

**TABLES FOR TESTING RANDOMNESS OF GROUPING
IN A SEQUENCE OF ALTERNATIVES**

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When two different kinds of objects are arranged along a line they will form two or more distinct groups of like objects. Thus, in the arrangement: *aabbbab*, there are 3 *a*'s and 4 *b*'s forming 4 groups. In general, if there are *m* objects of one kind and *n* objects of another kind, there are in all

$$C_m^{m+n} = C_n^{m+n}$$

different arrangements possible. There will be no loss of generality if we assume that $m \leq n$.

If *u* is defined to be the number of distinct groups of like objects in any one arrangement, then the proportion of arrangements yielding *u'* or less groups is¹

$$(1) \quad P\{u \leq u'\} = \frac{1}{C_m^{m+n}} \sum_{u=2}^{u'} f_u,$$

where

$$f_u = 2C_{k-1}^{m-1} \cdot C_{k-1}^{n-1}, \quad \text{when } u = 2k, \quad \text{i.e. } u \text{ is even,}$$

and

$$f_u = C_{k-1}^{m-1} \cdot C_{k-2}^{n-1} + C_{k-2}^{m-1} \cdot C_{k-1}^{n-1}, \quad \text{when } u = 2k - 1, \quad \text{i.e. } u \text{ is odd,}$$

for $k = 1, 2, \dots, m + 1$. For example, if $m = n = 5$, then

$$P\{u = 2\} = \frac{f_2}{C_5^{10}} = \frac{2\{C_0^4 \cdot C_0^4\}}{C_5^{10}} = \frac{1}{126},$$

$$P\{u = 3\} = \frac{f_3}{C_5^{10}} = \frac{C_1^4 \cdot C_0^4 + C_0^4 \cdot C_1^4}{C_5^{10}} = \frac{8}{252}.$$

In a random arrangement (1) is the probability of $u \leq u'$.

The following tables have been prepared for use in testing data for randomness and for testing whether two samples are from the same population. Table I gives $P\{u \leq u'\}$ to 7 decimal places for $m \leq n \leq 20$ with a range of *m* from 2 to 20 inclusive whereas Table II gives correct values for u_ϵ for $\epsilon = .005, .01, .025, .05, .95, .975, .99$ and $.995$, where u_ϵ is the *largest* integer, u' , for which $P\{u \leq u'\} \leq \epsilon$ when $\epsilon < .50$, and is the *smallest* integer, u' , for which $P\{u \leq u'\} \geq \epsilon$ when $\epsilon > .50$. This table was obtained from Table I and covers the same

¹ W. L. Stevens, "Distribution of Groups in a Sequence of Alternatives" (*Annals of Eugenics*, Vol. IX, Part I (1939) pp. 10-17).

A. Wald and J. Wolfowitz, "On a Test Whether Two Samples are from the Same Population" (*Annals of Math. Stat.*, Vol. XI, No. 2, June (1940) pp. 147-162).

range of values of m and n . Table III gives values of u_c for $m = n$ from 10 to 100. These values of u_c were obtained by using the normal approximation given on page 151 of the Wald-Wolfowitz paper together with a correction for continuity not given in their article—this correction improved the approximation for small values of m and n . The values of u_c for $m = n = 10$ through 20 are included in Table III although they can be obtained from Table II in order to check on the adequacy of the approximation. These values obtained with the approximation check with those of Table II except for the five underscored values. It appears that the approximation will be adequate in general for $m = n \geq 20$.

To illustrate the use of these tables to test randomness of an arrangement,² consider a case where one might suspect nonrandomness and, more specifically, expect too few groups. The arrangement of diseased and healthy plants in a row of a field might be such a case. For example, we might have the following plant arrangement:

H H H H H H H H H D H D D D D H H H H H H H H,

where

$m = 5$, the number of diseased plants present,
 $n = 20$, the number of healthy plants present,
 $u' = 5$, the number of groups actually formed.

From Table I the probability associated with this arrangement is found to be .018,3512, which is the probability of $u \leq u'$. Since $P < .05$, we might elect to regard this as evidence of a tendency for the disease to be nonrandomly distributed among the plants in a row, knowing that if we look for an explanation of "clustering" whenever $P\{u \leq u'\} \leq .05$ we may expect to follow a false scent not more than one time in twenty in the long run.

When a control chart³ suggests the presence of assignable causes of variation in a manufactured product flowing from a production line, an examination of various types of runs, e.g. the lengths and relative frequency of runs above and below the median of a sequence of values, may assist in diagnosing the nature of the cause. Dr. Walter A. Shewhart has given us such an instance: A sequence of observations dealing with corrosion suggested the presence of an assignable cause of variation. By the use of run charts an assignable cause of variation was tracked down in the measuring apparatus and an attempt was made to eliminate it. The original sequence examined with regard to runs above and below the median of the sequence exhibited an unexpectedly large number of runs of length 7 or more and as a result a significantly low value of

² W. L. Stevens (ibid).

³ American Defense Emergency Standards Z1.1 and Z1.2 entitled "Guide for Quality Control" and "Control Chart Method of Analyzing Data" and American War Standard Z1.3 entitled "Control Chart Method of Controlling Quality During Production" (published by the American Standards Association, New York City).

u , and, if the assignable cause were not completely eliminated in the new design, we might expect too large a proportion of long runs above and below the median, and, hence, too few total runs. A sequence of 40 observations taken with the new measuring device yielded a total of 15 runs above and below the median of the sequence which is significantly fewer than would be expected to arise under a state of statistical control, since for $m = n = 20$, $P\{u \leq 15\} = .038$. This sequence is of special interest since the occurrence of too few runs suggested the assignable cause had not been entirely eliminated although no especially long runs, say of length 7 or more, occurred in this sequence, so that from the point of view of length of runs without regard to their number the assignable cause might have been judged to have been eliminated.

As an instance where too many groups would be the probable alternative to randomness consider the arrangement of occupied and unoccupied seats at a lunch counter about half an hour before the popular lunch hour begins. In such a case the critical region would be $u \geq u'$ and the appropriate probability would be $P = 1 - P\{u \leq u' - 1\}$. Such a situation was observed and yielded the following arrangement of empty and occupied seats along the lunch counter:

E O E E O E E E O E E E O E O E,

$$m = 5,$$

$$n = 11,$$

$$u' = 11,$$

$$P = 1 - .942,3077 = .057,6923;$$

and though this probability is not quite significant, the arrangement observed has the maximum number of groups of empty and occupied seats for the m and n of the size observed since no two occupied seats are adjacent. However, if another customer had entered and sat either in the 5th empty seat from the left or in the 8th empty seat, the number of groups would have been increased by two and the situation would be:

$$m = 6,$$

$$n = 10,$$

$$u' = 13,$$

$$P = 1 - .989,5105 = .010,4895.$$

This P value is significant, and for this assumed case, as well as for the actual case observed, the arrangement of E 's and O 's has the maximum number of groups of like objects. Certainly both of these cases exhibit too many groups to be considered random arrangements.

The use of these tables to test whether two samples constitute independent random samples from the same population⁴ can be illustrated by using the data of Snedecor's Example 4.11 on page 75 of his *Statistical Methods* (3d edition)

⁴A. Wald and J. Wolfowitz (*ibid*) have pointed out that exceptionally small values of u' are to be regarded as evidence for rejecting this null hypothesis.

which gives daily gains in two lots of steer calves on two different rations. The daily rates of gain given for the two lots are:

- I. 1.95, 2.17, 2.06, 2.11, 2.24, 2.52, 2.04, 1.95;
 V. 1.82, 1.85, 1.87, 1.74, 2.04, 1.78, 1.76, 1.86.

Arranging these rates in order of magnitude, designating a calf on ration I by italics and one from V by (), we have

(1.74), (1.76), (1.78), (1.82), (1.85), (1.86), (1.87), *1.95*, *1.95*,
 (2.04), *2.04*, *2.06*, *2.11*, *2.17*, *2.24*, *2.52*.

Whence

$$\begin{aligned} m &= 8, \\ n &= 8, \\ u' &= 4, \\ P &= .008,8578. \end{aligned}$$

Accordingly, at either the .05 or .01 level of significance rejection of the null hypothesis that the two samples constitute independent random samples from the same population is indicated.

For these data we note the fact that having two identical values, i.e. 2.04, in the two lots did not alter the number of groups regardless of whether they were recorded as (2.04), *2.04* or as *2.04*, (2.04). However, such duplications in general may be more bothersome, since they may yield different values of u' depending on the order in which they are considered. In such instances both possible orders should be considered.

The merit of this test is that it employs a minimum of assumptions—merely that the common population be continuous, and that the samples be drawn at random independently. Its principal defect is its lack of power. As a consequence gross disparity between the samples is generally required to render $u' \leq u_c$. Therefore, when additional assumptions are tenable, tests utilizing them should be employed.

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TABLE I
 $P\{u \leq u'\}$

When $m = n$, the largest possible value of u' is $2m$; when $m < n$, the largest possible value of u' is $2m + 1$.

n	m = 4					
	u'	2	3	4	5	6
2	.333, 3333	.666, 6667	1.			
3	.500, 0000	.500, 0000	.900, 0000			
4	.333, 3333	.400, 0000	.800, 0000	.500, 0000		
5	.095, 2381	.333, 3333	.714, 2857	.404, 7619	.885, 7143	
6	.071, 4286	.285, 7143	.642, 8571	.333, 3333	.606, 0606	
7	.052, 3208	.250, 0000	.593, 3333	.278, 7879	.533, 3333	
8	.044, 3438	.222, 2222	.553, 3333	.236, 3636	.471, 3287	
9	.030, 3030	.200, 0000	.500, 0000	.202, 7972	.418, 5814	
10	.025, 7972	.181, 8182	.459, 5959	.185, 3147	.373, 6284	
11	.020, 6040	.166, 6667	.423, 0769	.175, 8242	.335, 1648	
12	.021, 9760	.153, 8462	.395, 6084	.165, 8462	.302, 1008	
13	.019, 0476	.142, 8571	.371, 4286	.155, 7143	.273, 5294	
14	.018, 6687	.133, 3333	.350, 0000	.147, 0431	.248, 7100	
15	.014, 7059	.125, 6400	.330, 6666	.139, 5962	.227, 0362	
16	.013, 9029	.117, 6111	.313, 4672	.132, 4672	.208, 0200	
17	.011, 6929	.111, 6111	.298, 4076	.126, 5076	.191, 2909	
18	.010, 2929	.105, 6532	.284, 3106	.121, 9519	.176, 3975	
19	.009, 2928	.100, 0000	.271, 4286	.117, 4286	.163, 1816	
20	.008, 6580	.095, 2381	.259, 7403	.112, 9870	.151, 1816	

n	m = 4					
	u'	2	3	4	5	6
4	.026, 5714	.114, 2857	.371, 4286	.628, 5714		
5	.015, 8730	.071, 4286	.261, 9048	.500, 0000		
6	.009, 5238	.047, 6190	.190, 4762	.404, 7619		
7	.006, 0606	.033, 3333	.142, 4242	.333, 3333		
8	.004, 0404	.024, 2424	.109, 0909	.278, 7879		
9	.002, 7972	.014, 1818	.085, 3147	.236, 3636		
10	.001, 2980	.010, 9860	.067, 9321	.202, 7972		
11	.001, 4652	.008, 7912	.046, 9451	.175, 8242		
12	.001, 0989	.007, 1429	.045, 0519	.153, 8462		
13	.000, 4403	.005, 6824	.037, 3725	.135, 7143		
14	.000, 5536	.005, 6824	.031, 3725	.120, 8682		
15	.000, 2160	.004, 9020	.028, 5738	.107, 6431		
16	.000, 3342	.004, 1280	.022, 7038	.091, 0072		
17	.000, 3342	.003, 5088	.019, 5469	.087, 733		
18	.000, 1734	.003, 0075	.016, 9515	.079, 6932		
19	.000, 2299	.002, 5974	.014, 9519	.072, 7273		
20	.000, 1862	.002, 2546	.012, 9870	.066, 6250		

n	m = 4				
	u'	7	8		
4	.971, 4265	1.			
5	.923, 5714	.992, 0635			
6	.860, 9524	.976, 1905			
7	.813, 3333	.954, 9455			
8	.767, 6148	.929, 2929			
9	.743, 4945	.902, 0979			
10	.706, 2937	.874, 1259			
11	.674, 3257	.846, 1538			
12	.647, 1428	.818, 6813			
13	.621, 0168	.792, 0168			
14	.599, 9316	.766, 3109			
15	.583, 9316	.741, 3109			
16	.570, 0432	.718, 2651			
17	.560, 7719	.697, 0061			
18	.548, 7312	.677, 6111			
19	.540, 1269	.658, 1325			
20	.542, 6535	.645, 2343			

n	m = 3					
	u'	2	3	4	5	6
3	.100, 0000	.300, 0000	.700, 0000	.900, 0000		
4	.097, 1429	.200, 0000	.62, 8571	.800, 0000		
5	.095, 7143	.142, 8571	.528, 5714	.614, 2857	.971, 4286	
6	.092, 6495	.107, 1429	.465, 2381	.524, 9511	.860, 3743	
7	.088, 6867	.083, 3333	.423, 3333	.481, 3333	.813, 3333	
8	.082, 1842	.064, 5959	.358, 8038	.434, 3333	.747, 4286	
9	.079, 0930	.048, 5959	.300, 0000	.404, 5959	.706, 2937	
10	.076, 0930	.045, 1612	.271, 3287	.384, 5959	.670, 2937	
11	.072, 0930	.042, 1612	.248, 0769	.365, 6206	.647, 1428	
12	.069, 3986	.033, 9575	.229, 5703	.349, 6206	.627, 1428	
13	.067, 3986	.033, 5714	.214, 2857	.331, 4286	.610, 3109	
14	.062, 3912	.028, 0000	.201, 4706	.319, 0000	.593, 9316	
15	.062, 0410	.022, 0588	.190, 4663	.310, 8224	.583, 9316	
16	.062, 0640	.018, 6078	.181, 6273	.313, 7255	.570, 0432	
17	.061, 6940	.017, 5439	.173, 6842	.298, 2456	.563, 7719	
18	.061, 5038	.015, 7895	.166, 0173	.284, 2105	.548, 7312	
19	.061, 2857	.014, 2857	.161, 0390	.271, 4286	.540, 1269	
20	.061, 1293	.012, 9870	.155, 9006	.259, 7403	.532, 6535	

TABLE I (Continued)

n = 7		12		13		14	
n	h	n	h	n	h	n	h
7	8	.995, 9207		.999, 4172	1.		
8	9	.987, 8788		.997, 6590	.999, 8446		
9	10	.974, 8552		.994, 4056	.999, 3007		
10	11	.957, 11164		.989, 5105	.998, 1189		
11	12	.935, 5804		.983, 0317	.996, 2293		
12	13	.910, 9312		.975, 1131	.993, 4908		
13	14	.884, 2105		.965, 9443	.989, 7853		
14	15	.859, 1146		.955, 7276	.985, 2825		
15	16	.827, 2704		.944, 6594	.979, 8762		
16	17	.794, 1783		.932, 5805	.973, 7515		
17	18	.763, 2594		.920, 6712	.966, 9464		
18	19	.746, 7031		.908, 0908	.959, 5423		
19	20	.712, 9286		.895, 1779	.951, 6206		
20		.685, 1403		.882, 1556	.943, 2967		

n = 7		2		3		4		5		6	
n	h	n	h	n	h	n	h	n	h	n	h
7	8	.000, 8528		.004, 0793		.025, 0583		.077, 5058		.204, 6217	
8	9	.000, 3108		.002, 3170		.015, 3486		.051, 2821		.149, 3841	
9	10	.000, 1716		.001, 3386		.009, 3902		.034, 3428		.104, 3316	
10	11	.000, 1028		.000, 4743		.006, 4274		.024, 3759		.080, 3882	
11	12	.000, 0628		.000, 5676		.004, 5313		.017, 2332		.059, 2624	
12	13	.000, 0397		.000, 3771		.002, 3967		.012, 2685		.039, 2877	
13	14	.000, 0258		.000, 2580		.002, 1156		.009, 4169		.015, 4177	
14	15	.000, 0172		.000, 1806		.001, 5222		.007, 2279		.027, 3177	
15	16	.000, 0117		.000, 1290		.001, 1143		.004, 5170		.021, 2516	
16	17	.000, 0062		.000, 0934		.000, 4280		.003, 3178		.014, 1648	
17	18	.000, 0058		.000, 0693		.000, 6283		.003, 3978		.011, 1993	
18	19	.000, 0042		.000, 0520		.000, 4764		.002, 7044		.011, 1920	
19	20	.000, 0030		.000, 0398		.000, 3579		.002, 1719		.009, 1517	
20		.000, 0023		.000, 0304		.000, 2872		.001, 1535		.007, 2403	

n = 8		2		3		4		5		6	
n	h	n	h	n	h	n	h	n	h	n	h
8	9	.000, 1954		.001, 2452		.008, 8978		.031, 7016		.100, 2331	
9	10	.000, 0823		.000, 6953		.005, 3065		.020, 2797		.068, 6549	
10	11	.000, 0497		.000, 4314		.003, 2908		.013, 3690		.047, 9227	
11	12	.000, 0265		.000, 2914		.002, 1057		.009, 0498		.034, 0957	
12	13	.000, 0159		.000, 1548		.001, 3813		.006, 2713		.024, 6090	
13	14	.000, 0098		.000, 1032		.000, 9288		.004, 4376		.018, 0599	
14	15	.000, 0063		.000, 0686		.000, 6360		.003, 1992		.013, 1440	
15	16	.000, 0041		.000, 0467		.000, 4467		.002, 3454		.010, 1104	
16	17	.000, 0027		.000, 0281		.000, 3182		.001, 7458		.007, 7420	
17	18	.000, 0018		.000, 0166		.000, 2902		.001, 3175		.005, 9774	
18	19	.000, 0013		.000, 0101		.000, 1690		.001, 0069		.004, 6651	
19	20	.000, 0009		.000, 0082		.000, 1257		.000, 7784		.003, 6728	
20		.000, 0006		.000, 0050		.000, 0946		.000, 6081		.002, 9188	

n = 7		7		8		9		10		11	
n	h	n	h	n	h	n	h	n	h	n	h
7	8	.383, 4499		.616, 5501		.791, 3753		.922, 4942		.974, 9417	
8	9	.230, 0373		.513, 5975		.703, 9627		.867, 1329		.948, 7179	
9	10	.181, 8182		.426, 5774		.622, 3776		.805, 0441		.916, 0839	
10	11	.144, 7964		.354, 5866		.548, 9510		.743, 3155		.879, 3706	
11	12	.116, 5158		.295, 6299		.468, 1629		.682, 1267		.840, 4977	
12	13	.094, 6852		.247, 4994		.427, 6018		.624, 0772		.800, 9050	
13	14	.077, 6574		.216, 6106		.378, 4850		.570, 0464		.761, 6099	
14	15	.063, 5038		.193, 6153		.335, 9133		.520, 3818		.723, 2372	
15	16	.053, 5698		.177, 8079		.299, 0196		.475, 1032		.686, 4035	
16	17	.046, 0038		.159, 7242		.239, 1651		.434, 0302		.651, 1868	
17	18	.034, 0695		.140, 6516		.216, 6949		.356, 9212		.617, 7796	
18	19	.032, 4111		.126, 0310		.191, 6759		.333, 2120		.586, 2284	
19	20	.027, 7592		.115, 4064		.175, 0684		.306, 0099		.558, 6105	

TABLE I (Continued)

n = 9		n										
		1	2	3	4	5	6	7	8	9	10	11
9	.000, 0411	.000, 3702	.003, 3029	.003, 7695	.012, 2172	.044, 4673						
10	.000, 0217	.000, 2057	.000, 5100	.001, 7695	.007, 5100	.029, 4374						
11	.000, 0119	.000, 1131	.000, 1131	.001, 0717	.004, 8521	.019, 8657						
12	.000, 0068	.000, 0714	.000, 6702	.003, 2151	.003, 2151	.011, 6917						
13	.000, 0040	.000, 0442	.000, 4592	.000, 4592	.002, 1672	.009, 5975						
14	.000, 0024	.000, 0281	.000, 2827	.001, 4917	.002, 4348	.006, 4348						
15	.000, 0015	.000, 0141	.000, 1465	.000, 1465	.001, 0453	.004, 9438						
16	.000, 0010	.000, 0122	.000, 1237	.000, 1237	.000, 7465	.003, 6916						
17	.000, 0006	.000, 0083	.000, 0903	.000, 0903	.000, 4409	.002, 0225						
18	.000, 0004	.000, 0058	.000, 0518	.000, 0518	.000, 3975	.002, 0225						
19	.000, 0003	.000, 0041	.000, 0418	.000, 0418	.000, 2969	.001, 5764						
20	.000, 0002	.000, 0029	.000, 0293	.000, 0333	.000, 2230	.001, 1791						

n = 9		n										
		1	2	3	4	5	6	7	8	9	10	11
9	.108, 9675	.237, 9679	.359, 2184	.318, 5932	.600, 7816	.762, 0321						
10	.076, 7174	.178, 5598	.318, 5932	.254, 9417	.509, 5477	.681, 4068						
11	.054, 6940	.134, 9131	.254, 9417	.204, 0297	.429, 9833	.605, 0250						
12	.039, 6905	.102, 7626	.185, 6347	.165, 6347	.362, 1100	.535, 0083						
13	.029, 4118	.078, 9474	.134, 9131	.134, 9131	.304, 9536	.472, 1362						
14	.021, 9814	.061, 1792	.110, 1763	.110, 1763	.257, 1679	.416, 4037						
15	.016, 6163	.047, 6828	.090, 6868	.090, 6868	.217, 3577	.367, 4115						
16	.012, 7188	.037, 6828	.075, 6988	.075, 6988	.156, 6466	.287, 1229						
17	.009, 6806	.029, 9339	.062, 5530	.062, 5530	.113, 6459	.254, 5038						
18	.007, 7099	.021, 9597	.049, 3169	.049, 3169	.082, 3969	.114, 4218						
19	.006, 0849	.019, 3169	.044, 1269	.044, 1269	.098, 3096	.201, 2571						
20	.004, 8444	.015, 6510										

n = 8		n										
		1	2	3	4	5	6	7	8	9	10	11
8	.214, 4522	.404, 6374	.595, 1826	.785, 5478	.899, 7669							
9	.157, 4627	.318, 5812	.500, 0000	.701, 5631	.842, 6573							
10	.117, 0300	.251, 0695	.419, 3747	.620, 9379	.782, 1864							
11	.088, 2383	.189, 3729	.352, 1870	.544, 6778	.721, 7195							
12	.067, 1970	.159, 0855	.296, 6182	.479, 9952	.663, 1722							
13	.052, 1156	.127, 7950	.250, 7740	.421, 0526	.608, 3591							
14	.040, 7637	.103, 7712	.212, 9343	.369, 6570	.557, 2755							
15	.032, 2261	.081, 1930	.181, 5305	.326, 5390	.510, 3189							
16	.026, 7305	.069, 0369	.158, 6472	.285, 8639	.467, 4474							
17	.020, 7337	.056, 9771	.133, 9044	.251, 7856	.428, 4724							
18	.016, 6504	.047, 3188	.115, 6727	.222, 5120	.393, 1350							
19	.013, 6036	.039, 5324	.100, 6385	.197, 1217	.361, 1432							
20	.011, 3915	.033, 2153	.087, 1741	.175, 0684	.332, 1982							

n = 8		n										
		1	2	3	4	5	6	7	8	9	10	11
8	.968, 2984	.991, 1422	.998, 7568	.999, 6446	.999, 6446	.999, 9589						
9	.939, 4076	.979, 7203	.995, 6453	.994, 1007	.994, 1007	.999, 7043						
10	.931, 1263	.963, 5962	.990, 4703	.996, 1189	.996, 1189	.999, 4043						
11	.861, 7628	.943, 1389	.988, 3371	.996, 2293	.996, 2293	.999, 4046						
12	.817, 4089	.920, 1000	.971, 4456	.991, 5058	.996, 6302	.998, 6302						
13	.771, 6266	.894, 4272	.957, 9379	.989, 7833	.997, 5674	.999, 5674						
14	.726, 3158	.867, 1827	.942, 3117	.985, 2425	.995, 9752	.999, 9752						
15	.681, 8100	.839, 0093	.924, 7843	.970, 6762	.993, 6754	.999, 6754						
16	.636, 9375	.810, 4276	.905, 6999	.973, 7515	.991, 2905	.999, 2905						
17	.596, 0917	.781, 6459	.885, 5022	.966, 9464	.988, 1007	.999, 1007						
18	.559, 4924	.753, 5760	.864, 4810	.959, 5423	.984, 4394	.999, 4394						
19	.523, 2350	.725, 6498	.842, 9161	.951, 6206	.980, 2899	.999, 2899						
20	.489, 3281	.696, 8345	.821, 0466	.943, 2587	.975, 6823	.999, 6823						

TABLE I (Continued)

n = 10		2		3		4		5		6	
n'		n'		n'		n'		n'		n'	
10	.000,0108	.000,1053	.000,9851	.000,1053	.000,9851	.000,1053	.000,9851	.000,1053	.000,9851	.000,1053	.000,9851
11	.000,0057	.000,0350	.000,5695	.000,0057	.000,0350	.000,5695	.000,0057	.000,0350	.000,5695	.000,0057	.000,0350
12	.000,0031	.000,0130	.000,2086	.000,0031	.000,0130	.000,2086	.000,0031	.000,0130	.000,2086	.000,0031	.000,0130
13	.000,0017	.000,0070	.000,1132	.000,0017	.000,0070	.000,1132	.000,0017	.000,0070	.000,1132	.000,0017	.000,0070
14	.000,0010	.000,0042	.000,0676	.000,0010	.000,0042	.000,0676	.000,0010	.000,0042	.000,0676	.000,0010	.000,0042
15	.000,0006	.000,0026	.000,0417	.000,0006	.000,0026	.000,0417	.000,0006	.000,0026	.000,0417	.000,0006	.000,0026
16	.000,0004	.000,0016	.000,0257	.000,0004	.000,0016	.000,0257	.000,0004	.000,0016	.000,0257	.000,0004	.000,0016
17	.000,0002	.000,0008	.000,0152	.000,0002	.000,0008	.000,0152	.000,0002	.000,0008	.000,0152	.000,0002	.000,0008
18	.000,0001	.000,0004	.000,0092	.000,0001	.000,0004	.000,0092	.000,0001	.000,0004	.000,0092	.000,0001	.000,0004
19	.000,0001	.000,0001	.000,0014	.000,0001	.000,0001	.000,0014	.000,0001	.000,0001	.000,0014	.000,0001	.000,0001
20	.000,0001	.000,0001	.000,0010	.000,0001	.000,0001	.000,0010	.000,0001	.000,0001	.000,0010	.000,0001	.000,0001

n = 9		12		13		14		15		16	
n'		n'		n'		n'		n'		n'	
9	.891,0125	.955,5327	.987,7828	.996,9971	.999,6298	.999,6298	.999,6298	.999,6298	.999,6298	.999,6298	.999,6298
10	.834,1705	.923,2826	.974,2038	.992,3800	.998,6262	.998,6262	.998,6262	.998,6262	.998,6262	.998,6262	.998,6262
11	.773,0650	.885,0917	.955,1028	.985,1155	.996,5868	.996,5868	.996,5868	.996,5868	.996,5868	.996,5868	.996,5868
12	.711,0502	.843,0817	.931,1026	.975,1131	.993,0766	.993,0766	.993,0766	.993,0766	.993,0766	.993,0766	.993,0766
13	.650,4634	.799,0712	.903,0960	.962,1137	.988,0141	.988,0141	.988,0141	.988,0141	.988,0141	.988,0141	.988,0141
14	.592,7985	.754,4892	.872,0824	.947,1070	.981,2761	.981,2761	.981,2761	.981,2761	.981,2761	.981,2761	.981,2761
15	.538,9016	.710,3917	.839,0093	.930,1030	.972,8766	.972,8766	.972,8766	.972,8766	.972,8766	.972,8766	.972,8766
16	.489,1695	.667,5192	.804,7113	.912,5050	.962,9021	.962,9021	.962,9021	.962,9021	.962,9021	.962,9021	.962,9021
17	.443,6366	.626,3616	.769,6856	.892,9062	.951,4874	.951,4874	.951,4874	.951,4874	.951,4874	.951,4874	.951,4874
18	.402,3771	.587,2186	.735,0919	.872,4027	.938,7948	.938,7948	.938,7948	.938,7948	.938,7948	.938,7948	.938,7948
19	.365,0025	.550,2503	.700,7642	.851,2780	.924,9591	.924,9591	.924,9591	.924,9591	.924,9591	.924,9591	.924,9591
20	.331,2952	.515,5164	.667,2279	.829,7760	.910,2760	.910,2760	.910,2760	.910,2760	.910,2760	.910,2760	.910,2760

n = 10		7		8		9		10		11	
n'		n'		n'		n'		n'		n'	
10	.051,2565	.127,6386	.282,2113	.414,0704	.585,9256	.414,0704	.585,9256	.414,0704	.585,9256	.414,0704	.585,9256
11	.034,8693	.092,0457	.184,9250	.270,6597	.424,9821	.270,6597	.424,9821	.270,6597	.424,9821	.270,6597	.424,9821
12	.024,1724	.067,0398	.142,0576	.218,9371	.350,6811	.218,9371	.350,6811	.218,9371	.350,6811	.218,9371	.350,6811
13	.017,0279	.049,3337	.109,9071	.177,5474	.280,2702	.177,5474	.280,2702	.177,5474	.280,2702	.177,5474	.280,2702
14	.012,1820	.036,6806	.085,6777	.144,4744	.221,6349	.144,4744	.221,6349	.144,4744	.221,6349	.144,4744	.221,6349
15	.008,8413	.027,5493	.067,3038	.118,0313	.189,2857	.118,0313	.189,2857	.118,0313	.189,2857	.118,0313	.189,2857
16	.006,5028	.020,6915	.051,2728	.096,6349	.162,0831	.096,6349	.162,0831	.096,6349	.162,0831	.096,6349	.162,0831
17	.004,8423	.015,9341	.042,4797	.096,6349	.162,0831	.096,6349	.162,0831	.096,6349	.162,0831	.096,6349	.162,0831
18	.003,6475	.012,5877	.034,1158	.096,6349	.162,0831	.096,6349	.162,0831	.096,6349	.162,0831	.096,6349	.162,0831
19	.002,7769	.009,6211	.027,5869	.096,6349	.162,0831	.096,6349	.162,0831	.096,6349	.162,0831	.096,6349	.162,0831
20	.002,1353	.007,5536	.022,4538	.096,6349	.162,0831	.096,6349	.162,0831	.096,6349	.162,0831	.096,6349	.162,0831

n = 9		17		18	
n'		n'		n'	
9	.999,9589	.999,9589	.999,9589	.999,9589	.999,9589
10	.999,7943	.999,9589	.999,9589	.999,9589	.999,9589
11	.999,4046	.999,9589	.999,9589	.999,9589	.999,9589
12	.998,6902	.999,9589	.999,9589	.999,9589	.999,9589
13	.997,5674	.999,9589	.999,9589	.999,9589	.999,9589
14	.995,9752	.999,9589	.999,9589	.999,9589	.999,9589
15	.993,8754	.999,9589	.999,9589	.999,9589	.999,9589
16	.991,2505	.999,9589	.999,9589	.999,9589	.999,9589
17	.988,1007	.999,9589	.999,9589	.999,9589	.999,9589
18	.984,4394	.999,9589	.999,9589	.999,9589	.999,9589
19	.980,2699	.999,9589	.999,9589	.999,9589	.999,9589
20	.975,6823	.999,9589	.999,9589	.999,9589	.999,9589

n = 10		12		13		14		15		16	
n'		n'		n'		n'		n'		n'	
10	.757,7887	.872,3614	.946,7432	.981,4783	.995,5076	.981,4783	.995,5076	.981,4783	.995,5076	.981,4783	.995,5076
11	.680,0429	.815,0750	.915,0983	.965,1107	.989,6064	.965,1107	.989,6064	.965,1107	.989,6064	.965,1107	.989,6064
12	.605,0250	.755,0607	.875,0893	.943,6771	.980,4205	.943,6771	.980,4205	.943,6771	.980,4205	.943,6771	.980,4205
13	.525,1326	.695,0464	.830,7309	.917,9567	.967,1999	.917,9567	.967,1999	.917,9567	.967,1999	.917,9567	.967,1999
14	.471,5595	.636,8959	.785,8875	.888,8814	.951,8778	.888,8814	.951,8778	.888,8814	.951,8778	.888,8814	.951,8778
15	.414,5713	.581,7741	.736,1152	.857,3832	.932,9789	.857,3832	.932,9789	.857,3832	.932,9789	.857,3832	.932,9789
16	.364,1136	.530,3271	.688,6257	.824,3101	.911,5359	.824,3101	.911,5359	.824,3101	.911,5359	.824,3101	.911,5359
17	.319,7420	.482,8375	.642,3087	.790,3890	.888,0244	.790,3890	.888,0244	.790,3890	.888,0244	.790,3890	.888,0244
18	.280,9098	.439,3464	.597,7810	.756,2166	.862,9182	.756,2166	.862,9182	.756,2166	.862,9182	.756,2166	.862,9182
19	.247,0268	.399,7545	.559,1405	.722,2661	.856,6609	.722,2661	.856,6609	.722,2661	.856,6609	.722,2661	.856,6609
20	.217,5115	.363,4088	.515,1164	.688,9010	.809,5510	.688,9010	.809,5510	.688,9010	.809,5510	.688,9010	.809,5510

n = 9		17		18	
n'		n'		n'	
9	.999,9589	.999,9589	.999,9589	.999,9589	.999,9589
10	.999,7943	.999,9589	.999,9589	.999,9589	.999,9589
11	.999,4046	.999,9589	.999,9589	.999,9589	.999,9589
12	.998,6902	.999,9589	.999,9589	.999,9589	.999,9589
13	.997,5674	.999,9589	.999,9589	.999,9589	.999,9589
14	.995,9752	.999,9589	.999,9589	.999,9589	.999,9589
15	.993,8754	.999,9589	.999,9589	.999,9589	.999,9589
16	.991,2505	.999,9589	.999,9589	.999,9589	.999,9589
17	.988,1007	.999,9589	.999,9589	.999,9589	.999,9589
18	.984,4394	.999,9589	.999,9589	.999,9589	.999,9589
19	.980,2699	.999,9589	.999,9589	.999,9589	.999,9589
20	.975,6823	.999,9589	.999,9589	.999,9589	.999,9589

TABLE I (Continued)

n = 11		12	13	14	15	16
n	n'					
11		.590,0214	.710,0572	.865,0869	.936,5325	.977,3586
12		.507,1796	.665,0393	.806,5517	.900,8097	.959,3462
13		.433,1492	.593,2831	.748,7549	.859,8062	.935,9756
14		.369,0039	.526,6923	.688,3390	.815,3656	.907,7803
15		.313,6559	.466,0183	.629,2637	.769,1883	.875,7976
16		.266,1962	.411,6032	.572,6332	.722,5468	.841,0015
17		.226,5446	.365,2342	.519,6576	.676,5468	.804,3369
18		.192,8141	.320,5187	.470,7594	.631,7315	.766,6415
19		.164,3140	.282,5985	.445,6872	.588,8056	.728,6214
20		.140,1323	.250,0211	.384,6040	.518,0860	.650,8486

n = 10		17	18	19	20
n	n'				
10		.999,0149	.999,8917	.999,9892	1.
11		.997,2613	.999,5977	.999,9105	.999,9972
12		.994,1993	.998,7922	.999,5129	.999,9830
13		.989,5664	.997,3944	.999,5977	.999,9423
14		.983,3760	.995,1878	.999,1251	.999,8942
15		.975,5014	.992,0380	.998,4688	.999,6938
16		.966,0920	.987,8984	.997,5901	.999,4346
17		.955,1187	.982,6087	.996,3387	.999,0908
18		.942,9443	.976,2895	.994,8131	.998,5180
19		.929,6666	.968,9298	.992,9607	.997,8194
20		.915,3073	.960,5885	.990,7760	.996,9253

n = 11		17	18	19	20	21
n	n'					
11		.992,6683	.998,4095	.999,6853	.999,9688	.999,9972
12		.985,0134	.995,9965	.999,0174	.999,8610	.999,9830
13		.974,0363	.991,6779	.997,8270	.999,5898	.999,9423
14		.959,7523	.985,1353	.995,8440	.999,0521	.999,8542
15		.942,4283	.971,4095	.992,9587	.998,1390	.999,6938
16		.922,1391	.946,6596	.989,6699	.996,7475	.999,4346
17		.900,2288	.924,1860	.984,1342	.994,7889	.999,0908
18		.876,2929	.919,1949	.978,1410	.992,1941	.998,5180
19		.850,9402	.912,0528	.971,1184	.988,9151	.997,8194
20		.824,7448	.905,0625	.963,1042	.984,9243	.996,9253

n = 11		2	3	4	5	6
n	n'					
11		.000,0028	.000,0312	.000,3147	.001,5905	.007,3317
12		.000,0015	.000,0170	.000,1797	.000,9268	.004,6136
13		.000,0008	.000,0096	.000,1098	.000,5865	.002,9682
14		.000,0004	.000,0056	.000,0639	.000,3102	.001,9451
15		.000,0003	.000,0034	.000,0396	.000,2599	.001,2990
16		.000,0002	.000,0021	.000,0291	.000,1574	.000,8622
17		.000,0001	.000,0013	.000,0162	.000,0895	.000,5085
18		.000,0001	.000,0008	.000,0107	.000,0721	.000,4259
19		.000,0000	.000,0005	.000,0071	.000,0500	.000,3020
20		.000,0000	.000,0004	.000,0049	.000,0351	.000,2165

n = 11		22
n	n'	
11		1.
12		.999,9893
13		.999,9952
14		.999,9995
15		.999,9999
16		.999,9999
17		.999,9999
18		.999,9999
19		.999,9999
20		.999,9999

n = 11		7	8	9	10	11
n	n'					
11		.022,6414	.063,1675	.134,9131	.259,9428	.409,9786
12		.014,9666	.044,2714	.099,1903	.201,6892	.334,9607
13		.010,1052	.031,2578	.073,5631	.156,8515	.273,7454
14		.008,9322	.022,3314	.045,0945	.122,4256	.223,1823
15		.004,8324	.016,1395	.041,5803	.095,9954	.183,9839
16		.003,4190	.011,7946	.031,6866	.075,6585	.150,4106
17		.002,4526	.008,7113	.024,3580	.059,9942	.124,0275
18		.001,7820	.006,4992	.018,8817	.047,7741	.102,6607
19		.001,3103	.004,8954	.014,7542	.038,2809	.085,3343
20		.000,9742	.003,7208	.011,6173	.030,8434	.071,2182

TABLE I (Continued)

n = 12											
n ¹		17	18	19	20	21					
12		.970,3693	.990,5050	.997,2169	.999,4642	.999,9016					
13		.990,2936	.981,6453	.993,8609	.996,9314	.999,6779					
14		.985,1043	.969,0866	.988,6267	.996,7694	.999,2126					
15		.985,7868	.952,7931	.981,2963	.993,9643	.998,3992					
16		.885,2117	.935,0194	.971,7952	.989,8925	.997,1314					
17		.828,5059	.910,1487	.964,4098	.985,3216	.992,8968					
18		.794,9371	.884,6877	.946,5215	.977,4363	.989,8051					
19		.759,8369	.857,1617	.931,0690	.968,9611	.985,6051					
20		.717,6275	.828,0928	.914,0069	.959,0129	.986,0153					

n = 12											
n ¹		2	3	4	5	6					
12		.000,0007	.000,0089	.000,0941	.000,5456	.002,1631					
13		.000,0004	.000,0048	.000,0556	.000,3221	.001,1162					
14		.000,0002	.000,0027	.000,0352	.000,1952	.000,6936					
15		.000,0001	.000,0017	.000,0153	.000,1211	.000,6970					
16		.000,0000	.000,0009	.000,0081	.000,0769	.000,4965					
17		.000,0000	.000,0006	.000,0047	.000,0497	.000,3041					
18		.000,0000	.000,0003	.000,0017	.000,0328	.000,2057					
19		.000,0000	.000,0002	.000,0010	.000,0220	.000,1412					
20		.000,0000	.000,0001	.000,0002	.000,0150	.000,0985					

n = 12											
n ¹		22	23	24							
12		.999,9911	.999,9993	1.	.999,9996						
13		.999,9971	.999,9992	1.	.999,9987						
14		.999,9960	.999,9985	1.	.999,9946						
15		.999,9950	.999,9925	1.	.999,9950						
16		.999,9970	.999,9993	1.	.999,9949						
17		.999,9984	.999,9995	1.	.999,9985						
18		.999,9975	.999,9994	1.	.999,9976						
19		.999,9966	.999,9994	1.	.999,9985						
20		.999,9961	.999,9994	1.	.999,9976						

n = 12											
n ¹		7	8	9	10	11					
12		.009,4090	.029,6307	.069,9020	.150,4447	.263,2045					
13		.006,1391	.020,0998	.049,7664	.112,5897	.204,8946					
14		.004,0450	.013,4175	.035,8056	.084,6682	.152,4487					
15		.002,7123	.009,6222	.026,0133	.064,0375	.122,6442					
16		.001,8466	.006,7842	.019,1233	.048,7360	.102,6415					
17		.001,2791	.004,8401	.014,1476	.037,3340	.081,3120					
18		.000,8976	.003,4020	.010,6267	.028,7470	.065,7090					
19		.000,6363	.002,5463	.008,0322	.022,3434	.052,3060					
20		.000,4593	.001,8755	.006,1241	.017,4538	.042,3791					

n = 13											
n ¹		2	3	4	5	6					
13		.000,0002	.000,0025	.000,0302	.000,1895	.001,0201					
14		.000,0001	.000,0013	.000,0169	.000,1063	.000,6196					
15		.000,0000	.000,0007	.000,0097	.000,0636	.000,3644					
16		.000,0000	.000,0004	.000,0057	.000,0389	.000,2431					
17		.000,0000	.000,0003	.000,0035	.000,0243	.000,1566					
18		.000,0000	.000,0002	.000,0021	.000,0155	.000,1025					
19		.000,0000	.000,0001	.000,0013	.000,0100	.000,0682					
20		.000,0000	.000,0001	.000,0009	.000,0066	.000,0460					

n = 12											
n ¹		12	13	14	15	16					
12		.421,0682	.576,9318	.736,7955	.849,5553	.930,0980					
13		.347,9488	.500,0000	.664,1782	.793,1754	.893,6927					
14		.285,9820	.429,6379	.593,8161	.734,6403	.851,8105					
15		.235,0563	.366,0711	.527,6888	.675,2052	.806,2054					
16		.193,2517	.314,4652	.466,8820	.618,8989	.758,8082					
17		.159,0836	.269,2601	.411,8414	.564,6072	.710,0983					
18		.131,2154	.230,3743	.362,5861	.513,6853	.662,0863					
19		.108,4967	.197,3213	.318,4709	.466,4668	.615,3029					
20		.089,9637	.169,2714	.280,3023	.423,0562	.570,3420					

TABLE I (Continued)

n = 15		n = 16									
	u	17	18	19	20	21	2	3	4	5	6
15	.705, 8173	.825, 0905	.502, 0660	.924, 2830	.980, 1215		.000, 0000	.000, 0001	.000, 0008	.000, 0060	.000, 0427
16	.642, 3754	.770, 9725	.863, 8483	.590, 2283	.967, 2023		.000, 0000	.000, 0000	.000, 0004	.000, 0034	.000, 0250
17	.578, 0768	.718, 7113	.828, 2425	.501, 9511	.950, 5353		.000, 0000	.000, 0000	.000, 0002	.000, 0020	.000, 0119
18	.517, 9504	.658, 1253	.775, 0377	.469, 2877	.930, 2501		.000, 0000	.000, 0000	.000, 0001	.000, 0012	.000, 0091
19	.451, 0404	.602, 6434	.728, 5128	.433, 4039	.908, 8276		.000, 0000	.000, 0000	.000, 0001	.000, 0027	.000, 0075
20	.405, 5455	.549, 3124	.681, 3118	.759, 1935	.860, 6049						

n = 15		n = 16									
	u	22	23	24	25	26	7	8	9	10	11
15	.993, 0408	.927, 7387	.990, 4470	.999, 8711	.999, 9809		.000, 2017	.000, 5905	.002, 0571	.003, 1566	.022, 7957
16	.927, 2263	.925, 3897	.924, 6962	.923, 6403	.923, 6903		.000, 1722	.000, 5559	.001, 5236	.006, 1821	.015, 3762
17	.861, 8713	.821, 1268	.921, 3736	.929, 2412	.924, 3227		.000, 0174	.000, 3362	.001, 0387	.004, 2167	.011, 6281
18	.801, 8261	.789, 2810	.929, 2810	.929, 6482	.924, 6365		.000, 0472	.000, 2302	.000, 8472	.002, 9051	.006, 0492
19	.727, 6865	.779, 7106	.924, 2317	.927, 4687	.924, 2702		.000, 0502	.000, 1509	.000, 5732	.002, 0211	.005, 7856
20	.577, 5457	.571, 1368	.926, 1337	.925, 6984	.926, 7213						

n = 15		n = 16									
	u	27	28	29	30	31	12	13	14	15	16
15	.999, 9973	.999, 9798	.999, 9998	.999, 9999	1.		.052, 0017	.102, 8317	.186, 1617	.293, 1260	.431, 1087
16	.999, 9991	.999, 9988	.999, 9993	.999, 9993	1.		.018, 4600	.077, 8067	.146, 4071	.239, 7439	.365, 9287
17	.999, 9679	.999, 9285	.999, 9325	.999, 9325	1.		.028, 1849	.059, 0702	.115, 2788	.192, 5782	.309, 3465
18	.999, 9228	.999, 9271	.999, 9385	.999, 9385			.020, 7242	.045, 0178	.090, 7885	.162, 4445	.260, 3267
19	.999, 8193	.999, 9686	.999, 9363	.999, 9363			.015, 3423	.034, 4654	.071, 6196	.130, 0203	.218, 7595
20	.999, 6223	.999, 9132	.999, 9316	.999, 9316							

TABLE I (Continued)

n = 16		17	18	19	20	21
15	.568, 8313	.706, 6740	.813, 8383	.897, 1883	.947, 1983	
17	.500, 0000	.641, 9579	.750, 2561	.858, 3998	.922, 1933	
18	.436, 9076	.578, 8595	.705, 0503	.815, 4520	.892, 7501	
19	.380, 1245	.518, 8376	.649, 8644	.769, 7200	.859, 5266	
20	.329, 6833	.462, 7919	.595, 9004	.722, 4357	.823, 6640	

n = 16		22	23	24	25	26
16	.977, 2043	.930, 8433	.937, 0429	.939, 1095	.939, 7983	
17	.963, 4136	.984, 0238	.994, 2437	.998, 0762	.999, 4956	
18	.945, 7478	.974, 6555	.989, 9854	.996, 3129	.998, 9279	
19	.924, 3594	.962, 6106	.984, 0099	.993, 8179	.997, 9789	
20	.899, 5852	.947, 8986	.976, 1338	.990, 2814	.996, 5258	

n = 16		27	28	29	30	31	32
16	.999, 9573	.999, 9940	.999, 9992	.999, 9999	1.	1.	1.
17	.999, 8778	.999, 9786	.999, 9956	.999, 9997	1.	1.	1.
18	.999, 7140	.999, 9408	.999, 9894	.999, 9986	.999, 9999	1.	1.
19	.999, 4192	.999, 8624	.999, 9732	.999, 9958	.999, 9996	1.	1.
20	.998, 9391	.999, 7188	.999, 9415	.999, 9893	.999, 9988	.999, 9999	

n = 17		2	3	4	5	6
17	.000, 0000	.000, 0000	.000, 0000	.000, 0002	.000, 0019	.000, 0142
18	.000, 0000	.000, 0000	.000, 0000	.000, 0001	.000, 0011	.000, 0083
19	.000, 0000	.000, 0000	.000, 0000	.000, 0001	.000, 0006	.000, 0049
20	.000, 0000	.000, 0000	.000, 0000	.000, 0000	.000, 0004	.000, 0029

n = 17		7	8	9	10	11
17	.000, 0718	.000, 3406	.001, 2141	.004, 0520	.010, 8652	
18	.000, 0470	.000, 2109	.000, 7773	.002, 6855	.007, 4596	
19	.000, 0262	.000, 1325	.000, 5046	.001, 8001	.005, 1585	
20	.000, 0153	.000, 0845	.000, 3318	.001, 2189	.003, 6139	

n = 17		12	13	14	15	16
17	.027, 2181	.097, 1966	.112, 1570	.190, 6720	.302, 8363	
18	.019, 3731	.042, 2073	.085, 8902	.161, 4145	.249, 4781	
19	.013, 8746	.031, 8866	.065, 6689	.120, 2125	.204, 8038	
20	.010, 0005	.023, 3061	.050, 6268	.095, 6108	.167, 9444	

n = 17		17	18	19	20	21
17	.429, 0211	.570, 9789	.697, 1637	.809, 3280	.887, 8130	
18	.365, 9287	.503, 8306	.634, 0713	.746, 6608	.842, 6855	
19	.310, 7747	.441, 7747	.572, 7216	.702, 1711	.816, 6826	
20	.263, 1290	.386, 4490	.514, 5563	.647, 4428	.760, 3463	

TABLE I (Continued)

n = 17		22		23		24		25		26	
n	u										
17		.942, 8034	.972, 7619	.969, 1338	.995, 9171	.998, 7659					
18		.917, 2300	.957, 7927	.981, 6197	.992, 9424	.997, 4004					
19		.887, 1980	.939, 0714	.971, 4081	.987, 3764	.995, 1161					
20		.853, 4169	.916, 8400	.958, 3533	.980, 6596	.992, 3711					

n = 17		27		28		29		30		31	
n	u										
17		.993, 6594	.999, 9282	.999, 9858	.999, 9981	.999, 9998					
18		.999, 2227	.999, 6101	.999, 9710	.999, 9929	.999, 9989					
19		.998, 4590	.999, 5731	.999, 9510	.999, 9795	.999, 9965					
20		.997, 2498	.999, 1604	.999, 7145	.999, 9499	.999, 9909					

n = 17		32		33		34	
n	u						
17		1.	1.	1.	1.	1.	1.
18		.999, 9999	1.	1.	1.	1.	1.
19		.999, 9996	1.	1.	1.	1.	1.
20		.999, 9986	.999, 9999	1.	1.	1.	1.

n = 18		2		3		4		5		6	
n	u										
18		.000, 0000	.000, 0000	.000, 0000	.000, 0001	.000, 0006	.000, 0047				
19		.000, 0000	.000, 0000	.000, 0000	.000, 0000	.000, 0003	.000, 0027				
20		.000, 0000	.000, 0000	.000, 0000	.000, 0000	.000, 0002	.000, 0016				

n = 18		7		8		9		10		11	
n	u										
18		.000, 0050	.000, 1269	.000, 4856	.001, 7319	.004, 9776					
19		.000, 0146	.000, 0776	.000, 3053	.001, 1295	.003, 3948					
20		.000, 0090	.000, 0462	.000, 1994	.000, 7448	.002, 2633					

n = 18		12		13		14		15		16	
n	u										
18		.013, 4163	.010, 2938	.064, 0488	.117, 0923	.200, 4463					
19		.002, 3540	.021, 8563	.047, 8555	.090, 5705	.150, 6125					
20		.008, 5591	.015, 8550	.035, 8533	.070, 1416	.128, 5999					

n = 18		17		18		19		20		21	
n	u										
18		.304, 6189	.434, 8796	.565, 1204	.695, 3611	.799, 5537					
19		.252, 5426	.372, 9273	.500, 0000	.633, 7607	.747, 4674					
20		.208, 7664	.318, 2070	.439, 8077	.573, 5684	.693, 9531					

n = 18		22		23		24		25		26	
n	u										
18		.882, 9077	.935, 9512	.969, 7062	.986, 5837	.995, 0224					
19		.843, 7651	.909, 4295	.954, 0017	.978, 1449	.991, 1451					
20		.800, 9617	.878, 7861	.934, 5013	.967, 0019	.985, 5736					

n = 18		27		28		29		30		31	
n	u										
18		.998, 2681	.999, 5164	.999, 8731	.999, 9790	.999, 9954					
19		.996, 6452	.998, 9302	.999, 6347	.999, 9852	.999, 9952					
20		.994, 1452	.997, 9914	.999, 3651	.999, 8360	.999, 9616					

n = 18		32		33		34		35		36	
n	u										
18		.999, 9994	.999, 9999	1.	1.	1.	1.				
19		.999, 9977	.999, 9997	1.	1.	1.	1.				
20		.999, 9930	.999, 9989	.999, 9999	.999, 9999	.999, 9999	1.				

TABLE I (Concluded)

$n = 19$

$n \backslash u'$	2	3	4	5	6
19	.000,0000	.000,0000	.000,0000	.000,0002	.000,0015
20	.000,0000	.000,0000	.000,0000	.000,0001	.000,0009

$n = 20$

$n \backslash u'$	2	3	4	5	6
20	.000,0000	.000,0000	.000,0000	.000,0001	.000,0005

$n = 19$

$n \backslash u'$	7	8	9	10	11
19	.000,0086	.000,0462	.000,1875	.000,7174	.002,2009
20	.000,0090	.000,0280	.000,1169	.000,4611	.001,4591

$n = 20$

$n \backslash u'$	7	8	9	10	11
20	.000,0029	.000,0165	.000,0710	.000,2890	.000,9429

$n = 19$

$n \backslash u'$	12	13	14	15	16
19	.006,3548	.015,3550	.034,8553	.068,2844	.125,5915
20	.004,3501	.010,8549	.025,4705	.051,5699	.098,1013

$n = 20$

$n \backslash u'$	12	13	14	15	16
20	.002,9046	.007,4821	.018,1627	.037,9982	.074,8556

$n = 19$

$n \backslash u'$	17	18	19	20	21
19	.204,3888	.312,7350	.433,1196	.566,8804	.687,2650
20	.164,9901	.260,9611	.372,9273	.503,2583	.627,0727

$n = 20$

$n \backslash u'$	17	18	19	20	21
20	.130,0916	.212,9756	.314,2784	.438,0928	.561,9072

$n = 19$

$n \backslash u'$	22	23	24	25	26
19	.795,5112	.874,4085	.931,7156	.965,1447	.984,6450
20	.744,3706	.835,0099	.904,8070	.948,4301	.975,5734

$n = 20$

$n \backslash u'$	22	23	24	25	26
20	.685,7216	.787,0244	.869,9084	.925,1644	.962,0018

$n = 19$

$n \backslash u'$	27	28	29	30	31
19	.993,6452	.997,7991	.999,2826	.999,8125	.999,9538
20	.989,1451	.995,8908	.998,5409	.999,5734	.999,8831

$n = 20$

$n \backslash u'$	27	28	29	30	31
20	.981,8373	.992,5179	.997,0954	.999,0571	.999,7110

$n = 19$

$n \backslash u'$	32	33	34	35	36
19	.999,9914	.999,9985	.999,9998	.999,9999	1.
20	.999,9749	.999,9950	.999,9993	.999,9999	1.

$n = 20$

$n \backslash u'$	32	33	34	35	36
20	.999,9290	.999,9835	.999,9971	.999,9995	.999,9999

$n = 20$

$n \backslash u'$	37	38	39	40
20	1.	1.	1.	1.

TABLE II

Significance Levels of u

When $\Sigma < .50$, $u \in$ is the largest integer, u' , for which
 $P\{u \leq u'\} \leq \epsilon$; when $\Sigma > .50$, u is the smallest integer, u' , for which
 $P\{u \leq u'\} \geq \epsilon$.

$n = 2$

n	u .005	u .01	u .025	u .05	u .95	u .975	u .99	u .995
2				4	4	4	4	4
3				5	5	5	5	5
4				5	5	5	5	5
5				5	5	5	5	5
6				5	5	5	5	5
7				5	5	5	5	5
8				5	5	5	5	5
9			2	5	5	5	5	5
10			2	5	5	5	5	5
11			2	5	5	5	5	5
12			2	5	5	5	5	5
13			2	5	5	5	5	5
14			2	5	5	5	5	5
15			2	5	5	5	5	5
16			2	5	5	5	5	5
17			2	5	5	5	5	5
18			2	5	5	5	5	5
19			2	5	5	5	5	5
20	2	2	2	5	5	5	5	5

$n = 4$

n	u .005	u .01	u .025	u .05	u .95	u .975	u .99	u .995
4				2	7	8	8	8
5				2	8	8	8	8
6			2	2	8	8	8	8
7			2	2	8	8	8	8
8			2	2	8	8	8	8
9		2	2	2	9	9	9	9
10		2	2	2	9	9	9	9
11		2	2	2	9	9	9	9
12		2	2	2	9	9	9	9
13		2	2	2	9	9	9	9
14		2	2	2	9	9	9	9
15		2	2	2	9	9	9	9
16		2	2	2	9	9	9	9
17		2	2	2	9	9	9	9
18		2	2	2	9	9	9	9
19		2	2	2	9	9	9	9
20	2	2	2	2	9	9	9	9

$n = 3$

n	u .005	u .01	u .025	u .05	u .95	u .975	u .99	u .995
3				6	7	7	7	7
4				6	7	7	7	7
5				6	7	7	7	7
6				6	7	7	7	7
7				6	7	7	7	7
8				6	7	7	7	7
9				6	7	7	7	7
10			2	2	7	7	7	7
11			2	2	7	7	7	7
12			2	2	7	7	7	7
13			2	2	7	7	7	7
14			2	2	7	7	7	7
15			2	2	7	7	7	7
16			2	2	7	7	7	7
17			2	2	7	7	7	7
18			2	2	7	7	7	7
19			2	2	7	7	7	7
20	2	2	2	2	7	7	7	7

$n = 5$

n	u .005	u .01	u .025	u .05	u .95	u .975	u .99	u .995
5				3	8	9	9	10
6				3	9	9	10	10
7				3	9	10	10	11
8				3	10	10	11	11
9				3	10	11	11	11
10				3	10	11	11	11
11				3	11	11	11	11
12				3	11	11	11	11
13				3	11	11	11	11
14				3	11	11	11	11
15				3	11	11	11	11
16				3	11	11	11	11
17				3	11	11	11	11
18				3	11	11	11	11
19				3	11	11	11	11
20	4	4	4	4	11	11	11	11

TABLE II (Continued)

n = 8

n	$\alpha_{.005}$	$\alpha_{.01}$	$\alpha_{.025}$	$\alpha_{.05}$	$\alpha_{.95}$	$\alpha_{.975}$	$\alpha_{.99}$	$\alpha_{.995}$
8	3	4	4	5	12	13	13	14
9	3	4	5	5	13	13	14	14
10	4	4	5	6	13	14	14	15
11	4	5	5	6	14	14	15	15
12	4	5	6	6	14	15	15	16
13	5	5	6	6	14	15	16	16
14	5	5	6	7	15	15	16	16
15	5	5	6	7	15	15	16	17
16	5	6	6	7	15	16	17	17
17	6	6	7	7	15	16	17	17
18	6	6	7	8	15	16	17	17
19	6	6	7	8	15	16	17	17
20	6	6	7	8	16	16	17	17

n = 6

n	$\alpha_{.005}$	$\alpha_{.01}$	$\alpha_{.025}$	$\alpha_{.05}$	$\alpha_{.95}$	$\alpha_{.975}$	$\alpha_{.99}$	$\alpha_{.995}$
6	2	2	3	3	10	10	11	11
7	2	3	3	4	10	11	11	12
8	3	3	3	4	11	11	12	12
9	3	3	4	4	11	12	12	13
10	3	4	4	5	11	12	13	13
11	3	4	4	5	12	12	13	13
12	3	4	4	5	12	12	13	13
13	3	4	5	5	12	13	13	13
14	4	4	5	5	12	13	13	13
15	4	4	5	6	13	13	13	13
16	4	5	5	6	13	13	13	13
17	4	5	5	6	13	13	13	13
18	4	5	6	6	13	13	13	13
19	4	5	6	6	13	13	13	13
20	4	5	6	6	13	13	13	13

n = 9

n	$\alpha_{.005}$	$\alpha_{.01}$	$\alpha_{.025}$	$\alpha_{.05}$	$\alpha_{.95}$	$\alpha_{.975}$	$\alpha_{.99}$	$\alpha_{.995}$
9	4	4	5	6	13	14	15	15
10	4	5	5	6	14	15	15	16
11	5	5	6	6	14	15	16	16
12	5	5	6	7	15	15	16	17
13	5	6	6	7	15	16	17	17
14	5	6	7	7	16	16	17	17
15	6	6	7	8	16	17	17	18
16	6	6	7	8	16	17	17	18
17	6	7	7	8	16	17	18	18
18	6	7	8	8	17	17	18	19
19	6	7	8	8	17	17	18	19
20	7	7	8	9	17	17	18	19

n = 7

n	$\alpha_{.005}$	$\alpha_{.01}$	$\alpha_{.025}$	$\alpha_{.05}$	$\alpha_{.95}$	$\alpha_{.975}$	$\alpha_{.99}$	$\alpha_{.995}$
7	3	3	3	4	11	12	12	12
8	3	3	4	4	12	12	13	13
9	3	4	4	5	12	13	13	14
10	3	4	5	5	12	13	14	14
11	4	4	5	5	13	13	14	14
12	4	4	5	6	13	13	14	15
13	4	5	5	6	13	14	15	15
14	4	5	6	6	13	14	15	15
15	4	5	6	6	14	14	15	15
16	5	5	6	6	14	15	15	15
17	5	5	6	7	14	15	15	15
18	5	6	6	7	14	15	15	15
19	5	6	6	7	14	15	15	15
20	5	6	6	7	14	15	15	15

TABLE II (Continued)

■ = 12

n	u _{.005}	u _{.01}	u _{.025}	u _{.05}	u _{.95}	u _{.975}	u _{.99}	u _{.995}
12	6	7	7	8	17	18	18	19
13	6	7	8	9	17	18	19	20
14	7	7	8	9	18	19	20	20
15	7	8	8	9	18	19	20	21
16	7	8	9	10	19	20	21	21
17	8	8	9	10	19	20	21	21
18	8	8	9	10	20	20	21	22
19	8	9	10	10	20	21	22	22
20	8	9	10	11	20	21	22	22

■ = 10

n	u _{.005}	u _{.01}	u _{.025}	u _{.05}	u _{.95}	u _{.975}	u _{.99}	u _{.995}
10	5	5	6	6	15	15	16	16
11	5	6	6	7	15	16	17	17
12	5	6	7	7	16	16	17	18
13	5	6	7	8	16	17	18	18
14	6	6	7	8	16	17	18	19
15	6	7	7	8	17	17	18	19
16	6	7	8	8	17	18	19	19
17	7	7	8	9	17	18	19	20
18	7	7	8	9	18	18	19	20
19	7	8	8	9	18	19	19	20
20	7	8	9	9	18	19	19	20

■ = 13

n	u _{.005}	u _{.01}	u _{.025}	u _{.05}	u _{.95}	u _{.975}	u _{.99}	u _{.995}
13	7	7	8	9	18	19	20	20
14	7	8	9	9	19	19	20	21
15	7	8	9	10	19	20	21	21
16	8	8	9	10	20	20	21	22
17	8	9	10	10	20	21	22	22
18	8	9	10	11	20	21	22	23
19	9	9	10	11	21	22	23	23
20	9	10	10	11	21	22	23	23

■ = 11

n	u _{.005}	u _{.01}	u _{.025}	u _{.05}	u _{.95}	u _{.975}	u _{.99}	u _{.995}
11	5	6	7	7	16	16	17	18
12	6	6	7	8	16	17	18	18
13	6	6	7	8	17	18	18	19
14	6	7	8	8	17	18	19	19
15	7	7	8	9	18	18	19	20
16	7	8	8	9	18	19	20	20
17	7	8	9	9	18	19	20	21
18	7	8	9	10	19	19	20	21
19	8	8	9	10	19	20	21	21
20	8	8	9	10	19	20	21	21

TABLE II (Continued)

$n = 14$										
n	$u_{.0005}$	$u_{.01}$	$u_{.025}$	$u_{.05}$	$u_{.05}$	$u_{.075}$	$u_{.99}$	$u_{.995}$		
14	7	8	9	10	19	20	21	22		
15	8	8	9	10	20	21	22	22		
16	8	9	10	11	20	21	22	23		
17	8	9	10	11	21	22	23	24		
18	9	9	10	11	21	22	23	24		
19	9	10	11	12	22	22	23	24		
20	9	10	11	12	22	23	24	24		

$n = 15$										
n	$u_{.0005}$	$u_{.01}$	$u_{.025}$	$u_{.05}$	$u_{.05}$	$u_{.075}$	$u_{.99}$	$u_{.995}$		
15	8	9	10	11	20	21	22	23		
16	9	9	10	11	21	22	23	23		
17	9	10	11	12	21	22	23	24		
18	9	10	11	12	22	23	24	24		
19	10	10	11	12	22	23	24	25		
20	10	11	12	12	23	24	25	25		

$n = 16$										
n	$u_{.0005}$	$u_{.01}$	$u_{.025}$	$u_{.05}$	$u_{.05}$	$u_{.075}$	$u_{.99}$	$u_{.995}$		
16	9	10	11	11	22	22	23	24		
17	9	10	11	12	22	23	24	25		
18	10	10	11	12	23	24	25	25		
19	10	11	12	13	23	24	25	26		
20	10	11	12	13	24	24	25	26		

$n = 17$										
n	$u_{.0005}$	$u_{.01}$	$u_{.025}$	$u_{.05}$	$u_{.05}$	$u_{.075}$	$u_{.99}$	$u_{.995}$		
17	10	10	11	12	23	24	25	25		
18	10	11	12	13	24	25	26	26		
19	10	11	12	13	24	25	26	26		
20	11	11	13	13	24	25	26	27		

$n = 18$										
n	$u_{.0005}$	$u_{.01}$	$u_{.025}$	$u_{.05}$	$u_{.05}$	$u_{.075}$	$u_{.99}$	$u_{.995}$		
18	11	11	12	13	24	25	26	26		
19	11	12	13	14	24	25	26	27		
20	11	12	13	14	25	26	27	28		

$n = 19$										
n	$u_{.0005}$	$u_{.01}$	$u_{.025}$	$u_{.05}$	$u_{.05}$	$u_{.075}$	$u_{.99}$	$u_{.995}$		
19	11	12	13	14	25	26	27	28		
20	12	12	13	14	26	26	28	28		

$n = 20$										
n	$u_{.0005}$	$u_{.01}$	$u_{.025}$	$u_{.05}$	$u_{.05}$	$u_{.075}$	$u_{.99}$	$u_{.995}$		
19	12	13	14	15	26	27	28	29		
20	12	13	14	15	26	27	28	29		

TABLE III

Significance Levels of u
 $P \{ u \leq u_g \} = \epsilon$

For definition of u_g , see note to Table II.

m=n	For definition of u_g , see note to Table II.														
	$u_{.005}$	$u_{.01}$	$u_{.025}$	$u_{.05}$	$u_{.075}$	$u_{.09}$	$u_{.995}$	$u_{.99}$	$u_{.975}$	$u_{.95}$	$u_{.925}$				
10	4	5	6	6	15	15	17	17	47	46	66	67	69	71	72
11	5	6	7	7	16	16	18	18	48	47	67	68	70	72	73
12	6	7	8	8	17	17	19	19	49	48	68	69	71	73	74
13	7	8	9	9	18	18	20	20	50	49	69	70	72	74	75
14	8	9	10	10	19	19	21	21	51	50	70	71	73	75	76
15	9	10	11	11	20	20	22	22	52	51	71	72	74	76	77
16	10	11	12	12	21	21	23	23	53	52	72	73	75	77	78
17	11	12	13	13	22	22	24	24	54	53	73	74	76	78	80
18	12	13	14	14	23	23	25	25	55	54	74	75	77	79	81
19	13	14	15	15	24	24	26	26	56	55	75	76	78	80	82
20	14	15	16	16	25	25	27	27	57	56	76	77	79	81	83
21	15	16	17	17	26	26	28	28	58	57	77	78	80	82	84
22	16	17	18	18	27	27	29	29	59	58	78	79	81	83	85
23	17	18	19	19	28	28	30	30	60	59	79	80	82	84	86
24	18	19	20	20	29	29	31	31	61	60	80	81	83	85	87
25	19	20	21	21	30	30	32	32	62	61	81	82	84	86	88
26	20	21	22	22	31	31	33	33	63	62	82	83	85	87	89
27	21	22	23	23	32	32	34	34	64	63	83	84	86	88	90
28	22	23	24	24	33	33	35	35	65	64	84	85	87	89	91
29	23	24	25	25	34	34	36	36	66	65	85	86	88	90	92
30	24	25	26	26	35	35	37	37	67	66	86	87	89	91	93
31	25	26	27	27	36	36	38	38	68	67	87	88	90	92	94
32	26	27	28	28	37	37	39	39	69	68	88	89	91	93	95
33	27	28	29	29	38	38	40	40	70	69	89	90	92	94	96
34	28	29	30	30	39	39	41	41	71	70	90	91	93	95	97
35	29	30	31	31	40	40	42	42	72	71	91	92	94	96	98
36	30	31	32	32	41	41	43	43	73	72	92	93	95	97	99
37	31	32	33	33	42	42	44	44	74	73	93	94	96	98	101
38	32	33	34	34	43	43	45	45	75	74	94	95	97	99	102
39	33	34	35	35	44	44	46	46	76	75	95	96	98	100	103
40	34	35	36	36	45	45	47	47	77	76	96	97	99	101	104
41	35	36	37	37	46	46	48	48	78	77	97	98	100	102	105
42	36	37	38	38	47	47	49	49	79	78	98	99	101	103	106
43	37	38	39	39	48	48	50	50	80	79	99	100	102	104	107
44	38	39	40	40	49	49	51	51	81	80	100	101	103	105	108
45	39	40	41	41	50	50	52	52	82	81	101	102	104	106	109
46	40	41	42	42	51	51	53	53	83	82	102	103	105	107	110
47	41	42	43	43	52	52	54	54	84	83	103	104	106	108	111
48	42	43	44	44	53	53	55	55	85	84	104	105	107	109	112
49	43	44	45	45	54	54	56	56	86	85	105	106	108	110	113
50	44	45	46	46	55	55	57	57	87	86	106	107	109	111	114
51	45	46	47	47	56	56	58	58	88	87	107	108	110	112	115
52	46	47	48	48	57	57	59	59	89	88	108	109	111	113	116
53	47	48	49	49	58	58	60	60	90	89	109	110	112	114	117
54	48	49	50	50	59	59	61	61	91	90	110	111	113	115	118
55	49	50	51	51	60	60	62	62	92	91	111	112	114	116	119
56	50	51	52	52	61	61	63	63	93	92	112	113	115	117	120
57	51	52	53	53	62	62	64	64	94	93	113	114	116	118	121
58	52	53	54	54	63	63	65	65	95	94	114	115	117	119	122
59	53	54	55	55	64	64	66	66	96	95	115	116	118	120	123
60	54	55	56	56	65	65	67	67	97	96	116	117	119	121	124
61	55	56	57	57	66	66	68	68	98	97	117	118	120	122	125
62	56	57	58	58	67	67	69	69	99	98	118	119	121	123	126
63	57	58	59	59	68	68	70	70	100	99	119	120	122	124	127
64	58	59	60	60	69	69	71	71	101	100	120	121	123	125	128
65	59	60	61	61	70	70	72	72	102	101	121	122	124	126	129
66	60	61	62	62	71	71	73	73	103	102	122	123	125	127	130
67	61	62	63	63	72	72	74	74	104	103	123	124	126	128	131
68	62	63	64	64	73	73	75	75	105	104	124	125	127	129	132
69	63	64	65	65	74	74	76	76	106	105	125	126	128	130	133
70	64	65	66	66	75	75	77	77	107	106	126	127	129	131	134
71	65	66	67	67	76	76	78	78	108	107	127	128	130	132	135
72	66	67	68	68	77	77	79	79	109	108	128	129	131	133	136
73	67	68	69	69	78	78	80	80	110	109	129	130	132	134	137
74	68	69	70	70	79	79	81	81	111	110	130	131	133	135	138
75	69	70	71	71	80	80	82	82	112	111	131	132	134	136	139
76	70	71	72	72	81	81	83	83	113	112	132	133	135	137	140
77	71	72	73	73	82	82	84	84	114	113	133	134	136	138	141
78	72	73	74	74	83	83	85	85	115	114	134	135	137	139	142
79	73	74	75	75	84	84	86	86	116	115	135	136	138	140	143
80	74	75	76	76	85	85	87	87	117	116	136	137	139	141	144
81	75	76	77	77	86	86	88	88	118	117	137	138	140	142	145
82	76	77	78	78	87	87	89	89	119	118	138	139	141	143	146
83	77	78	79	79	88	88	90	90	120	119	139	140	142	144	147
84	78	79	80	80	89	89	91	91	121	120	140	141	143	145	148
85	79	80	81	81	90	90	92	92	122	121	141	142	144	146	149
86	80	81	82	82	91	91	93	93	123	122	142	143	145	147	150
87	81	82	83	83	92	92	94	94	124	123	143	144	146	148	151
88	82	83	84	84	93	93	95	95	125	124	144	145	147	149	152
89	83	84	85	85	94	94	96	96	126	125	145	146	148	150	153
90	84	85	86	86	95	95	97	97	127	126	146	147	149	151	154
91	85	86	87	87	96	96	98	98	128	127	147	148	150	152	155
92	86	87	88	88	97	97	99	99	129	128	148	149	151	153	156
93	87	88	89	89	98	98	100	100	130	129	149	150	152	154	157
94	88	89	90	90	99	99	101	101	131	130	150	151	153	155	158
95	89	90	91	91	100	100	102	102	132	131	151	152	154	156	159
96	90	91	92	92	101	101	103	103	133	132	152	153	155	157	160
97	91	92	93	93	102	102	104	104	134	133	153	154	156	158	161
98	92	93	94	94	103	103	105	105	135	134	154	155	157	159	162
99	93	94	95	95	104	104	106	106	136	135	155	156	158	160	163
100	94	95	96	96	105	105	107	107	137	136	156	157	159	161	164
101	95	96	97	97	106	106	108	108	138	137	157	158	160	162	165
102	96	97	98	98	107	107	109	109	139	138	158	159	161	163	166
103	97	98	99	99	108	108	110	110	140	139	159	160	162	164	167
104	98	99	100	100	109	109	111	111	141	140	160	161	163	165	168
105	99	100	101	101	110	110	112	112	142	141	161	162	164	166	169
106	100	101	102	102	111	111	113	113	143	142	162	163	165	167	170
107	101	102	103	103	112										