600		6.95372	7.11849	7.36490	7.58476	7.85023	8.0370	8.2168
1700		6.98651	7.15062	7.39661	7.61578	7.88072	8.0672	8.2460
1800		7.01751	7.18128	7.42638	7.64526	7.9099	8.0966	8.2748
1900		7.04641	7.20993	7.45444	7.67280	7.9364	8.1226	8.3002
2000		7.07382	7.23699	7.48087	7.69876	7.9626	8.1485	8.3259
2500		7.19228	7.35361	7.59514	7.81090	8.0720	8.2571	8.4333
3000		7.28727	7.44744	7.68716	7.90165	8.1607	8.3436	8.5185
3500		7.36695	7.52583	7.76366	7.97654	8.23397	8.4165	8.5909
4000		7.43549	7.59325	7.82984	8.04137	8.29728	8.47892	8.6515
4500		7.49532	7.65226	7.88744	8.09799	8.35281	8.53363	8.7057
5000		7.54836	7.70455	7.93875	8.14826	8.40227	8.58164	8.7522
6000		7.63927	7.79420	8.02671	8.23425	8.48566	8.66374	8.8343
7000		7.71545	7.86939	8.09997	8.30691	8.5567	8.7339	8.9028
8000		7.78104	7.93372	8.16298	8.36829	8.61705	8.7930	8.9610
9000		7.83836	7.99034	8.21828	8.42276	8.66982	8.84533	9.0128
10000		7.88923	8.04051	8.26754	8.47075	8.71668	8.8912	9.0576
20000		8.21673	8.36316	8.58288	8.78031	9.01981	9.18957	9.3529
30000		8.40292	8.54669	8.76259	8.95636	9.19161	9.35999	9.5206

Table A23. Standard errors (SE) of critical values for Dixon-type discordancy test **N7** (*n* from 1,000 to 30,000) of an upper outlier in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.000027	0.000025	0.000043	0.00006	0.00007	0.00009	0.00009
1050		0.000029	0.000023	0.000040	0.00005	0.00008	0.00011	0.00013
1100		0.000028	0.000029	0.000029	0.00005	0.00008	0.00013	0.00011
1150		0.000022	0.000029	0.000040	0.000037	0.00007	0.00009	0.00014
1200		0.000025	0.000043	0.00005	0.00005	0.00006	0.00013	0.00011
1250		0.000019	0.000022	0.000032	0.00005	0.00007	0.00011	0.00013
1300		0.000034	0.000038	0.00005	0.00005	0.00007	0.00011	0.00013
1350		0.000028	0.000034	0.000033	0.000030	0.00006	0.00011	0.00019
1400		0.000021	0.000024	0.000034	0.000031	0.00008	0.00010	0.00015
1450		0.000032	0.000036	0.000033	0.00005	0.00010	0.00009	0.00010
1500		0.000034	0.000036	0.000039	0.00006	0.00009	0.00010	0.00011
1600		0.000035	0.000035	0.00005	0.00006	0.00007	0.00012	0.00015
1700		0.000028	0.000030	0.000032	0.000040	0.00009	0.00015	0.00014
1800		0.000034	0.000029	0.00005	0.00006	0.00009	0.00012	0.00017
1900		0.000032	0.000032	0.000044	0.00005	0.000042	0.00005	0.00012
2000		0.000032	0.000028	0.000035	0.00006	0.000044	0.00010	0.00009
2500		0.000027	0.000031	0.00005	0.00006	0.00008	0.00010	0.00013
3000		0.000019	0.000028	0.000038	0.00005	0.00007	0.00013	0.00012
3500		0.000011	0.000015	0.000033	0.00005	0.000039	0.00006	0.00010
4000		0.000015	0.000030	0.000045	0.00006	0.000039	0.00005	0.00013
4500		0.000021	0.000028	0.000040	0.000041	0.000042	0.00007	0.00007
5000		0.000014	0.000022	0.000038	0.00005	0.00006	0.00008	0.00011
6000		0.000023	0.000025	0.000042	0.00006	0.00005	0.00008	0.00011
7000		0.000018	0.000016	0.000033	0.000035	0.00005	0.00006	0.00009
8000		0.000021	0.000022	0.000035	0.000044	0.00007	0.00012	0.00013
9000		0.000019	0.000017	0.000019	0.000037	0.00006	0.00008	0.00011
10000		0.000014	0.000025	0.000028	0.000041	0.00009	0.00008	0.00006
20000		0.000014	0.000021	0.000040	0.00005	0.00006	0.00010	0.00009
30000		0.000009	0.000016	0.000039	0.00005	0.00007	0.00008	0.00011

Table A24. Critical values for Dixon-type discordancy test **N7** (n from 1,000 to 30,000) of an upper outlier in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.054214	0.070361	0.095931	0.11932	0.14729	0.16681	0.18472
1050		0.053814	0.069848	0.095263	0.11840	0.14626	0.16557	0.18340
1100		0.053381	0.069309	0.094499	0.11758	0.14533	0.16445	0.18236
1150		0.052971	0.068795	0.093905	0.116859	0.14441	0.16341	0.18123
1200		0.052633	0.068381	0.09330	0.11615	0.14350	0.16244	0.18031
1250		0.052291	0.067928	0.092721	0.11543	0.14269	0.16160	0.17917
1300		0.051927	0.067474	0.09212	0.11477	0.14195	0.16076	0.17838
1350		0.051649	0.067063	0.091598	0.114058	0.14114	0.15986	0.17746
1400		0.051335	0.066675	0.091106	0.113517	0.14045	0.15917	0.17671
1450		0.051069	0.066340	0.090645	0.11289	0.13983	0.15835	0.17573
1500		0.050781	0.065989	0.090182	0.11233	0.13907	0.15781	0.17492
1600		0.050236	0.065334	0.08932	0.11130	0.13776	0.15620	0.17345
1700		0.049809	0.064735	0.088551	0.110416	0.13679	0.15515	0.17222
1800		0.049356	0.064174	0.08775	0.10946	0.13560	0.15385	0.17064
1900		0.048906	0.063603	0.087082	0.10863	0.134722	0.15279	0.16954
2000		0.048571	0.063170	0.086452	0.10786	0.133789	0.15184	0.16861
2500		0.046949	0.061101	0.08377	0.10466	0.12997	0.14757	0.16388
3000		0.045725	0.059571	0.081669	0.10213	0.12695	0.14424	0.16040
3500		0.044724	0.058295	0.080044	0.10009	0.124434	0.14146	0.15740
4000		0.043920	0.057254	0.078601	0.09839	0.122532	0.13930	0.15512
4500		0.043217	0.056355	0.077458	0.097005	0.120711	0.13732	0.15287
5000		0.042604	0.055588	0.076428	0.09576	0.11928	0.13574	0.15119
6000		0.041572	0.054257	0.074654	0.09356	0.11674	0.13290	0.14818
7000		0.040717	0.053195	0.073200	0.091791	0.11461	0.13064	0.14577
8000		0.040038	0.052317	0.072052	0.090427	0.11302	0.12888	0.14374
9000		0.039424	0.051535	0.071024	0.089182	0.11141	0.12712	0.14165
10000		0.038940	0.050910	0.070167	0.088155	0.11015	0.12566	0.14014
20000		0.035912	0.047002	0.064936	0.08176	0.10239	0.11698	0.13083
30000		0.034301	0.044939	0.062193	0.07839	0.09838	0.11250	0.12587

Table A25. Standard errors (SE) of critical values for discordancy test **N8** (n from 1,000 to 30,000) of an extreme outlier in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.000022	0.000026	0.000035	0.000036	0.00005	0.00006	0.00011
1050		0.000024	0.000031	0.000033	0.00005	0.00006	0.00007	0.00016
1100		0.000032	0.000029	0.000037	0.000044	0.00006	0.00009	0.00012
1150		0.000025	0.000028	0.000031	0.00005	0.000034	0.00009	0.00014
1200		0.000027	0.000041	0.000034	0.00005	0.00008	0.00008	0.00008
1250		0.000030	0.000031	0.000041	0.000042	0.00007	0.00010	0.00013
1300		0.000037	0.000039	0.000045	0.00005	0.00006	0.00009	0.00015
1350		0.000028	0.000038	0.000033	0.000033	0.00007	0.00011	0.00012
1400		0.000027	0.000029	0.000033	0.00005	0.00007	0.00010	0.00012
1450		0.000029	0.000026	0.000035	0.00005	0.00008	0.00006	0.00012
1500		0.000040	0.000035	0.000035	0.000032	0.00007	0.00008	0.00014
1600		0.000021	0.000030	0.000032	0.00005	0.00007	0.00008	0.00007
1700		0.000027	0.000027	0.000025	0.00005	0.00007	0.00008	0.00008
1800		0.000020	0.000032	0.000026	0.000044	0.00006	0.00008	0.00010
1900		0.000024	0.000024	0.000031	0.00005	0.00007	0.00009	0.00012
2000		0.000027	0.000043	0.000033	0.000038	0.00008	0.00010	0.00014
2500		0.000019	0.000020	0.000034	0.000045	0.00007	0.00010	0.00013
3000		0.000024	0.000024	0.000030	0.000034	0.00006	0.00007	0.00014
3500		0.000015	0.000019	0.000035	0.000045	0.00007	0.00007	0.00011
4000		0.000023	0.000024	0.00005	0.00005	0.00005	0.00008	0.00012
4500		0.000020	0.000018	0.000039	0.000044	0.00008	0.00009	0.00015
5000		0.000011	0.000023	0.000029	0.00005	0.000040	0.00008	0.00010
6000		0.000014	0.000017	0.000042	0.00005	0.00006	0.00009	0.00008
7000		0.000013	0.000019	0.000028	0.000044	0.00006	0.00008	0.00013
8000		0.000022	0.000029	0.000029	0.000037	0.00008	0.00007	0.00015
9000		0.000014	0.000024	0.000031	0.00005	0.000044	0.00008	0.00012
10000		0.000023	0.000021	0.000030	0.00006	0.00007	0.00006	0.00006
20000		0.000021	0.000033	0.000035	0.00005	0.00006	0.00005	0.00008
30000		0.000021	0.000027	0.000027	0.000034	0.000027	0.00005	0.00007

Table A26. Critical values for discordancy test **N8** (n from 1,000 to 30,000) of an extreme outlier in a normal sample.

n CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000	0.078990	0.094762	0.118997	0.140690	0.16681	0.18478	0.20164
1050	0.078391	0.094083	0.118068	0.13972	0.16564	0.18350	0.20033
1100	0.077779	0.093358	0.117262	0.138769	0.16454	0.18237	0.19904
1150	0.077240	0.092748	0.116503	0.13787	0.163530	0.18126	0.19807
1200	0.076742	0.092135	0.115758	0.13697	0.16251	0.18027	0.19678
1250	0.076239	0.091543	0.115066	0.136228	0.16167	0.17924	0.19573
1300	0.075765	0.090980	0.114435	0.13547	0.16086	0.17839	0.19483
1350	0.075305	0.090433	0.113717	0.134666	0.15998	0.17751	0.19383
1400	0.074897	0.089967	0.113180	0.13404	0.15922	0.17668	0.19290
1450	0.074491	0.089507	0.112580	0.13343	0.15843	0.17588	0.19215
1500	0.074114	0.089024	0.112034	0.132708	0.15783	0.17506	0.19129
1600	0.073373	0.088198	0.111010	0.13154	0.15637	0.17355	0.18961
1700	0.072707	0.087413	0.110062	0.13051	0.15514	0.17227	0.18821
1800	0.072065	0.086653	0.109170	0.129450	0.15393	0.17086	0.18672
1900	0.071472	0.085984	0.108357	0.12856	0.15285	0.16966	0.18546
2000	0.070959	0.085378	0.107594	0.127634	0.15187	0.16870	0.18441
2500	0.068657	0.082672	0.104345	0.123962	0.14761	0.16395	0.17942
3000	0.066919	0.080617	0.101771	0.121017	0.14429	0.16050	0.17571
3500	0.065505	0.078956	0.099714	0.118628	0.14150	0.15751	0.17239
4000	0.064319	0.077555	0.09808	0.11671	0.13938	0.15522	0.17009
4500	0.063320	0.076386	0.096615	0.115032	0.13741	0.15301	0.16779
5000	0.062436	0.075361	0.095368	0.11359	0.135764	0.15125	0.16583
6000	0.060975	0.073618	0.093210	0.11114	0.13296	0.14826	0.16263
7000	0.059781	0.072216	0.091508	0.109196	0.13060	0.14573	0.15998
8000	0.058822	0.071062	0.090096	0.107549	0.12880	0.14374	0.15765
9000	0.057932	0.070042	0.088851	0.10612	0.127136	0.14188	0.15581
10000	0.057205	0.069162	0.087780	0.10484	0.12559	0.14018	0.15410
20000	0.052825	0.063974	0.081398	0.09738	0.11704	0.13092	0.14374
30000	0.050522	0.061248	0.078041	0.093508	0.112481	0.12588	0.13844

Table A27. Standard errors (SE) of critical values for Dixon-type discordancy test **N9** (n from 1,000 to 30,000) of an upper or lower outlier in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.000023	0.000026	0.000038	0.000045	0.00005	0.00007	0.00009
1050		0.000021	0.000023	0.000031	0.000044	0.00006	0.00007	0.00008
1100		0.000018	0.000023	0.000031	0.00005	0.00006	0.00008	0.00007
1150		0.000020	0.000021	0.000030	0.000031	0.00006	0.00006	0.00009
1200		0.000023	0.000028	0.000039	0.000043	0.000045	0.00008	0.00007
1250		0.000018	0.000022	0.000027	0.000043	0.00006	0.00006	0.00010
1300		0.000023	0.000027	0.000035	0.000036	0.00005	0.00007	0.00008
1350		0.000021	0.000026	0.000035	0.000036	0.000039	0.00008	0.00011
1400		0.000019	0.000022	0.000025	0.000031	0.00006	0.00008	0.00010
1450		0.000020	0.000022	0.000026	0.000036	0.00006	0.00007	0.00008
1500		0.000021	0.000026	0.000033	0.000035	0.00006	0.00007	0.00008
1600		0.000024	0.000024	0.000035	0.000040	0.00006	0.00010	0.00010
1700		0.000019	0.000021	0.000028	0.000022	0.00005	0.00008	0.00010
1800		0.000021	0.000022	0.000035	0.000039	0.00006	0.00008	0.00010
1900		0.000020	0.000023	0.000028	0.000034	0.000043	0.00006	0.00010
2000		0.000023	0.000027	0.000035	0.000041	0.000040	0.00007	0.00010
2500		0.000019	0.000027	0.000030	0.000040	0.00005	0.00007	0.00009
3000		0.000013	0.000020	0.000027	0.000032	0.000044	0.00006	0.00009
3500		0.000015	0.000019	0.000025	0.000036	0.000041	0.00005	0.00008
4000		0.000015	0.000020	0.000025	0.000042	0.000038	0.00006	0.00009
4500		0.000014	0.000020	0.000026	0.000036	0.000041	0.00007	0.00008
5000		0.000013	0.000020	0.000027	0.000030	0.000033	0.00005	0.00008
6000		0.000014	0.000015	0.000022	0.000036	0.000040	0.00008	0.00010
7000		0.000012	0.000013	0.000028	0.000033	0.000041	0.00007	0.00007
8000		0.000015	0.000018	0.000026	0.000027	0.00006	0.00007	0.00010
9000		0.000014	0.000015	0.000023	0.000029	0.00005	0.00007	0.00011
10000		0.000012	0.000020	0.000021	0.000028	0.00005	0.00006	0.00007
20000		0.000013	0.000018	0.000025	0.000033	0.00005	0.00007	0.00008
30000		0.000010	0.000012	0.000025	0.000028	0.00005	0.00007	0.00006

Table A28. Critical values for Dixon-type discordancy test **N9** (n from 1,000 to 30,000) of an upper or lower outlier in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.056687	0.073474	0.099996	0.124240	0.15315	0.17314	0.19153
1050		0.056229	0.072894	0.099259	0.123275	0.15199	0.17184	0.19017
1100		0.055750	0.072296	0.098450	0.12236	0.15095	0.17073	0.18891
1150		0.055324	0.071759	0.097797	0.121538	0.14997	0.16958	0.18774
1200		0.054942	0.071278	0.097134	0.120729	0.148974	0.16848	0.18661
1250		0.054566	0.070799	0.096497	0.120001	0.14814	0.16753	0.18563
1300		0.054191	0.070319	0.095867	0.119281	0.14727	0.16671	0.18467
1350		0.053857	0.069879	0.095290	0.118532	0.146412	0.16575	0.18376
1400		0.053537	0.069475	0.094744	0.117934	0.14570	0.16499	0.18283
1450		0.053238	0.069080	0.094257	0.117308	0.14499	0.16415	0.18199
1500		0.052929	0.068710	0.093735	0.116719	0.14425	0.16349	0.18108
1600		0.052369	0.068015	0.092831	0.115585	0.14290	0.16189	0.17951
1700		0.051857	0.067354	0.091988	0.114582	0.14175	0.16053	0.17808
1800		0.051382	0.066746	0.091167	0.113638	0.14055	0.15928	0.17661
1900		0.050910	0.066164	0.090436	0.112771	0.139569	0.15812	0.17538
2000		0.050526	0.065683	0.089772	0.111946	0.138532	0.15709	0.17431
2500		0.048803	0.063475	0.086880	0.108475	0.13447	0.15254	0.16927
3000		0.047462	0.061794	0.084636	0.105693	0.131217	0.14897	0.16552
3500		0.046387	0.060419	0.082861	0.103491	0.128545	0.14604	0.16240
4000		0.045512	0.059296	0.081347	0.101722	0.126457	0.14379	0.15997
4500		0.044752	0.058336	0.080100	0.100201	0.124602	0.14171	0.15757
5000		0.044095	0.057506	0.078987	0.098861	0.122983	0.13993	0.15572
6000		0.043007	0.056093	0.077119	0.096546	0.120313	0.13694	0.15254
7000		0.042118	0.054970	0.075600	0.094748	0.118104	0.13449	0.14994
8000		0.041395	0.054046	0.074383	0.093241	0.11631	0.13254	0.14771
9000		0.040737	0.053209	0.073274	0.091917	0.11472	0.13081	0.14582
10000		0.040204	0.052531	0.072338	0.090773	0.11333	0.12919	0.14404
20000		0.036974	0.048372	0.066797	0.083998	0.10513	0.12015	0.13426
30000		0.035284	0.046208	0.063878	0.080461	0.10087	0.11532	0.12899

Table A29. Standard errors (SE) of critical values for Dixon-type discordancy test **N10** (n from 1,000 to 30,000) of an upper or lower outlier in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.000023	0.000028	0.000039	0.00005	0.00005	0.00007	0.00009
1050		0.000021	0.000021	0.000034	0.000042	0.00005	0.00009	0.00010
1100		0.000019	0.000026	0.000034	0.000043	0.00005	0.00010	0.00007
1150		0.000021	0.000022	0.000030	0.000035	0.00005	0.00007	0.00010
1200		0.000024	0.000030	0.000041	0.000039	0.00005	0.00008	0.00008
1250		0.000019	0.000024	0.000031	0.000041	0.00006	0.00006	0.00009
1300		0.000024	0.000027	0.000035	0.000040	0.00006	0.00008	0.00009
1350		0.000023	0.000027	0.000035	0.000038	0.00005	0.00008	0.00011
1400		0.000020	0.000023	0.000024	0.000031	0.00006	0.00007	0.00008
1450		0.000021	0.000023	0.000026	0.000037	0.00006	0.00007	0.00010
1500		0.000022	0.000028	0.000033	0.000036	0.00007	0.00007	0.00009
1600		0.000025	0.000024	0.000036	0.000039	0.00007	0.00009	0.00010
1700		0.000020	0.000020	0.000028	0.000025	0.00006	0.00008	0.00011
1800		0.000021	0.000022	0.000034	0.000040	0.00006	0.00008	0.00011
1900		0.000021	0.000023	0.000029	0.000033	0.00005	0.00006	0.00010
2000		0.000024	0.000028	0.000036	0.000039	0.000042	0.00007	0.00009
2500		0.000019	0.000025	0.000032	0.000043	0.00005	0.00008	0.00009
3000		0.000013	0.000020	0.000026	0.000034	0.00005	0.00007	0.00009
3500		0.000014	0.000019	0.000025	0.000035	0.000037	0.00006	0.00009
4000		0.000016	0.000020	0.000026	0.000043	0.000037	0.00007	0.00009
4500		0.000014	0.000021	0.000027	0.000037	0.000042	0.00008	0.00009
5000		0.000014	0.000020	0.000026	0.000032	0.000031	0.00005	0.00009
6000		0.000014	0.000015	0.000025	0.000037	0.000044	0.00009	0.00011
7000		0.000013	0.000013	0.000029	0.000035	0.000042	0.00007	0.00007
8000		0.000015	0.000019	0.000027	0.000030	0.00006	0.00007	0.00010
9000		0.000015	0.000015	0.000024	0.000030	0.00005	0.00007	0.00010
10000		0.000012	0.000020	0.000021	0.000029	0.00005	0.00006	0.00007
20000		0.000013	0.000017	0.000028	0.000032	0.00006	0.00008	0.00009
30000		0.000011	0.000012	0.000025	0.000030	0.00005	0.00007	0.00006

Table A30. Critical values for Dixon-type discordancy test **N10** (n from 1,000 to 30,000) of an upper or lower outlier in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.058111	0.075282	0.102394	0.12711	0.15653	0.17688	0.19559
1050		0.057635	0.074680	0.101601	0.126093	0.15531	0.17553	0.19416
1100		0.057131	0.074045	0.100759	0.125156	0.15424	0.17435	0.19289
1150		0.056687	0.073481	0.100074	0.124301	0.15323	0.17320	0.19157
1200		0.056278	0.072974	0.099374	0.123426	0.15218	0.17199	0.19040
1250		0.055886	0.072479	0.098708	0.122671	0.15131	0.17101	0.18943
1300		0.055490	0.071968	0.098048	0.121923	0.15041	0.17014	0.18841
1350		0.055136	0.071516	0.097440	0.121128	0.14948	0.16917	0.18745
1400		0.054804	0.071092	0.096879	0.120503	0.14876	0.16832	0.18650
1450		0.054489	0.070677	0.096377	0.119861	0.14805	0.16748	0.18557
1500		0.054167	0.070285	0.095820	0.119236	0.14728	0.16678	0.18473
1600		0.053578	0.069554	0.094879	0.118062	0.14582	0.16514	0.18298
1700		0.053045	0.068865	0.093985	0.117001	0.14462	0.16374	0.18150
1800		0.052548	0.068230	0.093137	0.115996	0.14338	0.16241	0.17993
1900		0.052058	0.067629	0.092379	0.115102	0.14236	0.16118	0.17874
2000		0.051650	0.067117	0.091679	0.114242	0.141298	0.16013	0.17756
2500		0.049848	0.064812	0.088657	0.110613	0.13704	0.15541	0.17234
3000		0.048454	0.063060	0.086325	0.107736	0.13366	0.15169	0.16847
3500		0.047333	0.061633	0.084477	0.105466	0.130903	0.14869	0.16524
4000		0.046421	0.060460	0.082898	0.103609	0.128710	0.14631	0.16273
4500		0.045633	0.059456	0.081612	0.102021	0.126805	0.14414	0.16024
5000		0.044947	0.058594	0.080450	0.100644	0.125110	0.14229	0.15830
6000		0.043815	0.057137	0.078504	0.098247	0.122347	0.13921	0.15504
7000		0.042891	0.055969	0.076934	0.096370	0.120063	0.13670	0.15231
8000		0.042143	0.055002	0.075668	0.094819	0.11822	0.13465	0.15005
9000		0.041461	0.054140	0.074531	0.093447	0.11657	0.13284	0.14807
10000		0.040906	0.053443	0.073551	0.092275	0.11513	0.13119	0.14620
20000		0.037568	0.049137	0.067832	0.085270	0.10667	0.12182	0.13611
30000		0.035823	0.046900	0.064829	0.081627	0.10228	0.11692	0.13073

Table A31. Standard errors (SE) of critical values for Dixon-type discordancy test **N11** (*n* from 1,000 to 30,000) of upper or lower outlier pair (**k=2**) in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.000027	0.000029	0.000040	0.000038	0.00006	0.00007	0.00011
1050		0.000023	0.000025	0.000034	0.00005	0.00005	0.00007	0.00011
1100		0.000024	0.000025	0.000034	0.000031	0.00005	0.00006	0.00008
1150		0.000023	0.000024	0.000029	0.000027	0.000041	0.00006	0.00010
1200		0.000023	0.000030	0.000028	0.000026	0.000044	0.00006	0.00008
1250		0.000022	0.000031	0.000031	0.000037	0.000038	0.00008	0.00012
1300		0.000020	0.000027	0.000026	0.000027	0.000039	0.000041	0.00008
1350		0.000021	0.000025	0.000035	0.000027	0.00005	0.00006	0.00011
1400		0.000022	0.000028	0.000025	0.000033	0.00005	0.00006	0.00008
1450		0.000023	0.000029	0.000028	0.000034	0.00005	0.00005	0.00008
1500		0.000020	0.000024	0.000026	0.000035	0.00005	0.00005	0.00006
1600		0.000022	0.000028	0.000028	0.000032	0.00005	0.00006	0.00008
1700		0.000021	0.000026	0.000027	0.000031	0.00005	0.00005	0.00008
1800		0.000017	0.000027	0.000024	0.000030	0.00005	0.00006	0.00010
1900		0.000025	0.000027	0.000021	0.000026	0.00005	0.00006	0.00010
2000		0.000023	0.000024	0.000021	0.000030	0.000035	0.00006	0.00009
2500		0.000019	0.000022	0.000023	0.000035	0.00005	0.00006	0.00010
3000		0.000019	0.000019	0.000023	0.000025	0.000041	0.00005	0.00008
3500		0.000021	0.000018	0.000027	0.000029	0.000043	0.00005	0.00010
4000		0.000019	0.000018	0.000027	0.000028	0.000041	0.00006	0.00009
4500		0.000014	0.000019	0.000024	0.000025	0.000032	0.00006	0.00008
5000		0.000015	0.000016	0.000022	0.000025	0.000036	0.00006	0.00008
6000		0.000017	0.000021	0.000024	0.000027	0.000042	0.00007	0.00009
7000		0.000016	0.000017	0.000022	0.000029	0.00005	0.00006	0.00009
8000		0.000013	0.000019	0.000024	0.000027	0.00005	0.00007	0.00010
9000		0.000016	0.000020	0.000021	0.000025	0.00005	0.00006	0.00008
10000		0.000015	0.000022	0.000025	0.000027	0.000040	0.00005	0.00007
20000		0.000015	0.000020	0.000022	0.000016	0.00005	0.00006	0.00009
30000		0.000010	0.000014	0.000019	0.000031	0.00005	0.00005	0.00008

Table A32. Critical values for Dixon-type discordancy test **N11** (n from 1,000 to 30,000) of upper or lower outlier pair (**k=2**) in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.082657	0.099308	0.124732	0.147450	0.17432	0.19286	0.20996
1050		0.081970	0.098501	0.123761	0.14635	0.17311	0.19152	0.20858
1100		0.081312	0.097751	0.122859	0.145325	0.17196	0.19021	0.20720
1150		0.080717	0.097057	0.122026	0.144382	0.170860	0.18907	0.20602
1200		0.080158	0.096398	0.121208	0.143415	0.169750	0.18793	0.20482
1250		0.079621	0.095771	0.120444	0.142557	0.168821	0.18689	0.20378
1300		0.079133	0.095156	0.119735	0.141741	0.167900	0.185885	0.20266
1350		0.078621	0.094582	0.118979	0.140925	0.16702	0.18499	0.20170
1400		0.078161	0.094035	0.118358	0.140207	0.16615	0.18417	0.20071
1450		0.077719	0.093508	0.117713	0.139466	0.16534	0.18328	0.19979
1500		0.077303	0.093022	0.117136	0.138750	0.16456	0.18240	0.19889
1600		0.076505	0.092096	0.116012	0.137492	0.16307	0.18072	0.19713
1700		0.075776	0.091272	0.114974	0.136272	0.16163	0.17927	0.19561
1800		0.075100	0.090446	0.113979	0.135177	0.16050	0.17794	0.19415
1900		0.074449	0.089702	0.113122	0.134176	0.15933	0.17669	0.19281
2000		0.073880	0.089024	0.112301	0.133195	0.158249	0.17561	0.19161
2500		0.071440	0.086157	0.108780	0.129140	0.15366	0.17047	0.18622
3000		0.069542	0.083895	0.106080	0.126046	0.150057	0.16667	0.18227
3500		0.068009	0.082122	0.103875	0.123503	0.147132	0.16359	0.17887
4000		0.066737	0.080608	0.102046	0.121398	0.144752	0.16101	0.17628
4500		0.065678	0.079357	0.100489	0.119580	0.142630	0.15872	0.17382
5000		0.064737	0.078242	0.099118	0.118025	0.140867	0.15683	0.17165
6000		0.063156	0.076378	0.096848	0.115419	0.137873	0.15348	0.16819
7000		0.061893	0.074880	0.094989	0.113257	0.13539	0.15084	0.16538
8000		0.060848	0.073640	0.093498	0.111535	0.13341	0.14866	0.16293
9000		0.059922	0.072544	0.092143	0.109999	0.13164	0.14676	0.16098
10000		0.059153	0.071612	0.091000	0.108641	0.130058	0.14512	0.15923
20000		0.054446	0.066052	0.084163	0.100718	0.12089	0.13503	0.14833
30000		0.052028	0.063172	0.080598	0.096600	0.11613	0.12985	0.14268

Table A33. Standard errors (SE) of critical values for Dixon-type discordancy test **N12** (*n* from 1,000 to 30,000) of upper or lower outlier pair (**k=2**) in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.000025	0.000031	0.000041	0.000035	0.00006	0.00007	0.00008
1050		0.000024	0.000025	0.000037	0.000040	0.00005	0.00007	0.00008
1100		0.000023	0.000027	0.000036	0.000036	0.00005	0.00006	0.00008
1150		0.000023	0.000024	0.000030	0.000033	0.00005	0.00006	0.00011
1200		0.000022	0.000031	0.000030	0.000029	0.000044	0.00006	0.00009
1250		0.000023	0.000032	0.000033	0.000039	0.000035	0.00007	0.00013
1300		0.000022	0.000031	0.000029	0.000026	0.000044	0.00005	0.00010
1350		0.000024	0.000027	0.000037	0.000033	0.00005	0.00006	0.00011
1400		0.000023	0.000027	0.000028	0.000034	0.00005	0.00007	0.00007
1450		0.000025	0.000030	0.000032	0.000036	0.00005	0.00006	0.00009
1500		0.000025	0.000027	0.000028	0.000036	0.000040	0.00005	0.00006
1600		0.000023	0.000028	0.000028	0.000036	0.00006	0.00007	0.00010
1700		0.000022	0.000028	0.000028	0.000033	0.00005	0.00007	0.00008
1800		0.000019	0.000031	0.000027	0.000030	0.00005	0.00005	0.00011
1900		0.000024	0.000029	0.000022	0.000029	0.00005	0.00006	0.00010
2000		0.000023	0.000025	0.000021	0.000030	0.000043	0.00006	0.00009
2500		0.000019	0.000022	0.000025	0.000036	0.00005	0.00007	0.00009
3000		0.000020	0.000023	0.000022	0.000026	0.00005	0.00006	0.00009
3500		0.000020	0.000021	0.000025	0.000029	0.000039	0.00006	0.00008
4000		0.000020	0.000019	0.000029	0.000030	0.000044	0.00006	0.00008
4500		0.000016	0.000017	0.000022	0.000021	0.000037	0.00006	0.00009
5000		0.000015	0.000016	0.000024	0.000028	0.000031	0.00006	0.00008
6000		0.000015	0.000019	0.000026	0.000030	0.000041	0.00008	0.00009
7000		0.000014	0.000017	0.000020	0.000031	0.00006	0.00006	0.00008
8000		0.000013	0.000019	0.000028	0.000033	0.00005	0.00007	0.00010
9000		0.000016	0.000019	0.000024	0.000025	0.00005	0.00007	0.00008
10000		0.000015	0.000019	0.000027	0.000028	0.000040	0.00006	0.00007
20000		0.000016	0.000021	0.000022	0.000021	0.00005	0.00006	0.00010
30000		0.000011	0.000013	0.000018	0.000029	0.00005	0.00006	0.00008

Table A34. Critical values for Dixon-type discordancy test **N12** (n from 1,000 to 30,000) of upper or lower outlier pair (**k=2**) in a normal sample.

n	CL / SL / α	70% / 30% / 0.30	80% / 20% / 0.20	90% / 10% / 0.10	***95%*** / ***5%*** / ***0.05***	98% / 2% / 0.02	***99%*** / ***1%*** / ***0.01***	99.5% / 0.5% / 0.005
1000		0.086352	0.103621	0.129929	0.153379	0.18102	0.20001	0.21749
1050		0.085602	0.102765	0.128891	0.152189	0.17971	0.19858	0.21597
1100		0.084880	0.101925	0.127911	0.151071	0.17844	0.19717	0.21451
1150		0.084241	0.101181	0.127007	0.150041	0.17727	0.19593	0.21326
1200		0.083626	0.100469	0.126127	0.148985	0.176085	0.19465	0.21195
1250		0.083055	0.099797	0.125306	0.148084	0.175061	0.19359	0.21078
1300		0.082510	0.099121	0.124547	0.147202	0.174038	0.19251	0.20965
1350		0.081955	0.098497	0.123736	0.146332	0.17309	0.19159	0.20864
1400		0.081461	0.097905	0.123056	0.145562	0.17219	0.19061	0.20760
1450		0.080991	0.097342	0.122354	0.144733	0.17132	0.18971	0.20658
1500		0.080530	0.096817	0.121727	0.143976	0.170479	0.18873	0.20556
1600		0.079670	0.095809	0.120514	0.142639	0.16887	0.18694	0.20376
1700		0.078879	0.094915	0.119389	0.141319	0.16737	0.18540	0.20210
1800		0.078149	0.094021	0.118321	0.140137	0.16613	0.18403	0.20054
1900		0.077444	0.093227	0.117386	0.139053	0.16488	0.18262	0.19911
2000		0.076831	0.092492	0.116517	0.137996	0.163720	0.18150	0.19784
2500		0.074200	0.089395	0.112736	0.133685	0.15883	0.17602	0.19214
3000		0.072160	0.086984	0.109844	0.130352	0.15500	0.17196	0.18790
3500		0.070510	0.085075	0.107470	0.127630	0.151861	0.16864	0.18429
4000		0.069156	0.083466	0.105529	0.125401	0.149355	0.16593	0.18154
4500		0.068015	0.082118	0.103862	0.123474	0.147108	0.16356	0.17886
5000		0.067003	0.080931	0.102414	0.121823	0.145180	0.16152	0.17669
6000		0.065315	0.078941	0.099971	0.119038	0.142042	0.15800	0.17296
7000		0.063973	0.077329	0.097998	0.116744	0.13937	0.15518	0.17004
8000		0.062854	0.076023	0.096413	0.114912	0.13730	0.15288	0.16737
9000		0.061868	0.074856	0.094982	0.113294	0.13544	0.15086	0.16532
10000		0.061048	0.073863	0.093759	0.111855	0.133755	0.14913	0.16347
20000		0.056056	0.067962	0.086539	0.103455	0.12411	0.13852	0.15206
30000		0.053495	0.064924	0.082770	0.099143	0.11906	0.13305	0.14617

Table A35. Standard errors (SE) of critical values for Dixon-type discordancy test **N13** (n from 1,000 to 30,000) of upper or lower outlier pair (**k=2**) in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.000027	0.000031	0.000043	0.000039	0.00006	0.00008	0.00010
1050		0.000024	0.000025	0.000037	0.000044	0.00005	0.00008	0.00009
1100		0.000025	0.000029	0.000037	0.000041	0.00005	0.00007	0.00011
1150		0.000023	0.000023	0.000032	0.000038	0.00005	0.00007	0.00012
1200		0.000024	0.000033	0.000030	0.000032	0.00005	0.00007	0.00010
1250		0.000025	0.000032	0.000034	0.000042	0.000039	0.00008	0.00015
1300		0.000024	0.000030	0.000033	0.000031	0.000041	0.00006	0.00010
1350		0.000023	0.000028	0.000036	0.000030	0.00005	0.00006	0.00010
1400		0.000025	0.000029	0.000028	0.000034	0.00005	0.00007	0.00009
1450		0.000026	0.000031	0.000030	0.000039	0.00005	0.00006	0.00008
1500		0.000022	0.000026	0.000027	0.000036	0.00005	0.00005	0.00007
1600		0.000024	0.000029	0.000029	0.000036	0.00005	0.00008	0.00009
1700		0.000022	0.000026	0.000025	0.000030	0.000045	0.00007	0.00008
1800		0.000018	0.000030	0.000031	0.000030	0.00005	0.00006	0.00011
1900		0.000023	0.000030	0.000024	0.000030	0.00005	0.00007	0.00010
2000		0.000023	0.000026	0.000021	0.000031	0.00005	0.00006	0.00008
2500		0.000019	0.000022	0.000025	0.000037	0.00006	0.00007	0.00009
3000		0.000020	0.000022	0.000023	0.000028	0.00005	0.00007	0.00009
3500		0.000020	0.000021	0.000025	0.000030	0.000041	0.00006	0.00010
4000		0.000019	0.000019	0.000028	0.000031	0.00005	0.00007	0.00009
4500		0.000016	0.000019	0.000020	0.000022	0.000040	0.00006	0.00010
5000		0.000016	0.000015	0.000025	0.000030	0.000032	0.00006	0.00008
6000		0.000015	0.000019	0.000026	0.000029	0.00005	0.00008	0.00009
7000		0.000014	0.000018	0.000020	0.000033	0.00006	0.00007	0.00008
8000		0.000015	0.000019	0.000028	0.000029	0.00006	0.00008	0.00011
9000		0.000015	0.000018	0.000024	0.000027	0.00006	0.00006	0.00008
10000		0.000014	0.000020	0.000027	0.000027	0.000045	0.00006	0.00008
20000		0.000015	0.000021	0.000022	0.000024	0.00006	0.00007	0.00009
30000		0.000011	0.000013	0.000019	0.000030	0.00005	0.00006	0.00007

Table A36. Critical values for Dixon-type discordancy test **N13** (n from 1,000 to 30,000) of upper or lower outlier pair (**k=2**) in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.088502	0.106152	0.132984	0.156881	0.18498	0.20433	0.22201
1050		0.087720	0.105248	0.131907	0.155638	0.18359	0.20277	0.22044
1100		0.086962	0.104365	0.130879	0.154448	0.18226	0.20132	0.21891
1150		0.086286	0.103589	0.129926	0.153394	0.18105	0.19999	0.21754
1200		0.085653	0.102835	0.128994	0.152288	0.17982	0.19865	0.21621
1250		0.085051	0.102136	0.128133	0.151331	0.178751	0.19758	0.21493
1300		0.084472	0.101432	0.127337	0.150397	0.177707	0.19642	0.21379
1350		0.083895	0.100768	0.126508	0.149480	0.17671	0.19545	0.21273
1400		0.083376	0.100167	0.125787	0.148683	0.17578	0.19444	0.21163
1450		0.082879	0.099570	0.125047	0.147833	0.17485	0.19347	0.21059
1500		0.082399	0.099012	0.124396	0.147040	0.17399	0.19253	0.20951
1600		0.081496	0.097964	0.123127	0.145638	0.17229	0.19063	0.20757
1700		0.080663	0.097028	0.121958	0.144275	0.170721	0.18903	0.20592
1800		0.079899	0.096092	0.120839	0.143037	0.16941	0.18754	0.20429
1900		0.079170	0.095258	0.119872	0.141911	0.16812	0.18617	0.20285
2000		0.078531	0.094496	0.118950	0.140810	0.16695	0.18490	0.20149
2500		0.075775	0.091262	0.115021	0.136308	0.16185	0.17927	0.19559
3000		0.073653	0.088748	0.111995	0.132841	0.15783	0.17506	0.19122
3500		0.071939	0.086758	0.109554	0.130002	0.154603	0.17158	0.18749
4000		0.070527	0.085081	0.107518	0.127702	0.15202	0.16879	0.18460
4500		0.069334	0.083680	0.105803	0.125706	0.149700	0.16636	0.18187
5000		0.068284	0.082452	0.104265	0.123984	0.147701	0.16422	0.17957
6000		0.066535	0.080386	0.101756	0.121108	0.14442	0.16056	0.17573
7000		0.065136	0.078720	0.099708	0.118750	0.14168	0.15769	0.17267
8000		0.063980	0.077355	0.098065	0.116842	0.13952	0.15530	0.16995
9000		0.062955	0.076154	0.096581	0.115162	0.13759	0.15320	0.16780
10000		0.062108	0.075126	0.095321	0.113665	0.135863	0.15140	0.16594
20000		0.056946	0.069029	0.087857	0.104998	0.12590	0.14049	0.15418
30000		0.054304	0.065898	0.083982	0.100554	0.12072	0.13483	0.14812

Table A37. Standard errors (SE) of critical values for skewness discordancy test **N14** (n from 1,000 to 30,000) of an extreme outlier in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.000039	0.000035	0.000038	0.000044	0.00005	0.000044	0.00007
1050		0.000040	0.000043	0.00005	0.000031	0.00006	0.00008	0.00005
1100		0.000044	0.000026	0.000033	0.000037	0.00006	0.00009	0.00013
1150		0.000027	0.000029	0.000031	0.000041	0.00005	0.00005	0.00010
1200		0.000034	0.000019	0.000028	0.000020	0.00005	0.00009	0.00010
1250		0.000019	0.000024	0.000030	0.000039	0.000036	0.00008	0.00010
1300		0.000024	0.000030	0.000026	0.000039	0.00005	0.000042	0.00008
1350		0.000025	0.000028	0.000027	0.000035	0.00005	0.00005	0.00009
1400		0.000026	0.000019	0.000015	0.000028	0.000045	0.00005	0.00011
1450		0.000019	0.000021	0.000018	0.000037	0.000027	0.00005	0.00009
1500		0.000027	0.000013	0.000027	0.000030	0.000043	0.00006	0.00010
1600		0.000015	0.000010	0.000021	0.000035	0.00007	0.00007	0.00009
1700		0.000027	0.000017	0.000021	0.000033	0.00005	0.00009	0.00009
1800		0.000020	0.000019	0.000023	0.000029	0.00005	0.00005	0.00010
1900		0.000025	0.000026	0.000024	0.000030	0.00005	0.00008	0.00010
2000		0.000023	0.000025	0.000030	0.000026	0.00006	0.00007	0.00009
2500		0.000014	0.000014	0.000023	0.000019	0.000030	0.00007	0.00010
3000		0.000013	0.000013	0.000008	0.000031	0.000036	0.00005	0.00005
3500		0.000018	0.000015	0.000020	0.000024	0.00005	0.00005	0.00005
4000		0.000015	0.000015	0.000026	0.000025	0.000040	0.00005	0.00008
4500		0.000014	0.000016	0.000022	0.000024	0.000034	0.00005	0.00006
5000		0.000014	0.000022	0.000023	0.000021	0.000030	0.000044	0.000044
6000		0.000019	0.000017	0.000020	0.000017	0.000040	0.00005	0.00005
7000		0.000013	0.000013	0.000010	0.000024	0.000022	0.000030	0.000034
8000		0.000011	0.000012	0.000013	0.000020	0.000032	0.000027	0.000039
9000		0.000011	0.000010	0.000015	0.000022	0.000030	0.000031	0.000036
10000		0.000010	0.000011	0.000012	0.000017	0.000021	0.000035	0.000031
20000		0.000008	0.000006	0.000012	0.000015	0.000013	0.000017	0.000021
30000		0.000007	0.000007	0.000010	0.000011	0.000007	0.000020	0.000023

Table A38. Critical values for skewness discordancy test **N14** (n from 1,000 to 30,000) of an extreme outlier in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.040357	0.064815	0.098855	0.127101	0.15905	0.180571	0.20021
1050		0.039372	0.063229	0.09641	0.123955	0.15512	0.17604	0.19522
1100		0.038471	0.061813	0.094259	0.121195	0.15166	0.17206	0.19071
1150		0.037638	0.060443	0.092143	0.118474	0.14831	0.16823	0.18658
1200		0.036870	0.059174	0.090270	0.116014	0.14506	0.16459	0.18260
1250		0.036081	0.057989	0.088441	0.113704	0.142214	0.16130	0.17899
1300		0.035432	0.056900	0.086747	0.111437	0.13944	0.158155	0.17531
1350		0.034754	0.055837	0.085103	0.109356	0.13678	0.15524	0.17203
1400		0.034143	0.054802	0.083557	0.107378	0.134317	0.15235	0.16890
1450		0.033539	0.053906	0.082164	0.105559	0.131957	0.14966	0.16590
1500		0.032980	0.052977	0.080793	0.103789	0.129797	0.14727	0.16322
1600		0.031984	0.051333	0.078222	0.100485	0.12560	0.14231	0.15779
1700		0.031014	0.049817	0.075887	0.097446	0.12185	0.13813	0.15308
1800		0.030167	0.048418	0.073737	0.094730	0.11844	0.13437	0.14895
1900		0.029364	0.047127	0.071805	0.092196	0.11531	0.13073	0.14491
2000		0.028614	0.045939	0.069997	0.089869	0.11243	0.12749	0.14122
2500		0.025578	0.041054	0.062586	0.080404	0.100525	0.11398	0.12632
3000		0.023361	0.037539	0.057199	0.073458	0.091781	0.10406	0.11541
3500		0.021668	0.034776	0.052936	0.067982	0.08495	0.09631	0.10670
4000		0.020255	0.032511	0.049546	0.063624	0.079475	0.09010	0.09981
4500		0.019102	0.030655	0.046740	0.059995	0.074969	0.08496	0.09409
5000		0.018133	0.029109	0.044344	0.056917	0.071102	0.080584	0.089278
6000		0.016550	0.026558	0.040472	0.051964	0.064972	0.07362	0.08153
7000		0.015317	0.024608	0.037481	0.048135	0.060091	0.068141	0.075440
8000		0.014341	0.023023	0.035063	0.045024	0.056250	0.063729	0.070573
9000		0.013528	0.021716	0.033077	0.042453	0.053023	0.060082	0.066475
10000		0.012833	0.020607	0.031376	0.040285	0.050321	0.057008	0.063107
20000		0.009081	0.014574	0.022187	0.028491	0.035570	0.040291	0.044637
30000		0.007412	0.011890	0.018118	0.023264	0.029047	0.032917	0.036460

Table A39. Standard errors (SE) of critical values for kurtosis discordancy test **N15** (n from 1,000 to 30,000) of an extreme outlier in a normal sample.

	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
n	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		0.00005	0.00006	0.00006	0.00009	0.00009	0.00018	0.00024
1050		0.00005	0.000043	0.00005	0.00007	0.00010	0.00021	0.00028
1100		0.000037	0.000040	0.000040	0.00005	0.00014	0.00013	0.00016
1150		0.000036	0.00006	0.00005	0.00006	0.00016	0.00025	0.00030
1200		0.000039	0.000028	0.00006	0.00006	0.00011	0.00017	0.00023
1250		0.000024	0.000036	0.00006	0.00009	0.00015	0.00018	0.00028
1300		0.00005	0.000036	0.00005	0.00007	0.00010	0.00016	0.00024
1350		0.000030	0.000043	0.00005	0.00008	0.00013	0.00014	0.00028
1400		0.000033	0.000022	0.000041	0.00008	0.00017	0.00016	0.00028
1450		0.000032	0.000038	0.00005	0.00009	0.00015	0.00016	0.00019
1500		0.000026	0.000037	0.00007	0.00007	0.00013	0.00016	0.00023
1600		0.000029	0.000019	0.000043	0.00005	0.00008	0.00013	0.00018
1700		0.000026	0.000036	0.00005	0.00006	0.00011	0.00011	0.00011
1800		0.000031	0.000038	0.00005	0.00007	0.00008	0.00010	0.00017
1900		0.000030	0.000035	0.000033	0.00005	0.00008	0.00006	0.00011
2000		0.000030	0.000025	0.000045	0.00005	0.00007	0.00007	0.00015
2500		0.000025	0.000044	0.000036	0.00005	0.00006	0.00013	0.00013
3000		0.000016	0.000024	0.000042	0.00005	0.00006	0.00006	0.00012
3500		0.000023	0.000032	0.000029	0.000039	0.00006	0.00008	0.00011
4000		0.000023	0.000028	0.000020	0.000036	0.000044	0.000041	0.00005
4500		0.000021	0.000019	0.000024	0.000022	0.000024	0.00006	0.00007
5000		0.000025	0.000023	0.000023	0.000034	0.00005	0.00005	0.00006
6000		0.000029	0.000023	0.000012	0.000031	0.00005	0.000040	0.00007
7000		0.000017	0.000019	0.000017	0.000023	0.000033	0.000032	0.00006
8000		0.000011	0.000019	0.000023	0.000028	0.000028	0.000044	0.00005
9000		0.000012	0.000014	0.000020	0.000025	0.000032	0.000038	0.00006
10000		0.000014	0.000016	0.000023	0.000022	0.000025	0.000033	0.000033
20000		0.000013	0.000012	0.000012	0.000013	0.000017	0.000021	0.000034
30000		0.000005	0.000008	0.000009	0.000008	0.000016	0.000019	0.000031

Table A40. Critical values for kurtosis discordancy test **N15** (n from 1,000 to 30,000) of an extreme outlier in a normal sample.

n	CL	70%	80%	90%	***95%***	98%	***99%***	99.5%
	SL	30%	20%	10%	***5%***	2%	***1%***	0.5%
	α	0.30	0.20	0.10	***0.05***	0.02	***0.01***	0.005
1000		3.06475	3.11721	3.19446	3.26276	3.34548	3.40475	3.46217
1050		3.06363	3.114745	3.18996	3.25639	3.33665	3.39394	3.44973
1100		3.062562	3.112438	3.185738	3.25041	3.32847	3.38411	3.43792
1150		3.061490	3.11030	3.18187	3.24501	3.32105	3.37516	3.42760
1200		3.060505	3.108309	3.17815	3.23972	3.31381	3.36632	3.41698
1250		3.059557	3.106289	3.17470	3.23484	3.30722	3.35853	3.40820
1300		3.05864	3.104404	3.17147	3.23029	3.30085	3.35081	3.39899
1350		3.057801	3.102721	3.16829	3.22590	3.29482	3.34378	3.39092
1400		3.056953	3.101060	3.165396	3.22179	3.28923	3.33697	3.38288
1450		3.056181	3.099469	3.16258	3.21788	3.28405	3.33084	3.37550
1500		3.055410	3.097948	3.15994	3.21411	3.27891	3.32472	3.36862
1600		3.054004	3.095172	3.155107	3.20731	3.26961	3.31353	3.35560
1700		3.052692	3.092528	3.15054	3.20105	3.26113	3.30348	3.34373
1800		3.051477	3.090158	3.14642	3.19528	3.25346	3.29437	3.33351
1900		3.050373	3.088039	3.142615	3.19003	3.24632	3.28571	3.32344
2000		3.049315	3.085988	3.139114	3.18523	3.23983	3.27807	3.31446
2500		3.044908	3.077569	3.124696	3.16532	3.21334	3.24657	3.27812
3000		3.041526	3.071236	3.114008	3.15079	3.19391	3.22379	3.25198
3500		3.038836	3.066305	3.105628	3.139427	3.17892	3.20620	3.23187
4000		3.036616	3.062246	3.098947	3.130272	3.166879	3.191921	3.21566
4500		3.034749	3.058857	3.093310	3.122685	3.156912	3.18046	3.20246
5000		3.033150	3.055994	3.088557	3.116360	3.14859	3.17079	3.19146
6000		3.030517	3.051313	3.080876	3.106030	3.13516	3.155083	3.17362
7000		3.028457	3.047658	3.074944	3.098091	3.124782	3.143046	3.15998
8000		3.026736	3.044672	3.070122	3.091650	3.116458	3.133382	3.14926
9000		3.025339	3.042216	3.066123	3.086321	3.109613	3.125459	3.14020
10000		3.024105	3.040104	3.062720	3.081858	3.103858	3.118814	3.132714
20000		3.017387	3.028620	3.044410	3.057650	3.072720	3.082907	3.092306
30000		3.014308	3.023453	3.036261	3.046966	3.059147	3.067380	3.074975

Table A41. Regression equations (six different models) fitted to 27 simulated critical values of **test N15** of one extreme outlier (for n between 1,000 and 10,000; Table **A40** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A40** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	**Type of fit**	R^2; $\left\{\sum (SIM-FitEq)^2\right\}_{\text{int}}$; $\left\{\sum (SIM-FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	L	0.873804; 5.77×10^{-4}; 0.011	$[CV_{TN15}^{0.30}]_L = (3.0622 \pm 0.0015) - (4.67\times10^{-6} \pm 3.5\times10^{-7})\cdot n$
	Q	0.979041; 9.59×10^{-5}; 0.133	$[CV_{TN15}^{0.30}]_Q = (3.0721 \pm 0.0011) - (1.16\times10^{-5} \pm 6\times10^{-7})\cdot n + (7.1\times10^{-10} \pm 6\times10^{-11})\cdot n^2$
	C	0.995491; 2.20×10^{-5}; 2.38	$[CV_{TN15}^{0.30}]_C = (3.803 \pm 0.0010) - (1.98\times10^{-5} \pm 9\times10^{-7})\cdot n + (2.65\times10^{-9} \pm 2.1\times10^{-10})\cdot n^2 - (1.25\times10^{-13} \pm 1.4\times10^{-14})\cdot n^3$
	lnL	0.991792; 3.75×10^{-5}; 2.23×10^{-4}	$[CV_{TN15}^{0.30}]_{\ln L} = (3.1872 \pm 0.0026) - (0.01798 \pm 0.00033)\cdot[\ln(n)]$
	lnQ	0.999996; 3.16×10^{-8}; 2.03×10^{-6}	$[CV_{TN15}^{0.30}]_{\ln Q} = (3.3727 \pm 0.0008) - (0.06475 \pm 0.00020)\cdot[\ln(n)] + (0.002921 \pm 0.000012)\cdot[\ln(n)]^2$
	lnC	0.999996; 1.48×10^{-5}; 5.20×10^{-7}	$[CV_{TN15}^{0.30}]_{\ln C} = (3.377 \pm 0.010) - (0.0663 \pm 0.0039)\cdot[\ln(n)] + (0.0031 \pm 0.0005)\cdot[\ln(n)]^2 - (0.000008 \pm 0.000020)\cdot[\ln(n)]^3$
80% / 20% / 0.20	L	0.858497; 2.32×10^{-3}; 0.040	$[CV_{TN15}^{0.20}]_L = (3.1108 \pm 0.0029) - (8.8\times10^{-6} \pm 7\times10^{-7})\cdot n$
	Q	0.973802; 4.32×10^{-4}; 0.524	$[CV_{TN15}^{0.20}]_Q = (3.1305 \pm 0.0023) - (2.25\times10^{-5} \pm 1.4\times10^{-6})\cdot n + (1.40\times10^{-9} \pm 1.4\times10^{-10})\cdot n^2$
	C	0.993789; 1.67×10^{-4}; 10.1*	$[CV_{TN15}^{0.20}]_C = (3.1476 \pm 0.0023) - (3.95\times10^{-5} \pm 2.1\times10^{-6})\cdot n + (5.5\times10^{-9} \pm 5\times10^{-10})\cdot n^2 - (2.60\times10^{-13} \pm 3.0\times10^{-14})\cdot n^3$
	lnL	0.986927; 2.17×10^{-4}; 9.73×10^{-4}	$[CV_{TN15}^{0.20}]_{\ln L} = (3.347 \pm 0.006) - (0.0339 \pm 0.0008)\cdot[\ln(n)]$
	lnQ	0.999948; 2.14×10^{-6}; 4.89×10^{-5}	$[CV_{TN15}^{0.20}]_{\ln Q} = (3.789 \pm 0.006) - (0.1454 \pm 0.0014)\cdot[\ln(n)] + (0.00696 \pm 0.00009)\cdot[\ln(n)]^2$
	lnC	0.999999; 1.89×10^{-4}; 3.93×10^{-5}	$[CV_{TN15}^{0.20}]_{\ln C} = (4.141 \pm 0.012) - (0.278 \pm 0.005)\cdot[\ln(n)] + (0.0235 \pm 0.0006)\cdot[\ln(n)]^2 - (0.000688 \pm 0.000024)\cdot[\ln(n)]^3$

Table A41 (Continuation 1/3). Regression equations (six different models) fitted to 27 simulated critical values of **test N15** of one extreme outlier (for n between 1,000 and 10,000; Table **A40** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A40** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	**Type of fit**	R^2; $\{\sum(SIM-FitEq)^2\}_{int}$; $\{\sum(SIM-FitEq)^2\}_{ext}$	Interpolation or Extrapolation equation
90% / 10% / 0.10	L	0.848847; 7.2×10^{-3}; 0.116	$[CV_{TN15}^{0.10}]_L = (3.182 \pm 0.005) - (1.49\times10^{-5} \pm 1.3\times10^{-6}) \cdot n$
	Q	0.970362; 1.41×10^{-3}; 1.65	$[CV_{TN15}^{0.10}]_Q = (3.2165 \pm 0.0042) - (3.89\times10^{-5} \pm 2.5\times10^{-6}) \cdot n + (2.46\times10^{-9} \pm 2.5\times10^{-10}) \cdot n^2$
	C	0.992642; 3.73×10^{-4}; 34.1*	$[CV_{TN15}^{0.10}]_C = (3.2471 \pm 0.0042) - (6.96\times10^{-5} \pm 3.9\times10^{-6}) \cdot n + (9.8\times10^{-9} \pm 9\times10^{-10}) \cdot n^2 - (4.7\times10^{-13} \pm 6\times10^{-14}) \cdot n^3$
	lnL	0.983425; 7.94×10^{-4}; 3.39×10^{-3}	$[CV_{TN15}^{0.10}]_{\ln L} = (3.584 \pm 0.012) - (0.0578 \pm 0.0015) \cdot [\ln(n)]$
	lnQ	0.999871; 8.95×10^{-6}; 3.10×10^{-4}	$[CV_{TN15}^{0.10}]_{\ln Q} = (4.433 \pm 0.015) - (0.2716 \pm 0.0039) \cdot [\ln(n)] + (0.01335 \pm 0.00024) \cdot [\ln(n)]^2$
	lnC	0.999999; 1.21×10^{-4}; 4.97×10^{-5}	$[CV_{TN15}^{0.10}]_{\ln C} = (5.388 \pm 0.014) - (0.632 \pm 0.005) \cdot [\ln(n)] + (0.0584 \pm 0.0006) \cdot [\ln(n)]^2 - (0.001870 \pm 0.000027) \cdot [\ln(n)]^3$
95% / 5% / 0.05	L	0.843085; 1.41×10^{-2}; 0.218	$[CV_{TN15}^{0.05}]_L = (3.244 \pm 0.007) - (2.03\times10^{-5} \pm 1.8\times10^{-6}) \cdot n$
	Q	0.968233; 2.86×10^{-3}; 3.24	$[CV_{TN15}^{0.05}]_Q = (3.293 \pm 0.006) - (5.38\times10^{-5} \pm 3.5\times10^{-6}) \cdot n + (3.43\times10^{-9} \pm 3.5\times10^{-10}) \cdot n^2$
	C	0.991905; 1.03×10^{-3}; 66.4 *	$[CV_{TN15}^{0.05}]_C = (3.336 \pm 0.006) - (9.7\times10^{-5} \pm 6\times10^{-6}) \cdot n + (1.38\times10^{-8} \pm 1.3\times10^{-9}) \cdot n^2 - (6.6\times10^{-13} \pm 8\times10^{-14}) \cdot n^3$
	lnL	0.981185; 1.70×10^{-3}; 6.90×10^{-3}	$[CV_{TN15}^{0.05}]_{\ln L} = (3.796 \pm 0.017) - (0.0793 \pm 0.0022) \cdot [\ln(n)]$
	lnQ	0.999806; 1.72×10^{-4}; 5.50×10^{-4}	$[CV_{TN15}^{0.05}]_{\ln Q} = (5.036 \pm 0.026) - (0.392 \pm 0.007) \cdot [\ln(n)] + (0.01951 \pm 0.00041) \cdot [\ln(n)]^2$
	lnC	0.999999; 9.03×10^{-4}; 3.83×10^{-5}	$[CV_{TN15}^{0.05}]_{\ln C} = (6.640 \pm 0.024) - (0.996 \pm 0.009) \cdot [\ln(n)] + (0.0952 \pm 0.0011) \cdot [\ln(n)]^2 - (0.00314 \pm 0.00005) \cdot [\ln(n)]^3$

Table A41 (Continuation 2/3). Regression equations (six different models) fitted to 27 simulated critical values of **test N15** of one extreme outlier (for n between 1,000 and 10,000; Table **A40** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A40** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	**Type of fit**	R^2; $\left\{\sum(SIM-FitEq)^2\right\}_{int}$; $\left\{\sum(SIM-FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
98% / 2% / 0.02	L	0.837397; 2.61×10^{-2}; 0.393	$[CV_{TN15}^{0.02}]_L = (3.319\pm0.010) - (2.71\times10^{-5}\pm2.4\times10^{-6})\cdot n$
	Q	0.966114; 5.45×10^{-3}; 5.82	$[CV_{TN15}^{0.02}]_Q = (3.385\pm0.008) - (7.2\times10^{-5}\pm5\times10^{-6})\cdot n + (4.6\times10^{-9}\pm5\times10^{-10})\cdot n^2$
	C	0.991149; 1.42×10^{-3}; 130*	$[CV_{TN15}^{0.02}]_C = (3.444\pm0.009) - (1.32\times10^{-4}\pm8\times10^{-6})\cdot n + (1.88\times10^{-8}\pm1.8\times10^{-9})\cdot n^2 - (9.1\times10^{-13}\pm1.1\times10^{-14})\cdot n^3$
	lnL	0.978874; 3.39×10^{-3}; 1.26×10^{-2}	$[CV_{TN15}^{0.02}]_{\ln L} = (4.056\pm0.024) - (0.1057\pm0.0031)\cdot[\ln(n)]$
	lnQ	0.999731; 2.92×10^{-4}; 2.35×10^{-3}	$[CV_{TN15}^{0.02}]_{\ln Q} = (5.807\pm0.041) - (0.547\pm0.010)\cdot[\ln(n)] + (0.0276\pm0.0006)\cdot[\ln(n)]^2$
	lnC	0.999998; 7.38×10^{-5}; 2.85×10^{-4}	$[CV_{TN15}^{0.02}]_{\ln C} = (8.33\pm0.05) - (1.498\pm0.017)\cdot[\ln(n)] + (0.1465\pm0.0022)\cdot[\ln(n)]^2 - (0.00494\pm0.00009)\cdot[\ln(n)]^3$
99% / 1% / 0.01	L	0.833536; 3.73×10^{-2}; 0.545	$[CV_{TN15}^{0.01}]_L = (3.373\pm0.012) - (3.19\times10^{-5}\pm2.9\times10^{-6})\cdot n$
	Q	0.964640; 7.96×10^{-3}; 8.30	$[CV_{TN15}^{0.01}]_Q = (3.451\pm0.010) - (8.6\times10^{-5}\pm6\times10^{-6})\cdot n + (5.5\times10^{-9}\pm6\times10^{-10})\cdot n^2$
	C	0.990653; 2.19×10^{-3}; 192*	$[CV_{TN14}^{0.01}]_C = (3.522\pm0.010) - (1.58\times10^{-4}\pm1.0\times10^{-5})\cdot n + (2.26\times10^{-8}\pm2.2\times10^{-9})\cdot n^2 - (1.10\times10^{-12}\pm1.4\times10^{-13})\cdot n^3$
	lnL	0.977253; 5.10×10^{-3}; 1.84×10^{-2}	$[CV_{TN14}^{0.01}]_{\ln L} = (4.243\pm0.030) - (0.1249\pm0.0038)\cdot[\ln(n)]$
	lnQ	0.999675; 1.00×10^{-4}; 3.09×10^{-3}	$[CV_{TN15}^{0.01}]_{\ln Q} = (6.39\pm0.05) - (0.666\pm0.013)\cdot[\ln(n)] + (0.0338\pm0.0008)\cdot[\ln(n)]^2$
	lnC	0.999997; 8.45×10^{-6}; 3.24×10^{-4}	$[CV_{TN15}^{0.01}]_{\ln C} = (9.67\pm0.06) - (1.902\pm0.024)\cdot[\ln(n)] + (0.1884\pm0.0029)\cdot[\ln(n)]^2 - (0.00642\pm0.00012)\cdot[\ln(n)]^3$

Table A41 (Continuation 3/3). Regression equations (six different models) fitted to 27 simulated critical values of **test N15** of one extreme outlier (for n between 1,000 and 10,000; Table **A40** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A40** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	**Type of fit**	R^2; $\left\{\sum(SIM-FitEq)^2\right\}_{\text{int}}$; $\left\{\sum(SIM-FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
99.5% / 0.5% / 0.005	L	0.829807; 5.06×10^{-2}; 0.727	$[CV^{0.005}_{TN15}]_L = (3.424\pm0.014) - (3.67\times10^{-5}\pm3.3\times10^{-6})\cdot n$
	Q	0.963207; 1.13×10^{-2}; 11.2	$[CV^{0.005}_{TN15}]_Q = (3.514\pm0.012) - (1.00\times10^{-4}\pm7\times10^{-6})\cdot n + (6.4\times10^{-9}\pm7\times10^{-10})\cdot n^2$
	C	0.990143; 4.16×10^{-2}; 263*	$[CV^{0.005}_{TN15}]_C = (3.598\pm0.012) - (1.84\times10^{-4}\pm1.1\times10^{-5})\cdot n + (2.65\times10^{-8}\pm2.6\times10^{-9})\cdot n^2 - (1.29\times10^{-12}\pm1.6\times10^{-13})\cdot n^3$
	lnL	0.975645; 7.30×10^{-3}; 2.64×10^{-2}	$[CV^{0.005}_{TN15}]_{\ln L} = (4.426\pm0.035) - (0.144\pm0.005)\cdot[\ln(n)]$
	lnQ	0.999612; 8.36×10^{-4}; 3.63×10^{-3}	$[CV^{0.005}_{TN15}]_{\ln Q} = (6.98\pm0.07) - (0.789\pm0.017)\cdot[\ln(n)] + (0.0403\pm0.0010)\cdot[\ln(n)]^2$
	lnC	0.999995; 8.30×10^{-4}; 1.02×10^{-3}	$[CV^{0.005}_{TN15}]_{\ln C} = (11.10\pm0.09) - (2.341\pm0.036)\cdot[\ln(n)] + (0.2344\pm0.0045)\cdot[\ln(n)]^2 - (0.00806\pm0.00018)\cdot[\ln(n)]^3$

CL : Confidence level (%); SL : Significance level (%); α : Significance level; CV : critical value; Type of fit refers to the six different models as follows: L : linear in $n-CV$ axes; Q : quadratic in $n-CV$ axes; C : cubic in $n-CV$ axes; lnL : logarithm-linear in $\ln(n)-CV$ axes; lnQ : logarithm-quadratic in $\ln(n)-CV$ axes; lnC : logarithm-cubic in $\ln(n)-CV$ axes. Thus, six different regression models were evaluated (see text for more details).

$\left\{\sum(SIM-FitEq)^2\right\}_{\text{int}}$ = sum of squares of residuals for n = 1,000 to n = 10,000 (for interpolation purposes); $\left\{\sum(SIM-FitEq)^2\right\}_{ext}$ = sum of squares of residuals for n = 20,000 and n = 30,000 (for extrapolation purposes). Thus, two sets of fitting quality parameter were used for the evaluation of fitted equations. The first parameter $\left\{\sum(SIM-FitEq)^2\right\}_{\text{int}}$ is the total sum of squares of the difference between the simulated critical value (SIM) and that $(FitEq)$ predicted by the equation for the 27 simulated values corresponding to n = [1,000(50)1,500(100)2,000(500)5,000(1,000)10,000] for a given CL and for a given regression model (see Table A40 for the SIM values for n =1,000 to 10,000 used for this fitting). The second parameter $\left\{\sum(SIM-FitEq)^2\right\}_{ext}$ is for extrapolation of these equations to predict two critical values for n of 20,000 and 30,000. $\left\{\sum(SIM-FitEq)^2\right\}_{ext}$ value identified by an asterisk (*) was obtained from one negative critical value (the extrapolated critcal value for 30,000 was negative), which is not realistic, and therefore in this case, this parameter is meaningless as a quality parameter. Note that independent equations were fitted for each confidence level (70% to 99.5%) or significance level α (0.30 to 0.005).

As an example, $[CV_{TN15}^{0.30}]_L$ in the interpolation equation is the critical value (CV) for test $TN15$ and significance level $\alpha = 0.30$ obtained by a simple linear regression model. The parameter n is the sample size of the critical value to be computed from the equation for a given significance level (α). $[CV_{TN15}^{0.05}]_{\ln C}$ and $[CV_{TN15}^{0.01}]_{\ln C}$ are the most commonly used critical values and the corresponding CL/SL/α are shown in **bold** face. Note also that Verma (1997) recommended the strict level of $\alpha = 0.01$ be used in application of the multiple-test method. The other values (CV) in these equations are similarly explained. Finally, note that the coefficients in all equations are reported as rounded values depending on the respective errors as suggested by Verma (2005).

Table A42. Regression equations fitted to 27 simulated critical values of **test N1** of one upper or lower outlier (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A2** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A2** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum(SIM - FitEq)^2\right\}_{\text{int}}$; $\left\{\sum(SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	1.000000; 1.95×10^{-4}; 1.07×10^{-5}	$[CV_{TN1}^{0.30}] = (0.722 \pm 0.012) + (0.523 \pm 0.005)\cdot[\ln(n)] - (0.0247 \pm 0.0006)\cdot[\ln(n)]^2 + (0.000671 \pm 0.000024)\cdot[\ln(n)]^3$
80% / 20% / 0.20	1.000000; 1.66×10^{-4}; 3.30×10^{-5}	$[CV_{TN1}^{0.20}] = (0.871 \pm 0.016) + (0.527 \pm 0.006)\cdot[\ln(n)] - (0.0262 \pm 0.0007)\cdot[\ln(n)]^2 + (0.000744 \pm 0.000030)\cdot[\ln(n)]^3$
90% / 10% / 0.10	1.000000; 3.44×10^{-6}; 6.16×10^{-7}	$[CV_{TN1}^{0.10}] = (1.183 \pm 0.014) + (0.500 \pm 0.005)\cdot[\ln(n)] - (0.0245 \pm 0.0007)\cdot[\ln(n)]^2 + (0.000693 \pm 0.000027)\cdot[\ln(n)]^3$
95% / 5% / 0.05	1.000000; 6.64×10^{-4}; 8.02×10^{-5}	$[CV_{TN1}^{0.05}] = (1.402 \pm 0.027) + (0.498 \pm 0.010)\cdot[\ln(n)] - (0.0256 \pm 0.0013)\cdot[\ln(n)]^2 + (0.00075 \pm 0.00005)\cdot[\ln(n)]^3$
98% / 2% / 0.02	1.000000; 1.12×10^{-4}; 9.83×10^{-5}	$[CV_{TN1}^{0.02}] = (1.696 \pm 0.042) + (0.486 \pm 0.016)\cdot[\ln(n)] - (0.0255 \pm 0.0020)\cdot[\ln(n)]^2 + (0.00077 \pm 0.00008)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999999; 3.90×10^{-6}; 1.08×10^{-5}	$[CV_{TN1}^{0.01}] = (1.87 \pm 0.08) + (0.491 \pm 0.029)\cdot[\ln(n)] - (0.0271 \pm 0.0036)\cdot[\ln(n)]^2 + (0.00084 \pm 0.00015)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999998; 6.58×10^{-4}; 1.12×10^{-5}	$[CV_{TN1}^{0.005}] = (2.01 \pm 0.09) + (0.500 \pm 0.033)\cdot[\ln(n)] - (0.0287 \pm 0.0041)\cdot[\ln(n)]^2 + (0.00090 \pm 0.000017)\cdot[\ln(n)]^3$

Table A43. Regression equations fitted to 27 simulated critical values of **test N2** of one extreme outlier (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A4** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A4** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum (SIM - FitEq)^2\right\}_{int}$; $\left\{\sum (SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	1.000000; 5.92×10^{-5}; 3.76×10^{-5}	$[CV_{TN2}^{0.30}] = (0.996 \pm 0.021) + (0.511 \pm 0.008) \cdot [\ln(n)] - (0.0251 \pm 0.0010) \cdot [\ln(n)]^2 + (0.000719 \pm 0.000041) \cdot [\ln(n)]^3$
80% / 20% / 0.20	1.000000; 1.96×10^{-4}; 7.02×10^{-5}	$[CV_{TN2}^{0.20}] = (1.182 \pm 0.021) + (0.496 \pm 0.008) \cdot [\ln(n)] - (0.0241 \pm 0.0010) \cdot [\ln(n)]^2 + (0.000687 \pm 0.000041) \cdot [\ln(n)]^3$
90% / 10% / 0.10	1.000000; 7.74×10^{-4}; 1.83×10^{-4}	$[CV_{TN2}^{0.10}] = (1.419 \pm 0.021) + (0.491 \pm 0.008) \cdot [\ln(n)] - (0.0247 \pm 0.0010) \cdot [\ln(n)]^2 + (0.000723 \pm 0.000041) \cdot [\ln(n)]^3$
95% / 5% / 0.05	1.000000; 3.50×10^{-4}; 2.73×10^{-6}	$[CV_{TN2}^{0.05}] = (1.64 \pm 0.05) + (0.481 \pm 0.017) \cdot [\ln(n)] - (0.0245 \pm 0.0021) \cdot [\ln(n)]^2 + (0.00072 \pm 0.00009) \cdot [\ln(n)]^3$
98% / 2% / 0.02	0.999999; 1.01×10^{-3}; 9.76×10^{-5}	$[CV_{TN2}^{0.02}] = (1.88 \pm 0.08) + (0.486 \pm 0.029) \cdot [\ln(n)] - (0.0265 \pm 0.0036) \cdot [\ln(n)]^2 + (0.00081 \pm 0.00015) \cdot [\ln(n)]^3$
99% / 1% / 0.01	0.999998; 2.47×10^{-4}; 1.41×10^{-4}	$[CV_{TN2}^{0.01}] = (2.04 \pm 0.09) + (0.490 \pm 0.034) \cdot [\ln(n)] - (0.0274 \pm 0.0042) \cdot [\ln(n)]^2 + (0.00085 \pm 0.00018) \cdot [\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999998; 5.52×10^{-3}; 1.53×10^{-3}	$[CV_{TN2}^{0.005}] = (2.30 \pm 0.10) + (0.457 \pm 0.038) \cdot [\ln(n)] - (0.024 \pm 0.005) \cdot [\ln(n)]^2 + (0.00073 \pm 0.00020) \cdot [\ln(n)]^3$

Table A44. Regression equations fitted to 27 simulated critical values of **test N3-k=2** of two upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A6** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A6** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\{\sum(SIM-FitEq)^2\}_{\text{int}}$; $\{\sum(SIM-FitEq)^2\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	1.000000; 1.21×10^{-4}; 1.25×10^{-5}	$[CV_{TN3k2}^{0.30}]=(0.69\pm0.06)+(1.157\pm0.021)\cdot[\ln(n)]-(0.0584\pm0.0026)\cdot[\ln(n)]^2+(0.00162\pm0.00011)\cdot[\ln(n)]^3$
80% / 20% / 0.20	1.000000; 1.88×10^{-5}; 6.99×10^{-6}	$[CV_{TN3k2}^{0.20}]=(1.02\pm0.05)+(1.117\pm0.019)\cdot[\ln(n)]-(0.0548\pm0.0024)\cdot[\ln(n)]^2+(0.00149\pm0.00010)\cdot[\ln(n)]^3$
90% / 10% / 0.10	1.000000; 1.10×10^{-5}; 2.51×10^{-6}	$[CV_{TN3k2}^{0.10}]=(1.21\pm0.08)+(1.166\pm0.030)\cdot[\ln(n)]-(0.0622\pm0.0037)\cdot[\ln(n)]^2+(0.00178\pm0.00015)\cdot[\ln(n)]^3$
95% / 5% / 0.05	1.000000; 9.64×10^{-4}; 1.35×10^{-4}	$[CV_{TN3k2}^{0.05}]=(1.54\pm0.09)+(1.145\pm0.034)\cdot[\ln(n)]-(0.0608\pm0.0042)\cdot[\ln(n)]^2+(0.00172\pm0.00017)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999999; 4.34×10^{-2}; 8.32×10^{-3}	$[CV_{TN3k2}^{0.02}]=(1.61\pm0.13)+(1.25\pm0.05)\cdot[\ln(n)]-(0.075\pm0.006)\cdot[\ln(n)]^2+(0.00234\pm0.00025)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999998; 4.58×10^{-2}; 6.54×10^{-3}	$[CV_{TN3k2}^{0.01}]=(2.06\pm0.21)+(1.17\pm0.08)\cdot[\ln(n)]-(0.066\pm0.010)\cdot[\ln(n)]^2+(0.00196\pm0.00041)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999996; 4.99×10^{-3}; 1.69×10^{-3}	$[CV_{TN3k2}^{0.005}]=(2.56\pm0.29)+(1.06\pm0.11)\cdot[\ln(n)]-(0.054\pm0.014)\cdot[\ln(n)]^2+(0.0015\pm0.0006)\cdot[\ln(n)]^3$

Table A45. Regression equations fitted to 27 simulated critical values of **test N3-k=3** of three upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A8** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A8** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\{\sum(SIM-FitEq)^2\}_{int}$; $\{\sum(SIM-FitEq)^2\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	1.000000; 5.72×10^{-6}; 1.73×10^{-5}	$[CV_{TN3k3}^{0.30}]=(0.38\pm0.07)+(1.800\pm0.027)\cdot[\ln(n)]-(0.0906\pm0.0033)\cdot[\ln(n)]^2+(0.00247\pm0.00014)\cdot[\ln(n)]^3$
80% / 20% / 0.20	1.000000; 1.91×10^{-4}; 8.75×10^{-6}	$[CV_{TN3k3}^{0.20}]=(0.58\pm0.07)+(1.826\pm0.025)\cdot[\ln(n)]-(0.0951\pm0.0031)\cdot[\ln(n)]^2+(0.00265\pm0.000130)\cdot[\ln(n)]^3$
90% / 10% / 0.10	1.000000; 3.44×10^{-5}; 1.83×10^{-5}	$[CV_{TN3k3}^{0.10}]=(0.81\pm0.09)+(1.883\pm0.033)\cdot[\ln(n)]-(0.1034\pm0.0041)\cdot[\ln(n)]^2+(0.00297\pm0.00017)\cdot[\ln(n)]^3$
95% / 5% / 0.05	1.000000; 1.83×10^{-3}; 1.14×10^{-4}	$[CV_{TN3k3}^{0.05}]=(0.91\pm0.11)+(1.967\pm0.042)\cdot[\ln(n)]-(0.115\pm0.005)\cdot[\ln(n)]^2+(0.00343\pm0.00022)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999999; 4.36×10^{-2}; 6.25×10^{-3}	$[CV_{TN3k3}^{0.02}]=(1.34\pm0.18)+(1.96\pm0.07)\cdot[\ln(n)]-(0.115\pm0.009)\cdot[\ln(n)]^2+(0.00343\pm0.00035)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999999; 2.48×10^{-2}; 2.14×10^{-3}	$[CV_{TN3k3}^{0.01}]=(1.54\pm0.21)+(1.98\pm0.08)\cdot[\ln(n)]-(0.120\pm0.010)\cdot[\ln(n)]^2+(0.00365\pm0.00041)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999998; 4.53×10^{-2}; 7.57×10^{-3}	$[CV_{TN3k3}^{0.005}]=(2.28\pm0.35)+(1.80\pm0.13)\cdot[\ln(n)]-(0.097\pm0.016)\cdot[\ln(n)]^2+(0.0027\pm0.0007)\cdot[\ln(n)]^3$

Table A46. Regression equations fitted to 27 simulated critical values of **test N3-k=4** of four upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A10** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A10** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum (SIM - FitEq)^2\right\}_{\text{int}}$; $\left\{\sum (SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	1.000000; 1.91×10^{-5}; 1.01×10^{-5}	$[CV_{TN3k4}^{0.30}] = (-0.23 \pm 0.08) + (2.487 \pm 0.031)\cdot[\ln(n)] - (0.1259 \pm 0.0038)\cdot[\ln(n)]^2 + (0.00339 \pm 0.00016)\cdot[\ln(n)]^3$
80% / 20% / 0.20	1.000000; 6.02×10^{-4}; 5.13×10^{-5}	$[CV_{TN3k4}^{0.20}] = (-0.18 \pm 0.10) + (2.583 \pm 0.037)\cdot[\ln(n)] - (0.139 \pm 0.005)\cdot[\ln(n)]^2 + (0.00391 \pm 0.00019)\cdot[\ln(n)]^3$
90% / 10% / 0.10	1.000000; 4.44×10^{-2}; 4.13×10^{-3}	$[CV_{TN3k4}^{0.10}] = (-0.05 \pm 0.13) + (2.69 \pm 0.05)\cdot[\ln(n)] - (0.154 \pm 0.006)\cdot[\ln(n)]^2 + (0.00450 \pm 0.00025)\cdot[\ln(n)]^3$
95% / 5% / 0.05	1.000000; 1.08×10^{-1}; 1.99×10^{-2}	$[CV_{TN3k4}^{0.05}] = (-0.05 \pm 0.14) + (2.84 \pm 0.05)\cdot[\ln(n)] - (0.172 \pm 0.006)\cdot[\ln(n)]^2 + (0.00523 \pm 0.00026)\cdot[\ln(n)]^3$
98% / 2% / 0.02	1.000000; 1.78×10^{-2}; 5.08×10^{-3}	$[CV_{TN3k4}^{0.02}] = (0.24 \pm 0.22) + (2.89 \pm 0.08)\cdot[\ln(n)] - (0.180 \pm 0.010)\cdot[\ln(n)]^2 + (0.00553 \pm 0.00043)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999999; 5.34×10^{-4}; 5.57×10^{-5}	$[CV_{TN3k4}^{0.01}] = (0.26 \pm 0.28) + (3.00 \pm 0.11)\cdot[\ln(n)] - (0.195 \pm 0.013)\cdot[\ln(n)]^2 + (0.0061 \pm 0.0006)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999998; 4.00×10^{-4}; 1.26×10^{-3}	$[CV_{TN3k4}^{0.005}] = (0.8 \pm 0.5) + (2.90 \pm 0.17)\cdot[\ln(n)] - (0.184 \pm 0.021)\cdot[\ln(n)]^2 + (0.0057 \pm 0.0009)\cdot[\ln(n)]^3$

The intercept terms in these equations are characterized by relatively large errors and therefore are statistically not significant (at 95% confidence level).

Table A47. Regression equations fitted to 27 simulated critical values of **test N4-k=1** of one upper or lower outlier (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A12** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A12** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum(SIM-FitEq)^2\right\}_{int}$; $\left\{\sum(SIM-FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999985; 7.60×10^{-7}; 2.40×10^{-6}	$[CV_{TN4k1}^{0.30}]=(0.621\pm0.005)+(0.1188\pm0.0019)\cdot[\ln(n)]-(0.01262\pm0.00024)\cdot[\ln(n)]^2+(0.000453\pm0.000010)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999984; 1.06×10^{-5}; 3.40×10^{-7}	$[CV_{TN4k1}^{0.20}]=(0.584\pm0.006)+(0.1306\pm0.0022)\cdot[\ln(n)]-(0.01391\pm0.00027)\cdot[\ln(n)]^2+(0.000500\pm0.000011)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999981; 3.91×10^{-7}; 3.42×10^{-6}	$[CV_{TN4k1}^{0.10}]=(0.523\pm0.007)+(0.1505\pm0.0026)\cdot[\ln(n)]-(0.01608\pm0.00033)\cdot[\ln(n)]^2+(0.000580\pm0.000014)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999979; 3.81×10^{-8}; 4.16×10^{-6}	$[CV_{TN4k1}^{0.05}]=(0.465\pm0.008)+(0.1692\pm0.0030)\cdot[\ln(n)]-(0.01812\pm0.00038)\cdot[\ln(n)]^2+(0.000655\pm0.000016)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999977; 6.09×10^{-7}; 5.21×10^{-6}	$[CV_{TN4k1}^{0.02}]=(0.390\pm0.009)+(0.1933\pm0.0035)\cdot[\ln(n)]-(0.02074\pm0.00044)\cdot[\ln(n)]^2+(0.000751\pm0.000018)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999977; 1.50×10^{-6}; 6.11×10^{-6}	$[CV_{TN4k1}^{0.01}]=(0.332\pm0.010)+(0.2121\pm0.0038)\cdot[\ln(n)]-(0.0228\pm0.0005)\cdot[\ln(n)]^2+(0.000827\pm0.000020)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999974; 3.00×10^{-5}; 2.92×10^{-5}	$[CV_{TN4k1}^{0.005}]=(0.275\pm0.012)+(0.2306\pm0.0044)\cdot[\ln(n)]-(0.0248\pm0.0005)\cdot[\ln(n)]^2+(0.000901\pm0.000023)\cdot[\ln(n)]^3$

Table A48. Regression equations fitted to 27 simulated critical values of **test N4-k=2** of two upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A14** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A14** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum (SIM - FitEq)^2\right\}_{\text{int}}$; $\left\{\sum (SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999987; 3.31×10^{-6}; 2.31×10^{-6} *	$[CV^{0.30}_{TN4k2}] = (0.332 \pm 0.009) + (0.2084 \pm 0.0032)\cdot[\ln(n)] - (0.02206 \pm 0.00041)\cdot[\ln(n)]^2 + (0.000789 \pm 0.000017)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999986; 1.24×10^{-5}; 3.02×10^{-6} *	$[CV^{0.20}_{TN4k2}] = (0.279 \pm 0.010) + (0.2253 \pm 0.0036)\cdot[\ln(n)] - (0.0239 \pm 0.0005)\cdot[\ln(n)]^2 + (0.000857 \pm 0.000019)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999985; 1.63×10^{-4}; 8.44×10^{-6}	$[CV^{0.10}_{TN4k2}] = (0.200 \pm 0.011) + (0.2508 \pm 0.0041)\cdot[\ln(n)] - (0.0267 \pm 0.0005)\cdot[\ln(n)]^2 + (0.000958 \pm 0.000021)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999983; 5.13×10^{-6}; 1.18×10^{-5} *	$[CV^{0.05}_{TN4k2}] = (0.126 \pm 0.012) + (0.275 \pm 0.005)\cdot[\ln(n)] - (0.0293 \pm 0.0006)\cdot[\ln(n)]^2 + (0.001054 \pm 0.000024)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999982; 2.72×10^{-4}; 6.88×10^{-6}	$[CV^{0.02}_{TN4k2}] = (0.034 \pm 0.014) + (0.304 \pm 0.005)\cdot[\ln(n)] - (0.0325 \pm 0.0006)\cdot[\ln(n)]^2 + (0.001172 \pm 0.000027)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999981; 2.74×10^{-4}; 6.45×10^{-6}	$[CV^{0.01}_{TN4k2}] = (-0.034 \pm 0.015) + (0.326 \pm 0.006)\cdot[\ln(n)] - (0.0349 \pm 0.0007)\cdot[\ln(n)]^2 + (0.001260 \pm 0.000029)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999978; 8.09×10^{-5}; 3.79×10^{-6} *	$[CV^{0.005}_{TN4k2}] = (-0.101 \pm 0.017) + (0.348 \pm 0.006)\cdot[\ln(n)] - (0.0373 \pm 0.0008)\cdot[\ln(n)]^2 + (0.001349 \pm 0.000033)\cdot[\ln(n)]^3$

* The extrapolated critical value for n =30,000 was >1 and, therefore, unrealistic (see Table 1 in Verma and Quiroz-Ruiz, 2008a for details on the test statistic and the reason of 1 being the maximum critical value for this test).

Table A49. Regression equations fitted to 27 simulated critical values of **test N4-k=3** of three upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A16** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A16** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum (SIM - FitEq)^2\right\}_{\text{int}}$; $\left\{\sum (SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999989; 2.46×10^{-5}; 2.93×10^{-5} **	$[CV_{TN4k3}^{0.30}] = (0.088 \pm 0.011) + (0.2835 \pm 0.0043)\cdot[\ln(n)] - (0.0299 \pm 0.0005)\cdot[\ln(n)]^2 + (0.001068 \pm 0.000022)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999988; 2.25×10^{-4}; 1.19×10^{-5}	$[CV_{TN4k3}^{0.20}] = (0.026 \pm 0.012) + (0.3033 \pm 0.0046)\cdot[\ln(n)] - (0.0321 \pm 0.0006)\cdot[\ln(n)]^2 + (0.001146 \pm 0.000024)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999987; 5.80×10^{-6}; 1.00×10^{-5} *	$[CV_{TN4k3}^{0.10}] = (-0.066 \pm 0.014) + (0.333 \pm 0.005)\cdot[\ln(n)] - (0.0353 \pm 0.0007)\cdot[\ln(n)]^2 + (0.001265 \pm 0.000027)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999983; 4.88×10^{-6}; 3.84×10^{-5} **	$[CV_{TN4k3}^{0.05}] = (-0.151 \pm 0.015) + (0.360 \pm 0.006)\cdot[\ln(n)] - (0.0382 \pm 0.0007)\cdot[\ln(n)]^2 + (0.001372 \pm 0.000030)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999984; 2.79×10^{-5}; 4.11×10^{-5} **	$[CV_{TN4k3}^{0.02}] = (-0.255 \pm 0.017) + (0.394 \pm 0.007)\cdot[\ln(n)] - (0.0419 \pm 0.0008)\cdot[\ln(n)]^2 + (0.001506 \pm 0.000034)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999983; 1.47×10^{-4}; 8.93×10^{-5}	$[CV_{TN4k3}^{0.01}] = (-0.329 \pm 0.019) + (0.418 \pm 0.007)\cdot[\ln(n)] - (0.0445 \pm 0.0009)\cdot[\ln(n)]^2 + (0.001602 \pm 0.000036)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999982; 3.67×10^{-4}; 8.06×10^{-6}	$[CV_{TN4k3}^{0.005}] = (-0.402 \pm 0.020) + (0.441 \pm 0.008)\cdot[\ln(n)] - (0.0471 \pm 0.0009)\cdot[\ln(n)]^2 + (0.001697 \pm 0.000039)\cdot[\ln(n)]^3$

* The extrapolated critical value for n =30,000 was >1 and, therefore, unrealistic.

** Both extrapolated critical values for n =20,000 and n =30,000 were >1 and, therefore, unrealistic.

See Table 1 in Verma and Quiroz-Ruiz (2008a) for details on the test statistic and the reason of 1 being the maximum critical value for this test.

Table A50. Regression equations fitted to 27 simulated critical values of **test N4-k=4** of four upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A18** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A18** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum (SIM - FitEq)^2\right\}_{\text{int}}$; $\left\{\sum (SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999990; 9.21×10^{-4}; 6.71×10^{-5}	$[CV_{TN4k4}^{0.30}] = (-0.128 \pm 0.014) + (0.349 \pm 0.005)\cdot[\ln(n)] - (0.0368 \pm 0.0006)\cdot[\ln(n)]^2 + (0.001309 \pm 0.000026)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999989; 9.05×10^{-4}; 6.45×10^{-5}	$[CV_{TN4k4}^{0.20}] = (-0.196 \pm 0.015) + (0.371 \pm 0.006)\cdot[\ln(n)] - (0.0392 \pm 0.0006)\cdot[\ln(n)]^2 + (0.001397 \pm 0.000029)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999988; 6.32×10^{-5}; 9.58×10^{-6} *	$[CV_{TN4k4}^{0.10}] = (-0.299 \pm 0.016) + (0.404 \pm 0.006)\cdot[\ln(n)] - (0.0427 \pm 0.0008)\cdot[\ln(n)]^2 + (0.001527 \pm 0.000032)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999987; 1.39×10^{-4}; 7.39×10^{-5} **	$[CV_{TN4k4}^{0.05}] = (-0.390 \pm 0.018) + (0.434 \pm 0.007)\cdot[\ln(n)] - (0.0459 \pm 0.0008)\cdot[\ln(n)]^2 + (0.001642 \pm 0.000034)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999986; 8.19×10^{-4}; 3.53×10^{-5}	$[CV_{TN4k4}^{0.02}] = (-0.502 \pm 0.020) + (0.469 \pm 0.007)\cdot[\ln(n)] - (0.0498 \pm 0.0009)\cdot[\ln(n)]^2 + (0.001784 \pm 0.000038)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999985; 3.06×10^{-4}; 5.80×10^{-6}	$[CV_{TN4k4}^{0.01}] = (-0.582 \pm 0.021) + (0.495 \pm 0.008)\cdot[\ln(n)] - (0.0526 \pm 0.0010)\cdot[\ln(n)]^2 + (0.001887 \pm 0.000041)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999985; 2.47×10^{-6}; 2.88×10^{-5} *	$[CV_{TN4k4}^{0.005}] = (-0.661 \pm 0.023) + (0.521 \pm 0.008)\cdot[\ln(n)] - (0.0554 \pm 0.0011)\cdot[\ln(n)]^2 + (0.001990 \pm 0.000044)\cdot[\ln(n)]^3$

* The extrapolated critical value for n =30,000 was >1 and, therefore, unrealistic.

** Both extrapolated critical values for n =20,000 and n =30,000 were >1 and, therefore, unrealistic.

See Table 1 in Verma and Quiroz-Ruiz (2008a) for details on the test statistic and the reason of 1 being the maximum critical value for this test.

Table A51. Regression equations fitted to 27 simulated critical values of **test N5-k=2** of two upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A20** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A20** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum (SIM - FitEq)^2\right\}_{\text{int}}$; $\left\{\sum (SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999986; $1.42\times10^{-4};\ 9.15\times10^{-6}$	$[CV_{TN5k2}^{0.30}] = (0.258 \pm 0.010) + (0.2323 \pm 0.0037)\cdot[\ln(n)] - (0.0247 \pm 0.0005)\cdot[\ln(n)]^2 + (0.000885 \pm 0.000019)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999985; $6.88\times10^{-6};\ 3.70\times10^{-6}$ *	$[CV_{TN5k2}^{0.20}] = (0.208 \pm 0.011) + (0.2483 \pm 0.0040)\cdot[\ln(n)] - (0.0264 \pm 0.0005)\cdot[\ln(n)]^2 + (0.000948 \pm 0.000021)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999984; $5.32\times10^{-5};\ 2.45\times10^{-6}$	$[CV_{TN5k2}^{0.10}] = (0.132 \pm 0.012) + (0.273 \pm 0.005)\cdot[\ln(n)] - (0.0291 \pm 0.0006)\cdot[\ln(n)]^2 + (0.01045 \pm 0.000023)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999983; $3.95\times10^{-5};\ 1.97\times10^{-6}$	$[CV_{TN5k2}^{0.05}] = (0.060 \pm 0.013) + (0.296 \pm 0.005)\cdot[\ln(n)] - (0.0316 \pm 0.0006)\cdot[\ln(n)]^2 + (0.001138 \pm 0.000025)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999981; $1.53\times10^{-4};\ 9.22\times10^{-5}$ **	$[CV_{TN5k2}^{0.02}] = (-0.030 \pm 0.015) + (0.325 \pm 0.006)\cdot[\ln(n)] - (0.0347 \pm 0.0007)\cdot[\ln(n)]^2 + (0.001254 \pm 0.000029)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999980; $3.98\times10^{-4};\ 1.24\times10^{-4}$ **	$[CV_{TN5k2}^{0.01}] = (-0.096 \pm 0.016) + (0.347 \pm 0.006)\cdot[\ln(n)] - (0.0371 \pm 0.0008)\cdot[\ln(n)]^2 + (0.001341 \pm 0.000031)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999977; $3.34\times10^{-4};\ 1.27\times10^{-5}$	$[CV_{TN5k2}^{0.005}] = (-0.163 \pm 0.018) + (0.368 \pm 0.007)\cdot[\ln(n)] - (0.0395 \pm 0.0008)\cdot[\ln(n)]^2 + (0.001428 \pm 0.000035)\cdot[\ln(n)]^3$

* The extrapolated critical value for n =30,000 was >1 and, therefore, unrealistic.

** Both extrapolated critical values for n =20,000 and n =30,000 were >1 and, therefore, unrealistic.

See Table 1 in Verma and Quiroz-Ruiz (2008a) for details on the test statistic and the reason of 1 being the maximum critical value for this test.

Table A52. Regression equations fitted to 27 simulated critical values of **test N6-k=2** of two upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A22** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A22** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum(SIM-FitEq)^2\right\}_{\text{int}}$; $\left\{\sum(SIM-FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	1.000000; 3.83×10^{-5}; 2.05×10^{-5}	$[CV_{TN6k2}^{0.30}]=(1.254\pm0.040)+(1.080\pm0.015)\cdot[\ln(n)]-(0.0522\pm0.0019)\cdot[\ln(n)]^2+(0.00143\pm0.00008)\cdot[\ln(n)]^3$
80% / 20% / 0.20	1.000000; 2.66×10^{-5}; 2.49×10^{-5}	$[CV_{TN6k2}^{0.20}]=(1.45\pm0.05)+(1.083\pm0.018)\cdot[\ln(n)]-(0.0537\pm0.0022)\cdot[\ln(n)]^2+(0.00150\pm0.00009)\cdot[\ln(n)]^3$
90% / 10% / 0.10	1.000000; 8.55×10^{-4}; 2.80×10^{-4}	$[CV_{TN6k2}^{0.10}]=(1.747\pm0.044)+(1.083\pm0.017)\cdot[\ln(n)]-(0.0550\pm0.0021)\cdot[\ln(n)]^2+(0.00156\pm0.00009)\cdot[\ln(n)]^3$
95% / 5% / 0.05	1.000000; 7.19×10^{-4}; 1.34×10^{-4}	$[CV_{TN6k2}^{0.05}]=(2.00\pm0.07)+(1.088\pm0.025)\cdot[\ln(n)]-(0.0568\pm0.0031)\cdot[\ln(n)]^2+(0.00163\pm0.00013)\cdot[\ln(n)]^3$
98% / 2% / 0.02	1.000000; 5.17×10^{-3}; 8.68×10^{-4}	$[CV_{TN6k2}^{0.02}]=(2.18\pm0.10)+(1.131\pm0.037)\cdot[\ln(n)]-(0.063\pm0.005)\cdot[\ln(n)]^2+(0.00185\pm0.00019)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999999; 3.11×10^{-2}; 5.08×10^{-3}	$[CV_{TN6k2}^{0.01}]=(2.45\pm0.16)+(1.11\pm0.06)\cdot[\ln(n)]-(0.060\pm0.007)\cdot[\ln(n)]^2+(0.00173\pm0.00031)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999998; 1.66×10^{-2}; 2.90×10^{-3}	$[CV_{TN6k2}^{0.005}]=(2.35\pm0.18)+(1.22\pm0.07)\cdot[\ln(n)]-(0.074\pm0.009)\cdot[\ln(n)]^2+(0.00228\pm0.00035)\cdot[\ln(n)]^3$

Table A53. Regression equations fitted to 27 simulated critical values of **test N7** of one upper or lower outlier (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A24** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A24** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum(SIM-FitEq)^2\right\}_{int}$; $\left\{\sum(SIM-FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999989; 2.20×10^{-4}; 2.58×10^{-5}	$[CV_{TN7}^{0.30}]=(0.217\pm0.007)-(0.0445\pm0.0025)\cdot[\ln(n)]+(0.00381\pm0.00032)\cdot[\ln(n)]^2-(0.000121\pm0.000013)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999991; 6.33×10^{-6}; 4.23×10^{-7}	$[CV_{TN7}^{0.20}]=(0.286\pm0.008)-(0.0587\pm0.0029)\cdot[\ln(n)]+(0.00512\pm0.00036)\cdot[\ln(n)]^2-(0.000164\pm0.000015)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999992; 1.45×10^{-4}; 3.98×10^{-5}	$[CV_{TN7}^{0.10}]=(0.370\pm0.010)-(0.0738\pm0.0037)\cdot[\ln(n)]+(0.0063\pm0.0005)\cdot[\ln(n)]^2-(0.000202\pm0.000019)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999987; 6.38×10^{-4}; 1.01×10^{-4}	$[CV_{TN7}^{0.05}]=(0.437\pm0.015)-(0.085\pm0.006)\cdot[\ln(n)]+(0.0071\pm0.0007)\cdot[\ln(n)]^2-(0.000223\pm0.000029)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999984; 6.46×10^{-4}; 1.17×10^{-4}	$[CV_{TN7}^{0.02}]=(0.514\pm0.020)-(0.097\pm0.007)\cdot[\ln(n)]+(0.0080\pm0.0009)\cdot[\ln(n)]^2-(0.000250\pm0.000039)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999976; 3.17×10^{-5}; 9.12×10^{-6}	$[CV_{TN7}^{0.01}]=(0.548\pm0.027)-(0.098\pm0.010)\cdot[\ln(n)]+(0.0078\pm0.0012)\cdot[\ln(n)]^2-(0.00023\pm0.00005)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999954; 9.51×10^{-5}; 4.94×10^{-5}	$[CV_{TN7}^{0.005}]=(0.645\pm0.040)-(0.124\pm0.015)\cdot[\ln(n)]+(0.0107\pm0.0019)\cdot[\ln(n)]^2-(0.00035\pm0.00008)\cdot[\ln(n)]^3$

Table A54. Regression equations fitted to 27 simulated critical values of **test N8** of an extreme outlier (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A26** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A26** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum(SIM-FitEq)^2\right\}_{int}$; $\left\{\sum(SIM-FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999997; 1.19×10^{-7}; 2.18×10^{-7}	$[CV_{TN8}^{0.30}]=(0.306\pm0.005)-(0.0604\pm0.0017)\cdot[\ln(n)]+(0.00508\pm0.00022)\cdot[\ln(n)]^2-(0.000158\pm0.000009)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999997; 5.91×10^{-8}; 3.22×10^{-7}	$[CV_{TN8}^{0.20}]=(0.362\pm0.006)-(0.0714\pm0.0024)\cdot[\ln(n)]+(0.00605\pm0.00030)\cdot[\ln(n)]^2-(0.000190\pm0.000012)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999995; 9.77×10^{-6}; 3.09×10^{-7}	$[CV_{TN8}^{0.10}]=(0.415\pm0.009)-(0.0762\pm0.0035)\cdot[\ln(n)]+(0.00609\pm0.00044)\cdot[\ln(n)]^2-(0.000181\pm0.000018)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999992; 6.50×10^{-7}; 5.78×10^{-7}	$[CV_{TN8}^{0.05}]=(0.484\pm0.013)-(0.089\pm0.005)\cdot[\ln(n)]+(0.0072\pm0.0006)\cdot[\ln(n)]^2-(0.000218\pm0.000025)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999990; 2.19×10^{-5}; 2.14×10^{-6}	$[CV_{TN8}^{0.02}]=(0.556\pm0.018)-(0.101\pm0.007)\cdot[\ln(n)]+(0.0082\pm0.0008)\cdot[\ln(n)]^2-(0.000249\pm0.000034)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999981; 3.16×10^{-4}; 5.74×10^{-5}	$[CV_{TN8}^{0.01}]=(0.615\pm0.026)-(0.113\pm0.010)\cdot[\ln(n)]+(0.0094\pm0.0012)\cdot[\ln(n)]^2-(0.00029\pm0.00005)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999976; 1.06×10^{-4}; 1.20×10^{-5}	$[CV_{TN8}^{0.005}]=(0.685\pm0.031)-(0.129\pm0.012)\cdot[\ln(n)]+(0.0110\pm0.0014)\cdot[\ln(n)]^2-(0.00035\pm0.00006)\cdot[\ln(n)]^3$

Table A55. Regression equations fitted to 27 simulated critical values of **test N9** of one upper or lower outlier (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A28** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A28** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\{\sum(SIM-FitEq)^2\}_{int}$; $\{\sum(SIM-FitEq)^2\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999997; 5.74×10^{-7}; 1.82×10^{-7}	$[CV_{TN9}^{0.30}]=(0.2393\pm0.0039)-(0.0494\pm0.0015)\cdot[\ln(n)]+(0.00424\pm0.00018)\cdot[\ln(n)]^2-(0.000133\pm0.000008)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999997; 9.15×10^{-6}; 1.66×10^{-6}	$[CV_{TN9}^{0.20}]=(0.305\pm0.005)-(0.0629\pm0.0018)\cdot[\ln(n)]+(0.00543\pm0.00023)\cdot[\ln(n)]^2-(0.000172\pm0.000009)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999996; 2.56×10^{-6}; 1.34×10^{-7}	$[CV_{TN9}^{0.10}]=(0.409\pm0.007)-(0.0844\pm0.0028)\cdot[\ln(n)]+(0.00740\pm0.00035)\cdot[\ln(n)]^2-(0.000239\pm0.000015)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999994; 2.62×10^{-4}; 5.63×10^{-5}	$[CV_{TN9}^{0.05}]=(0.461\pm0.011)-(0.0888\pm0.0042)\cdot[\ln(n)]+(0.0073\pm0.0005)\cdot[\ln(n)]^2-(0.000225\pm0.000022)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999995; 3.10×10^{-4}; 4.83×10^{-5}	$[CV_{TN9}^{0.02}]=(0.554\pm0.012)-(0.106\pm0.005)\cdot[\ln(n)]+(0.0089\pm0.0006)\cdot[\ln(n)]^2-(0.000275\pm0.000024)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999987; 7.14×10^{-4}; 1.35×10^{-4}	$[CV_{TN9}^{0.01}]=(0.611\pm0.021)-(0.116\pm0.008)\cdot[\ln(n)]+(0.0096\pm0.0010)\cdot[\ln(n)]^2-(0.000300\pm0.000041)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999984; 4.37×10^{-6}; 2.40×10^{-6}	$[CV_{TN9}^{0.005}]=(0.652\pm0.025)-(0.121\pm0.009)\cdot[\ln(n)]+(0.0100\pm0.0012)\cdot[\ln(n)]^2-(0.00031\pm0.00005)\cdot[\ln(n)]^3$

Table A56. Regression equations fitted to 27 simulated critical values of **test N10** of one upper or lower outlier (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A30** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A30** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum (SIM - FitEq)^2\right\}_{int}$; $\left\{\sum (SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999997; 1.07×10^{-6}; 1.03×10^{-6}	$[CV_{TN10}^{0.30}] = (0.2555 \pm 0.0038) - (0.0539 \pm 0.0014) \cdot [\ln(n)] + (0.00470 \pm 0.00018) \cdot [\ln(n)]^2 - (0.000150 \pm 0.000007) \cdot [\ln(n)]^3$
80% / 20% / 0.20	0.999997; 6.30×10^{-6}; 2.69×10^{-7}	$[CV_{TN10}^{0.20}] = (0.323 \pm 0.005) - (0.0674 \pm 0.0018) \cdot [\ln(n)] + (0.00586 \pm 0.00022) \cdot [\ln(n)]^2 - (0.000186 \pm 0.000009) \cdot [\ln(n)]^3$
90% / 10% / 0.10	0.999996; 2.57×10^{-6}; 1.70×10^{-7}	$[CV_{TN10}^{0.10}] = (0.433 \pm 0.008) - (0.0909 \pm 0.0029) \cdot [\ln(n)] + (0.00804 \pm 0.00036) \cdot [\ln(n)]^2 - (0.000261 \pm 0.000015) \cdot [\ln(n)]^3$
95% / 5% / 0.05	0.999995; 2.55×10^{-4}; 4.32×10^{-5}	$[CV_{TN10}^{0.05}] = (0.491 \pm 0.010) - (0.0969 \pm 0.0038) \cdot [\ln(n)] + (0.0082 \pm 0.0005) \cdot [\ln(n)]^2 - (0.000253 \pm 0.000020) \cdot [\ln(n)]^3$
98% / 2% / 0.02	0.999994; 5.37×10^{-4}; 8.28×10^{-5}	$[CV_{TN10}^{0.02}] = (0.574 \pm 0.014) - (0.110 \pm 0.005) \cdot [\ln(n)] + (0.0092 \pm 0.0007) \cdot [\ln(n)]^2 - (0.000282 \pm 0.000027) \cdot [\ln(n)]^3$
99% / 1% / 0.01	0.999990; 7.44×10^{-5}; 1.57×10^{-5}	$[CV_{TN10}^{0.01}] = (0.650 \pm 0.019) - (0.127 \pm 0.007) \cdot [\ln(n)] + (0.0108 \pm 0.0009) \cdot [\ln(n)]^2 - (0.000342 \pm 0.000037) \cdot [\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999978; 5.82×10^{-4}; 1.04×10^{-4}	$[CV_{TN10}^{0.005}] = (0.712 \pm 0.030) - (0.139 \pm 0.011) \cdot [\ln(n)] + (0.0120 \pm 0.0014) \cdot [\ln(n)]^2 - (0.00038 \pm 0.00006) \cdot [\ln(n)]^3$

Table A57. Regression equations fitted to 27 simulated critical values of **test N11** of two upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A32** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A32** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum (SIM - FitEq)^2\right\}_{\text{int}}$; $\left\{\sum (SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999998; 4.35×10^{-6}; 1.44×10^{-6}	$[CV_{TN11}^{0.30}] = (0.3441 \pm 0.0041) - (0.0711 \pm 0.0016)\cdot[\ln(n)] + (0.00616 \pm 0.00019)\cdot[\ln(n)]^2 - (0.000196 \pm 0.000008)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999998; 7.84×10^{-5}; 2.51×10^{-5}	$[CV_{TN11}^{0.20}] = (0.406 \pm 0.005) - (0.0834 \pm 0.0018)\cdot[\ln(n)] + (0.00723 \pm 0.00022)\cdot[\ln(n)]^2 - (0.000233 \pm 0.000009)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999997; 1.09×10^{-5}; 4.20×10^{-6}	$[CV_{TN11}^{0.10}] = (0.488 \pm 0.008) - (0.0985 \pm 0.0029)\cdot[\ln(n)] + (0.00852 \pm 0.00036)\cdot[\ln(n)]^2 - (0.000273 \pm 0.000015)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999998; 6.18×10^{-6}; 1.25×10^{-7}	$[CV_{TN11}^{0.05}] = (0.543 \pm 0.007) - (0.1048 \pm 0.0025)\cdot[\ln(n)] + (0.00877 \pm 0.00031)\cdot[\ln(n)]^2 - (0.000272 \pm 0.000013)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999995; 1.79×10^{-4}; 2.11×10^{-5}	$[CV_{TN11}^{0.02}] = (0.590 \pm 0.013) - (0.107 \pm 0.005)\cdot[\ln(n)] + (0.0086 \pm 0.0006)\cdot[\ln(n)]^2 - (0.000257 \pm 0.000026)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999989; 9.82×10^{-5}; 9.93×10^{-6}	$[CV_{TN11}^{0.01}] = (0.613 \pm 0.021) - (0.105 \pm 0.008)\cdot[\ln(n)] + (0.0080 \pm 0.0010)\cdot[\ln(n)]^2 - (0.000227 \pm 0.000041)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999989; 4.58×10^{-4}; 5.07×10^{-5}	$[CV_{TN11}^{0.005}] = (0.676 \pm 0.023) - (0.119 \pm 0.009)\cdot[\ln(n)] + (0.0095 \pm 0.0011)\cdot[\ln(n)]^2 - (0.000284 \pm 0.000044)\cdot[\ln(n)]^3$

Table A58. Regression equations fitted to 27 simulated critical values of **test N12** of two upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A34** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A34** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum (SIM - FitEq)^2\right\}_{\text{int}}$; $\left\{\sum (SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999998; 3.11×10^{-6}; 6.24×10^{-6}	$[CV_{TN12}^{0.30}] = (0.381 \pm 0.005) - (0.0811 \pm 0.0017)\cdot[\ln(n)] + (0.00715 \pm 0.00022)\cdot[\ln(n)]^2 - (0.000230 \pm 0.000009)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999998; 3.23×10^{-7}; 5.25×10^{-6}	$[CV_{TN12}^{0.20}] = (0.449 \pm 0.005) - (0.0950 \pm 0.0019)\cdot[\ln(n)] + (0.00841 \pm 0.00024)\cdot[\ln(n)]^2 - (0.000273 \pm 0.000010)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999997; 3.47×10^{-7}; 5.02×10^{-6}	$[CV_{TN12}^{0.10}] = (0.534 \pm 0.008) - (0.1104 \pm 0.0030)\cdot[\ln(n)] + (0.00966 \pm 0.00037)\cdot[\ln(n)]^2 - (0.000311 \pm 0.000016)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999998; 2.77×10^{-6}; 1.07×10^{-5}	$[CV_{TN12}^{0.05}] = (0.598 \pm 0.008) - (0.1198 \pm 0.0029)\cdot[\ln(n)] + (0.01025 \pm 0.00036)\cdot[\ln(n)]^2 - (0.000324 \pm 0.000015)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999995 1.41×10^{-5}; 1.77×10^{-5}	$[CV_{TN12}^{0.02}] = (0.657 \pm 0.014) - (0.126 \pm 0.005)\cdot[\ln(n)] + (0.0105 \pm 0.0007)\cdot[\ln(n)]^2 - (0.000325 \pm 0.000028)\cdot[\ln(n)]^2$
99% / 1% / 0.01	0.999989; 8.28×10^{-7}; 7.96×10^{-6}	$[CV_{TN12}^{0.01}] = (0.682 \pm 0.023) - (0.124 \pm 0.009)\cdot[\ln(n)] + (0.0100 \pm 0.0011)\cdot[\ln(n)]^2 - (0.000296 \pm 0.000045)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999989; 1.32×10^{-5}; 2.88×10^{-6}	$[CV_{TN12}^{0.005}] = (0.739 \pm 0.024) - (0.136 \pm 0.009)\cdot[\ln(n)] + (0.0112 \pm 0.0011)\cdot[\ln(n)]^2 - (0.000344 \pm 0.00005)\cdot[\ln(n)]^3$

Table A59. Regression equations fitted to 27 simulated critical values of **test N13** of two upper or lower outliers (for n between 1,000 and 10,000 using a natural logarithm-cubic model; Table **A36** from electronic supplement), and their evaluation for interpolation (for 1,000 > n > 10,000) and extrapolation (n > 10,000) purposes (see Table **A36** for those n for which critical values were simulated and for which interpolated or extrapolated critical values were required).

CL / SL / α	R^2; $\left\{\sum (SIM - FitEq)^2\right\}_{int}$; $\left\{\sum (SIM - FitEq)^2\right\}_{ext}$	Interpolation or Extrapolation equation
70% / 30% / 0.30	0.999998; 2.87×10^{-8}; 3.84×10^{-7}	$[CV_{TN13}^{0.30}] = (0.405 \pm 0.005) - (0.0876 \pm 0.0017)\cdot[\ln(n)] + (0.00779 \pm 0.00022)\cdot[\ln(n)]^2 - (0.000252 \pm 0.000009)\cdot[\ln(n)]^3$
80% / 20% / 0.20	0.999998; 1.45×10^{-5}; 4.03×10^{-6}	$[CV_{TN13}^{0.20}] = (0.472 \pm 0.005) - (0.1013 \pm 0.0019)\cdot[\ln(n)] + (0.00900 \pm 0.00024)\cdot[\ln(n)]^2 - (0.000292 \pm 0.000010)\cdot[\ln(n)]^3$
90% / 10% / 0.10	0.999997; 1.87×10^{-6}; 1.04×10^{-7}	$[CV_{TN13}^{0.10}] = (0.566 \pm 0.008) - (0.1193 \pm 0.0031)\cdot[\ln(n)] + (0.01056 \pm 0.00038)\cdot[\ln(n)]^2 - (0.000342 \pm 0.000016)\cdot[\ln(n)]^3$
95% / 5% / 0.05	0.999998; 3.05×10^{-6}; 2.46×10^{-6}	$[CV_{TN13}^{0.05}] = (0.635 \pm 0.008) - (0.1300 \pm 0.0028)\cdot[\ln(n)] + (0.01128 \pm 0.00036)\cdot[\ln(n)]^2 - (0.000360 \pm 0.000015)\cdot[\ln(n)]^3$
98% / 2% / 0.02	0.999995 1.13×10^{-3}; 1.97×10^{-4}	$[CV_{TN13}^{0.02}] = (0.693 \pm 0.015) - (0.136 \pm 0.006)\cdot[\ln(n)] + (0.0114 \pm 0.0007)\cdot[\ln(n)]^2 - (0.000358 \pm 0.000029)\cdot[\ln(n)]^3$
99% / 1% / 0.01	0.999990; 8.49×10^{-4}; 1.26×10^{-4}	$[CV_{TN13}^{0.01}] = (0.736 \pm 0.022) - (0.140 \pm 0.008)\cdot[\ln(n)] + (0.0117 \pm 0.0011)\cdot[\ln(n)]^2 - (0.000359 \pm 0.000044)\cdot[\ln(n)]^3$
99.5% / 0.5% / 0.005	0.999989; 1.64×10^{-4}; 2.02×10^{-5}	$[CV_{TN13}^{0.005}] = (0.806 \pm 0.025) - (0.157 \pm 0.009)\cdot[\ln(n)] + (0.0135 \pm 0.0012)\cdot[\ln(n)]^2 - (0.000343 \pm 0.00005)\cdot[\ln(n)]^3$