

Upper tail probabilities for the null distribution of the Ansari-Bradley
 W statistic: $2 \leq n_1 \leq n_2, (n_1 + n_2) \leq 20$

$n_1 = 2$										
x	$n_2 = 2$	$n_2 = 3$	$n_2 = 4$	$n_2 = 5$	$n_2 = 6$	$n_2 = 7$	$n_2 = 8$	$n_2 = 9$	$n_2 = 10$	
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
3	.8333	.9000	.9333	.9524	.9643	.9722	.9778	.9818	.9848	
4	.1667	.5000	.6667	.7619	.8214	.8611	.8889	.9091	.9242	
5		.2000	.3333	.5238	.6429	.7222	.7778	.8182	.8485	
6			.0667	.2381	.3571	.5000	.6000	.6727	.7273	
7				.0952	.1786	.3056	.4000	.5091	.5909	
8					.0357	.1389	.2222	.3273	.4091	
9						.0556	.1111	.2000	.2727	
10							.0222	.0909	.1515	
11								.0364	.0758	
12									.0152	

$n_1 = 3$										
x	$n_2 = 11$	$n_2 = 12$	$n_2 = 13$	$n_2 = 14$	$n_2 = 15$	$n_2 = 16$	$n_2 = 17$	$n_2 = 18$		
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
3	.9872	.9890	.9905	.9917	.9926	.9935	.9942	.9947	.9947	
4	.9359	.9451	.9524	.9583	.9632	.9673	.9708	.9737	.9744	
5	.8718	.8901	.9048	.9167	.9265	.9346	.9415	.9474	.9533	
6	.7692	.8022	.8286	.8500	.8676	.8824	.8947	.9053	.9179	
7	.6538	.7033	.7429	.7750	.8015	.8235	.8421	.8579	.8747	
8	.5000	.5714	.6286	.6750	.7132	.7451	.7719	.7947	.8123	
9	.3590	.4286	.5048	.5667	.6176	.6601	.6959	.7263	.7526	
10	.2308	.2967	.3714	.4333	.5000	.5556	.6023	.6421	.6763	
11	.1410	.1978	.2667	.3250	.3897	.4444	.5029	.5526	.5947	
12	.0641	.1099	.1714	.2250	.2868	.3399	.3977	.4474	.4947	
13	.0256	.0549	.1048	.1500	.2059	.2549	.3099	.3579	.4047	
14		.0110	.0476	.0833	.1324	.1765	.2281	.2737	.3209	
15			.0190	.0417	.0809	.1176	.1637	.2053	.2526	
16				.0083	.0368	.0654	.1053	.1421	.1847	
17					.0147	.0327	.0643	.0947	.1263	
18						.0065	.0292	.0526	.0763	
19							.0117	.0263	.0453	
20								.0053	.0152	

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TABLE A.8

(continued)

$n_1 = 3$										
x	$n_2 = 3$	$n_2 = 4$	$n_2 = 5$	$n_2 = 6$	$n_2 = 7$	$n_2 = 8$	$n_2 = 9$	$n_2 = 10$	$n_2 = 11$	
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
5	.9000	.9429	.9643	.9762	.9833	.9879	.9909	.9930	.9946	
6	.7000	.8286	.8929	.9286	.9500	.9636	.9727	.9790	.9836	
7	.3000	.5714	.7143	.8095	.8667	.9030	.9273	.9441	.9560	
8	.1000	.3429	.5000	.6548	.7500	.8182	.8636	.8951	.9176	
9		.1429	.2857	.4643	.5833	.6909	.7636	.8182	.8571	
10		.0286	.1071	.2857	.4167	.5455	.6364	.7168	.7747	
11			.0357	.1429	.2500	.3939	.5000	.5979	.6703	
12				.0595	.1333	.2606	.3636	.4755	.5604	
13				.0500	.1455	.2606	.3636	.4755	.5604	
14				.0119	.1333	.2606	.3636	.4755	.5604	
15					.0303	.0727	.1364	.2413	.3297	
16						.0061	.0273	.0839	.1429	
17							.0727	.1503	.2263	
18								.0839	.1429	
19								.0420	.0840	
20								.0175	.0440	
								.0035	.0166	
									.0086	

$n_1 = 3$										
x	$n_2 = 12$	$n_2 = 13$	$n_2 = 14$	$n_2 = 15$	$n_2 = 16$	$n_2 = 17$				
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000				
5	.9956	.9964	.9971	.9975	.9979	.9982				
6	.9868	.9893	.9912	.9926	.9938	.9947				
7	.9648	.9714	.9765	.9804	.9835	.9860				
8	.9341	.9464	.9559	.9632	.9690	.9737				
9	.8857	.9071	.9235	.9363	.9463	.9544				
10	.8198	.8536	.8794	.8995	.9154	.9281				
11	.7341	.7821	.8206	.8505	.8741	.8930				
12	.6374	.6964	.7485	.7892	.8225	.8491				
13	.5297	.6000	.6632	.7132	.7575	.7930				
14	.4242	.5000	.5735	.6324	.6852	.7281				
15	.3209	.4000	.4794	.5441	.6058	.6561				
16	.2286	.3036	.3868	.4559	.5232	.5789				
17	.1516	.2179	.2985	.3676	.4396	.5000				
18	.0945	.1464	.2206	.2868	.3591	.4211				
19	.0527	.0929	.1529	.2108	.2817	.3439				
20	.0264	.0536	.1015	.1495	.2136	.2719				
21	.0110	.0286	.0632	.1005	.1548	.2070				
22	.0022	.0107	.0353	.0637	.1073	.1509				
23		.0036	.0176	.0368	.0712	.1070				
24			.0074	.0196	.0444	.0719				
25			.0015	.0074	.0248	.0450				
26				.0025	.0124	.0263				
27					.0052	.0140				
28						.0053				
29						.0018				

TABLE A.8

(continued)

x	$n_2 = 4$	$n_2 = 5$	$n_2 = 6$	$n_2 = 7$	$n_2 = 8$	$n_2 = 9$	$n_2 = 10$	$n_2 = 11$	$n_2 = 12$
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7	.9857	.9921	.9952	.9970	.9980	.9986	.9990	.9993	.9995
8	.9286	.9603	.9762	.9848	.9899	.9930	.9950	.9963	.9973
9	.8000	.8889	.9333	.9576	.9717	.9804	.9860	.9897	.9923
10	.6286	.7778	.8571	.9091	.9394	.9580	.9700	.9780	.9835
11	.3714	.6032	.7333	.8242	.8788	.9161	.9401	.9560	.9670
12	.2000	.4286	.5810	.7152	.7980	.8573	.8961	.9238	.9429
13	.0714	.2619	.4190	.5818	.6889	.7762	.8342	.8769	.9066
14	.0143	.1349	.2667	.4424	.5677	.6783	.7542	.8154	.8582
15		.0476	.1429	.3030	.4323	.5650	.6593	.7385	.7951
16		.0159	.0667	.1939	.3111	.4503	.5554	.6520	.7225
17			.0238	.1061	.2020	.3357	.4446	.5546	.6374
18			.0048	.0515	.1212	.2378	.3407	.4564	.5473
19				.0182	.0606	.1538	.2458	.3590	.4527
20				.0061	.0283	.0923	.1658	.2711	.3626
21					.0101	.0490	.1039	.1934	.2775
22					.0020	.0238	.0599	.1319	.2049
23						.0084	.0300	.0821	.1418
24						.0028	.0140	.0484	.0934
25							.0050	.0256	.0571
26							.0010	.0125	.0330
27								.0044	.0165
28								.0015	.0077
29								.0027	.0055
30									

 $n_1 = 4$

x	$n_2 = 13$	$n_2 = 14$	$n_2 = 15$	$n_2 = 16$
6	1.0000	1.0000	1.0000	1.0000
7	.9996	.9997	.9997	.9998
8	.9979	.9984	.9987	.9990
9	.9941	.9954	.9964	.9971
10	.9874	.9902	.9923	.9938
11	.9748	.9804	.9845	.9876
12	.9563	.9660	.9732	.9785
13	.9286	.9444	.9561	.9649
14	.8908	.9144	.9324	.9459
15	.8408	.8742	.9002	.9197
16	.7811	.8245	.8599	.8867
17	.7101	.7647	.8101	.8448
18	.6319	.6967	.7528	.7961
19	.5471	.6209	.6873	.7391
20	.4613	.5412	.6166	.6764
21	.3761	.4588	.5413	.6078
22	.2979	.3791	.4654	.5368
23	.2261	.3033	.3896	.4632
24	.1655	.2353	.3189	.3922

TABLE A.8

(continued)

$n_1 = 4$						
x	$n_2 = 13$	$n_2 = 14$	$n_2 = 15$	$n_2 = 16$		
25	.1151	.1755	.2531	.3236		
26	.0765	.1258	.1953	.2609		
27	.0471	.0856	.1450	.2039		
28	.0277	.0556	.1042	.1552		
29	.0147	.0340	.0712	.1133		
30	.0071	.0196	.0470	.0803		
31	.0025	.0098	.0289	.0541		
32	.0008	.0046	.0170	.0351		
33		.0016	.0090	.0215		
34		.0003	.0044	.0124		
35			.0015	.0062		
36			.0005	.0029		
37				.0010		
38				.0002		

$n_1 = 5$						
x	$n_2 = 5$	$n_2 = 6$	$n_2 = 7$	$n_2 = 8$	$n_2 = 9$	$n_2 = 10$
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	.9921	.9957	.9975	.9984	.9990	.9993
11	.9762	.9870	.9924	.9953	.9970	.9980
12	.9286	.9610	.9773	.9860	.9910	.9940
13	.8492	.9156	.9495	.9689	.9800	.9867
14	.7302	.8420	.9015	.9386	.9600	.9734
15	.5873	.7446	.8333	.8936	.9291	.9524
16	.4127	.6147	.7374	.8275	.8821	.9197
17	.2698	.4805	.6237	.7451	.8212	.8761
18	.1508	.3463	.5000	.6457	.7423	.8182
19	.0714	.2294	.3763	.5385	.6523	.7483
20	.0238	.1342	.2626	.4266	.5514	.6663
21	.0079	.0693	.1667	.3209	.4486	.5771
22		.0303	.0985	.2269	.3477	.4832
23		.0108	.0505	.1507	.2577	.3916
24		.0022	.0227	.0917	.1788	.3044
25			.0076	.0513	.1179	.2268
26			.0025	.0249	.0709	.1608
27				.0109	.0400	.1086
28				.0039	.0200	.0686
29				.0008	.0090	.0406
30					.0030	.0220
31					.0010	.0107
32						.0047
33						.0017
34						.0003
35						
36						

TABLE A.8

(continued)

x	$n_1 = 5$	$n_2 = 12$	$n_2 = 13$	$n_2 = 14$	$n_2 = 15$
9	1.0000	1.0000	1.0000	1.0000	1.0000
10	.9997	.9998	.9998	.9998	.9999
11	.9990	.9993	.9995	.9995	.9996
12	.9971	.9979	.9985	.9985	.9988
13	.9935	.9953	.9966	.9966	.9974
14	.9871	.9907	.9931	.9931	.9948
15	.9767	.9832	.9876	.9876	.9907
16	.9601	.9711	.9787	.9787	.9840
17	.9368	.9538	.9659	.9659	.9743
18	.9047	.9295	.9476	.9476	.9604
19	.8633	.8978	.9235	.9235	.9417
20	.8116	.8569	.8920	.8920	.9171
21	.7508	.8079	.8533	.8533	.8861
22	.6810	.7498	.8067	.8067	.8483
23	.6054	.6846	.7530	.7530	.8038
24	.5254	.6130	.6923	.6923	.7523
25	.4449	.5383	.6267	.6267	.6950
26	.3662	.4617	.5572	.5572	.6329
27	.2928	.3870	.4864	.4864	.5673
28	.2262	.3154	.4157	.4157	.5000
29	.1690	.2502	.3478	.3478	.4327
30	.1214	.1921	.2840	.2840	.3671
31	.0835	.1431	.2262	.2262	.3050
32	.0546	.1022	.1751	.1751	.2477
33	.0339	.0705	.1318	.1318	.1962
34	.0197	.0462	.0960	.0960	.1517
35	.0107	.0289	.0675	.0675	.1139
36	.0052	.0168	.0455	.0455	.0829
37	.0023	.0093	.0294	.0294	.0583
38	.0008	.0047	.0181	.0181	.0396
39	.0002	.0021	.0105	.0105	.0257
40		.0007	.0057	.0057	.0160
41		.0002	.0028	.0028	.0093
42			.0012	.0012	.0052
43			.0004	.0004	.0026
44			.0001	.0001	.0012
45					.0004
46					.0001

(continued)

[illegible]

TABLE A.8

(continued)

x	$n_1 = 7$	$n_2 = 8$	$n_2 = 9$	$n_2 = 10$	$n_2 = 11$	$n_2 = 12$	$n_2 = 13$
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	.9994	.9997	.9998	.9999	1.0000	1.0000	1.0000
18	.9983	.9991	.9995	.9997	.9998	.9999	.9999
19	.9948	.9972	.9984	.9991	.9994	.9996	.9998
20	.9878	.9935	.9963	.9978	.9987	.9992	.9995
21	.9744	.9862	.9921	.9954	.9972	.9982	.9988
22	.9534	.9744	.9851	.9912	.9946	.9966	.9978
23	.9196	.9549	.9734	.9841	.9901	.9937	.9959
24	.8730	.9270	.9559	.9734	.9833	.9893	.9930
25	.8106	.8878	.9306	.9574	.9729	.9826	.9885
26	.7348	.8375	.8965	.9354	.9583	.9730	.9820
27	.6463	.7748	.8523	.9059	.9381	.9595	.9727
28	.5507	.7021	.7981	.8685	.9118	.9415	.9602
29	.4493	.6194	.7336	.8221	.8782	.9181	.9435
30	.3537	.5324	.6608	.7676	.8374	.8889	.9223
31	.2652	.4435	.5820	.7052	.7887	.8532	.8958
32	.1894	.3577	.5000	.6368	.7333	.8111	.8637
33	.1270	.2777	.4180	.5637	.6714	.7626	.8258
34	.0804	.2075	.3392	.4888	.6050	.7085	.7822
35	.0466	.1478	.2664	.4139	.5353	.6494	.7332
36	.0256	.1005	.2019	.3421	.4647	.5869	.6795
37	.0122	.0648	.1477	.2753	.3950	.5220	.6219
38	.0052	.0393	.1035	.2154	.3286	.4568	.5616
39	.0017	.0221	.0694	.1633	.2667	.3925	.5000
40	.0006	.0115	.0441	.1199	.2113	.3311	.4384
41		.0053	.0266	.0847	.1626	.2735	.3781
42		.0022	.0149	.0576	.1218	.2213	.3205
43		.0008	.0079	.0375	.0882	.1749	.2668
44		.0002	.0037	.0233	.0619	.1350	.2178
45			.0016	.0136	.0417	.1014	.1742
46			.0005	.0075	.0271	.0742	.1363
47			.0002	.0038	.0167	.0526	.1042
48				.0017	.0099	.0361	.0777
49				.0007	.0054	.0239	.0565
50				.0003	.0028	.0152	.0398
51				.0001	.0013	.0092	.0273
52					.0006	.0053	.0180
53					.0002	.0029	.0115
54					.0001	.0015	.0070
55						.0007	.0041
56						.0003	.0022
57						.0001	.0012
58						.0000	.0005
59							.0002
60							.0001
61							.0000

TABLE A.8

(continued)

$n_1 = 8$					
x	$n_2 = 8$	$n_2 = 9$	$n_2 = 10$	$n_2 = 11$	$n_2 = 12$
20	1.0000	1.0000	1.0000	1.0000	1.0000
21	.9999	1.0000	1.0000	1.0000	1.0000
22	.9996	.9998	.9999	.9999	1.0000
23	.9989	.9994	.9997	.9998	.9999
24	.9974	.9986	.9992	.9996	.9997
25	.9941	.9969	.9983	.9990	.9994
26	.9885	.9938	.9965	.9980	.9988
27	.9789	.9886	.9935	.9962	.9977
28	.9643	.9804	.9887	.9934	.9960
29	.9428	.9680	.9813	.9889	.9932
30	.9133	.9504	.9704	.9823	.9890
31	.8737	.9262	.9551	.9728	.9830
32	.8246	.8947	.9344	.9598	.9745
33	.7650	.8549	.9075	.9423	.9629
34	.6970	.8069	.8738	.9199	.9477
35	.6212	.7508	.8328	.8918	.9281
36	.5413	.6877	.7847	.8578	.9038
37	.4587	.6184	.7296	.8174	.8742
38	.3788	.5457	.6686	.7710	.8392
39	.3030	.4714	.6031	.7189	.7986
40	.2350	.3983	.5347	.6621	.7528
41	.1754	.3281	.4653	.6015	.7022
42	.1263	.2636	.3969	.5386	.6476
43	.0867	.2055	.3314	.4746	.5898
44	.0572	.1557	.2704	.4113	.5302
45	.0357	.1139	.2153	.3500	.4698
46	.0211	.0807	.1672	.2925	.4102
47	.0115	.0548	.1262	.2394	.3524
48	.0059	.0358	.0925	.1919	.2978
49	.0026	.0221	.0656	.1503	.2472
50	.0011	.0131	.0449	.1150	.2014
51	.0004	.0072	.0296	.0856	.1608
52	.0001	.0037	.0187	.0621	.1258
53		.0017	.0113	.0437	.0962
54		.0007	.0065	.0298	.0719
55		.0002	.0035	.0196	.0523
56		.0001	.0017	.0124	.0371
57			.0008	.0075	.0255
58			.0003	.0043	.0170
59			.0001	.0023	.0110
60			.0000	.0012	.0068
61				.0006	.0040
62				.0002	.0023
63				.0001	.0012
64				.0000	.0006
65					.0003
66					.0001
67					.0000
68					.0000

TABLE A.8
(continued)

$n_1 = 9$				$n_1 = 9$			
x	$n_2 = 9$	$n_2 = 10$	$n_2 = 11$	x	$n_2 = 9$	$n_2 = 10$	$n_2 = 11$
25	1.0000	1.0000	1.0000	50	.2167	.3673	.5000
26	1.0000	1.0000	1.0000	51	.1687	.3092	.4407
27	.9999	.9999	1.0000	52	.1276	.2552	.3827
28	.9996	.9998	.9999	53	.0938	.2064	.3271
29	.9991	.9995	.9997	54	.0688	.1632	.2749
30	.9981	.9990	.9995	55	.0460	.1262	.2269
31	.9963	.9980	.9989	56	.0305	.0952	.1840
32	.9932	.9964	.9980	57	.0195	.0700	.1462
33	.9882	.9937	.9964	58	.0118	.0500	.1138
34	.9805	.9894	.9940	59	.0068	.0347	.0867
35	.9695	.9831	.9903	60	.0037	.0232	.0645
36	.9540	.9741	.9849	61	.0019	.0150	.0468
37	.9332	.9618	.9773	62	.0009	.0093	.0331
38	.9062	.9453	.9669	63	.0004	.0056	.0227
39	.8724	.9240	.9532	64	.0001	.0031	.0151
40	.8313	.8972	.9355	65	.0000	.0017	.0097
41	.7833	.8646	.9133	66		.0008	.0060
42	.7283	.8259	.8862	67		.0004	.0036
43	.6677	.7813	.8538	68		.0002	.0020
44	.6025	.7310	.8160	69		.0001	.0011
45	.5346	.6759	.7731	70		.0000	.0005
46	.4654	.6166	.7251	71			.0003
47	.3975	.5548	.6729	72			.0001
48	.3323	.4916	.6173	73			.0000
49	.2717	.4287	.5593	74			.0000

$n_1 = 10$				$n_1 = 10$			
x	$n_2 = 10$	$n_2 = 10$	$n_2 = 10$	x	$n_2 = 10$	$n_2 = 10$	$n_2 = 10$
30	1.0000			64	.8993		.1007
31	1.0000	47	.8694	65	.8694		.0761
32	1.0000	48	.8344	66	.8344		.0560
33	.9999	49	.7940	67	.7940		.0403
34	.9998	50	.7486	68	.7486		.0282
35	.9996	51	.6986	69	.6986		.0192
36	.9992	52	.6449	70	.6449		.0126
37	.9984	53	.5881	71	.5881		.0080
38	.9971	54	.5296	72	.5296		.0049
39	.9951	55	.4704	73	.4704		.0029
40	.9920	56	.4119	74	.4119		.0016
41	.9874	57	.3551	75	.3551		.0008
42	.9808	58	.3014	76	.3014		.0004
43	.9718	59	.2514	77	.2514		.0002
44	.9597	60	.2060	78	.2060		.0001
45	.9440	61	.1656	79	.1656		.0000
46	.9239	62	.1306	80	.1306		.0000

Computed by G. A. Mack on the Ohio State University IBM 370/165.