

PARAMETERS FOR A GENERAL SYSTEM OF DISTRIBUTIONS TO MATCH A GRID OF α_3 AND α_4

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ABSTRACT

This paper is concerned with a general system of distributions $F(x) = 1 - (1+x^c)^{-k}$, $x, c, k > 0$, and the reciprocal transformation $G(y) = (1+y^{-c})^{-k}$, $y, c, k > 0$. Parameters c, k determine μ, σ and the standardized moments α_3, α_4 . The purpose of this paper is to provide c, k values which cover a wide grid of α_3, α_4 values. For each c, k matching an α_3, α_4 point, μ and σ are also provided. The grid of α_3, α_4 values is sufficiently detailed that interpolation in most cases appears unnecessary.

1. INTRODUCTION

The general system of distributions here discussed was first given by Burr (1942). As first developed the cumulative distribution function was

$$F(x) = 1 - (1+x^c)^{-k} \quad x \geq 0 \quad c, k > 0$$
$$= 0 \quad x < 0. \tag{1}$$

The region of coverage of standardized moments α_3 and α_4 is discussed by Burr and Cislak (1968) in the form of $\delta = (2\alpha_4 - 3\alpha_3^2 - 6)/(\alpha_4 + 3)$ vs. α_3^2 . See Craig (1936). Since then the author found that by using the reciprocal transformation $x = 1/y$, yielding the distribution function

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$$\begin{aligned} G(y) &= (1+y^{-c})^{-k} & y \geq 0 \\ &= 0 & y < 0, \end{aligned} \tag{2}$$

the region of coverage is greatly extended toward low α_4 's for given α_3 . This extension of the region covers virtually all of the bell-shaped and J-shaped regions of the beta (Pearson Type I) region. Thus by using either (1) or (2) one can match up the first four moments for almost any ordinary distribution likely to occur in practical data.

2. TABLE OF MOMENTS

The parameters c and k are given to match $\alpha_3 = .00(.05)1.00(.10)2.00$, and corresponding available ranges of α_4 with increments of .10 or .20. With this fineness of coverage it is believed that one can, in fitting observed data, simply pick the c and k having α_3 and α_4 closest to those desired. This is in view of the large errors to which estimates of α_3 and α_4 are subject. Thus for a normal population $\sigma_{a_3} \doteq \sqrt{6/n}$ and $\sigma_{a_4} \doteq \sqrt{24/n}$. The table also provides μ and σ for each c, k combination. Hence we have for the standard variable z , for example, from (1),

$$F_1(z) = 1 - [1 + (\mu + \sigma z)^c]^{-k}. \tag{3}$$

It will be noted that for some α_3, α_4 combinations there are two c, k combinations. The corresponding right hand tails are very similar, but there is a differing tendency to peakedness. The maximum standardized density function from (3) is given in the table, whenever two c, k combinations occur for given α_3, α_4 . (If one is fitting an observed frequency table, he can use (maximum class frequency)/ ns (s , in class intervals) to compare with the two entries. In effect this is rather like fitting five parameters.)

In the table, whenever $G(y)$ in (2) is to be used, c is listed as a negative number.

SYSTEMS OF DISTRIBUTIONS

Six decimal places are given in the table for c, k, μ and σ . It cannot be claimed that all six decimal places for given c and k are correct, but only that the listed c and k do give α_3 and α_4 both with errors less than 5×10^{-5} . Some rounding of c and k in practice is certainly permissible.

Distribution systems (1) and (2) have far greater coverage of α_3, α_4 , but one must stop somewhere. Accordingly the respective cut-off points for α_3 and α_4 were taken as 2 and 9, which are the moments of the exponential.

If anyone is interested in moments which are even more non-normal, for example, for some test statistic, the author's extensive file of moments with c and k up to 1000 each, and several programs, may prove useful, and are available.

Figure 1 shows the coverage of the α_3, α_4 points.

3. ACKNOWLEDGMENT

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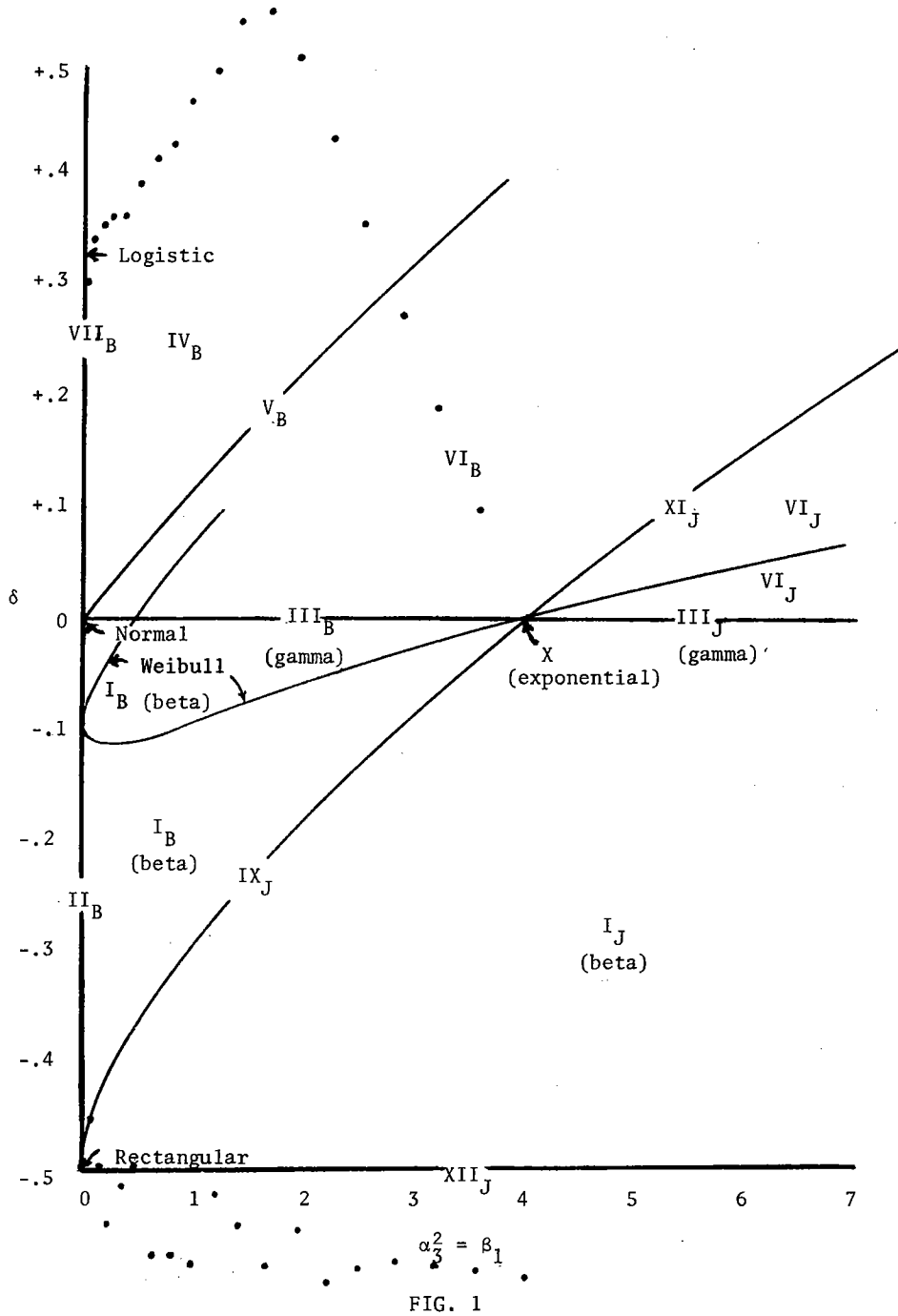


FIG. 1

Mapping of part of the Pearson system of frequency curves (Roman numerals); subscript B for bell-shaped, J for J-shaped. Extremes for system (1) and (2) given in Table I shown by dots.

SYSTEMS OF DISTRIBUTIONS

TABLE I

Values of c and k giving combinations of α_3, α_4 . Corresponding μ and σ are also given. Further when two (c, k) points give same α_3, α_4 the maximum standard density function is also given.

α_3	α_4	c	k	μ	σ	Max $f(z)$	
.00	2.0	-18.148,445	.062,932	.538,666	.290,634		
	2.2	-13.840,637	.093,482	.574,597	.290,269		
	2.4	-12.134,081	.120,321	.608,776	.287,975		
	2.6	-11.251,863	.146,295	.641,872	.283,920		
	2.8	3.938,938	19.864,823	.427,479	.124,319		
	2.9	4.381,329	9.285,592	.556,456	.150,593		
	3.0	4.873,717	6.157,568	.644,717	.161,990		
	3.1	5.428,963	4.645,729	.712,555	.165,695		
	3.2	6.065,153	3.745,010	.767,265	.164,426		
	3.3	6.808,120	3.140,267	.812,577	.159,574		
	3.4	7.695,948	2.700,685	.850,740	.151,944		
	3.5	8.788,464	2.362,213	.883,234	.141,994		
	3.6	10.182,078	2.089,559	.911,057	.129,983		
	3.7	12.048,411	1.861,568	.934,896	.115,983		
	3.8	14.723,762	1.664,480	.955,196	.099,905		
	3.9	18.977,666	1.488,514	.972,184	.081,454		
	4.0	27.068,908	1.325,754	.985,829	.059,999		
	.05	2.8	3.736,163	18.807,162	.415,481	.126,951	
2.9		4.142,236	9.135,007	.541,476	.154,445		
3.0		4.590,898	6.129,174	.629,556	.167,303		
3.1		5.092,777	4.650,753	.697,984	.172,357		
3.2		5.662,575	3.762,138	.753,583	.172,285		
3.3		6.321,095	3.162,160	.799,927	.168,492		
3.4		7.098,676	2.724,335	.839,204	.161,796		
3.5		8.041,365	2.386,184	.872,861	.152,680		
3.6		9.222,819	2.113,127	.901,893	.141,403		
3.7		10.769,291	1.884,306	.926,989	.128,047		
3.8		12.918,580	1.686,072	.948,606	.112,524		
3.9		16.183,547	1.508,688	.966,989	.904,528		
4.0		21.934,170	1.344,101	.982,147	.073,393		
4.1		35.636,439	1.183,701	.993,672	.047,649		
4.2		137.936,370	1.011,812	.999,946	.013,093		
.10		1.8	-59.220,485	.015,212	.474,346	.293,917	
		2.0	-16.681,154	.061,503	.512,257	.297,554	
		2.2	-12.919,912	.089,630	.547,480	.298,823	
	2.4	-11.363,881	.114,478	.580,994	.298,170		
	2.6	-10.533,187	.138,511	.613,467	.295,804		
	2.8	3.520,305	19.605,734	.390,145	.125,715		
	2.9	3.890,818	9.398,797	.517,864	.156,257		
	3.0	4.296,980	6.283,287	.607,662	.171,429		

TABLE I. cont.

α_3	α_4	c	k	μ	σ	Max f(z)
.10	3.1	4.747,326	4.760,798	.677,796	.178,390	
	3.2	5.253,535	3.848,945	.735,054	.179,940	
	3.3	5.831,907	3.234,727	.783,006	.177,557	
	3.4	6.505,800	2.787,311	.823,846	.172,107	
	3.5	7.309,918	2.442,239	.859,036	.164,110	
	3.6	8.298,308	2.163,941	.889,592	.153,855	
	3.7	9.560,511	1.930,985	.916,224	.141,447	
	3.8	11.257,714	1.729,403	.939,421	.126,820	
	3.9	13.716,186	1.549,244	.959,471	.109,694	
	4.0	17.724,454	1.382,387	.976,447	.089,441	
.15	4.1	25.882,630	1.220,311	.990,076	.064,678	
	4.2	56.396,741	1.048,330	.999,138	.031,590	
	2.8	3.297,006	22.668,161	.351,161	.119,700	
	2.9	3.633,598	10.125,731	.485,305	.155,373	
	3.0	3.999,541	6.636,285	.578,679	.173,811	
	3.1	4.401,526	4.983,585	.651,620	.183,305	
	3.2	4.848,626	4.009,885	.711,301	.186,950	
	3.3	5.353,296	3.360,883	.761,428	.186,361	
	3.4	5.933,085	2.891,662	.804,274	.182,492	
	3.5	6.613,437	2.531,909	.841,352	.175,922	
.20	3.6	7.432,897	2.243,177	.873,725	.166,988	
	3.7	8.452,991	2.002,566	.902,145	.155,837	
	3.8	9.779,394	1.795,247	.927,146	.142,447	
	3.9	11.612,302	1.610,833	.949,072	.126,594	
	4.0	14.390,317	1.441,070	.968,082	.107,744	
	4.1	19.330,563	1.277,790	.984,071	.084,738	
	4.2	31.897,761	1.108,534	.996,317	.054,594	
	1.8	-119.822,787	.006,668	.444,231	.297,159	
	2.0	-16.270,368	.055,828	.481,454	.302,727	
	2.2	-12.423,617	.082,271	.515,897	.305,823	
.20	2.4	-10.857,928	.105,305	.548,571	.306,981	
	2.6	-10.014,446	.127,361	.580,160	.306,473	
	2.8	3.071,043	30.546,716	.295,704	.106,900	
	2.9	3.375,977	11.518,324	.442,911	.150,818	
	3.0	3.704,710	7.243,856	.541,973	.173,700	
	3.1	4.062,382	5.342,586	.618,914	.186,466	
	3.2	4.455,882	4.257,318	.681,824	.192,748	
	3.3	4.894,543	3.548,007	.734,720	.194,387	
	3.4	5.391,250	3.042,238	.780,025	.192,464	
	3.5	5.964,269	2.658,534	.819,351	.187,649	
.20	3.6	6.640,429	2.353,271	.853,828	.180,343	
	3.7	7.461,020	2.100,820	.884,270	.170,754	
	3.8	8.493,575	1.884,907	.911,264	.158,921	
	3.9	9.858,023	1.694,343	.935,222	.144,697	
	4.0	11.793,414	1.520,591	.956,391	.127,681	

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TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
.25	4.1	14.870,071	1.355,850	.974,825	.106,992	
	4.2	20.957,781	1.190,064	.990,220	.080,556	
	2.9	3.122,184	14.122,273	.389,009	.141,150	
	3.0	3.417,147	8.229,732	.496,598	.170,105	
	3.1	3.734,994	5.885,337	.578,951	.187,065	
	3.2	4.080,886	4.614,694	.646,004	.196,633	
	3.3	4.461,677	3.809,547	.702,325	.201,000	
	3.4	4.886,666	3.247,481	.750,586	.201,435	
	3.5	5.368,727	2.827,798	.792,542	.198,725	
	3.6	5.926,219	2.498,175	.829,420	.193,363	
	3.7	6.586,362	2.228,592	.862,112	.185,632	
	3.8	7.391,623	2.000,400	.891,272	.175,646	
.30	3.9	8.412,844	1.801,117	.917,381	.163,350	
	4.0	9.779,587	1.621,616	.940,769	.148,481	
	4.1	11.762,636	1.454,238	.961,622	.130,435	
	4.2	15.064,666	1.290,709	.979,920	.107,877	
	4.3	22.499,231	1.116,500	.995,155	.077,146	
	2.0	-17.015,898	.046,642	.446,872	.305,469	
	2.2	-12.336,316	.072,245	.480,526	.310,554	
	2.4	-10.598,582	.093,737	.512,255	.313,632	
	2.6	-9.681,205	.113,912	.542,768	.315,060	
	2.8	-9.126,555	.133,886	.572,584	.315,022	
	3.0	3.140,084	9.871,516	.441,135	.161,685	
	3.1	3.422,734	6.704,381	.530,769	.184,076	
3.2	3.727,036	5.124,256	.603,074	.197,740		
3.3	4.057,956	4.168,456	.663,589	.205,437		
3.4	4.422,107	3.521,324	.715,374	.208,703		
3.5	4.828,446	3.048,789	.760,391	.208,489		
3.6	5.289,379	2.684,123	.800,000	.205,404		
3.7	5.822,660	2.390,268	.835,190	.199,823		
3.8	6.454,759	2.144,834	.866,694	.191,949		
3.9	7.227,355	1.933,280	.895,062	.181,825		
4.0	8.210,921	1.745,408	.920,705	.169,320		
4.1	9.537,181	1.573,299	.943,908	.154,065		
4.2	11.491,950	1.409,617	.964,829	.135,252		
4.3	14.875,030	1.244,945	.983,425	.111,002		
4.4	23.702,217	1.056,533	.999,044	.075,054		
.35	3.0	2.875,607	12.886,683	.373,322	.146,521	
	3.1	3.127,518	7.991,722	.473,068	.176,173	
	3.2	3.395,956	5.864,147	.552,079	.195,000	
	3.3	3.684,461	4.664,306	.617,735	.206,775	
	3.4	3.997,684	3.886,653	.673,725	.213,442	
	3.5	4.341,791	3.335,949	.722,314	.216,176	
	3.6	4.725,107	2.920,785	.765,043	.215,736	
	3.7	5.159,150	2.592,574	.803,021	.212,613	

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
	3.8	5.660,394	2.322,980	.837,075	.207,107	
	3.9	6.253,429	2.094,199	.967,833	.199,362	
	4.0	6.977,081	1.894,236	.895,779	.189,372	
	4.1	7.897,365	1.714,350	.921,279	.176,955	
	4.2	9.139,027	1.547,356	.944,600	.161,658	
	4.3	10.978,479	1.386,009	.965,909	.142,507	
	4.4	14.229,446	1.219,568	.985,209	.117,113	
.40	2.0	-20.247,072	.033,824	.409,165	.305,129	
	2.2	-12.780,160	.060,151	.442,135	.312,371	
	2.4	-10.612,147	.080,563	.472,916	.317,446	
	2.6	-9.538,054	.099,112	.502,275	.320,826	
	2.8	-8.899,101	.117,068	.530,752	.322,777	
	3.0	2.624,794	19.800,118	.288,729	.121,405	
	3.1	2.850,128	10.205,204	.403,948	.161,556	
	3.2	3.087,926	6.991,001	.491,778	.187,065	
	3.3	3.340,706	5.368,843	.563,814	.203,899	
	3.4	3.611,693	4.382,342	.624,863	.214,680	
	3.5	3.905,104	3.712,737	.677,654	.220,909	
	3.6	4.226,497	3.223,402	.723,977	.223,545	
	3.7	4.583,358	2.845,904	.765,103	.223,222	
	3.8	4.985,959	2.542,162	.801,971	.220,354	
	3.9	5.448,945	2.289,128	.835,297	.215,191	
	4.0	5.993,904	2.071,935	.865,629	.207,844	
	4.1	6.655,645	1.880,033	.893,434	.198,272	
	4.2	7.491,552	1.705,847	.919,027	.186,273	
	4.3	8.610,997	1.542,689	.942,684	.171,352	
	4.4	10.255,328	1.383,410	.964,605	.152,458	
	4.5	13.143,657	1.216,485	.984,916	.126,916	
	4.6	143.956,251	.756,389	1.003,528	.014,242	
.45	3.1	2.590,458	14.750,513	.320,117	.137,492	
	3.2	2.802,285	8.864,587	.420,441	.172,157	
	3.3	3.025,168	6.423,961	.500,622	.195,421	
	3.4	3.261,341	5.078,528	.567,848	.211,250	
	3.5	3.513,672	4.218,948	.625,640	.221,667	
	3.6	3.785,870	3.616,684	.676,159	.227,910	
	3.7	4.082,793	3.166,669	.720,890	.230,797	
	3.8	4.410,911	2.813,777	.760,915	.230,881	
	3.9	4.779,066	2.526,217	.797,059	.228,528	
	4.0	5.199,739	2.284,241	.829,959	.223,956	
	4.1	5.691,298	2.074,781	.860,122	.217,259	
	4.2	6.282,290	1.888,592	.887,957	.208,394	
	4.3	7.020,356	1.718,591	.913,796	.197,152	
	4.4	7.993,640	1.558,571	.937,918	.183,056	
	4.5	9.392,324	1.401,751	.960,569	.165,083	
	4.6	11.758,782	1.237,033	.982,004	.140,684	

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TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
.50	2.0	-46.009,112	.012,681	.368,920	.301,069	
	2.2	-14.222,488	.046,148	.401,469	.310,714	
	2.4	-11.000,293	.066,322	.431,431	.317,882	
	2.6	-9.617,790	.083,673	.459,691	.323,217	
	2.8	-8.837,537	.099,951	.486,834	.327,087	
	3.0	-8.339,490	.115,918	.513,287	.329,712	
	3.2	2.537,779	12.523,490	.335,292	.147,712	
	3.3	2.735,724	8.151,164	.426,523	.179,542	
	3.4	2.943,293	6.113,841	.501,498	.201,715	
	3.5	3.162,412	4.926,672	.565,339	.217,232	
	3.6	3.395,555	4.142,901	.620,824	.227,764	
	3.7	3.645,888	3.581,718	.669,747	.234,383	
	3.8	3.917,524	3.155,912	.713,383	.237,814	
	3.9	4.215,883	2.818,198	.752,688	.238,558	
	4.0	4.548,291	2.540,631	.788,396	.236,949	
	4.1	4.924,954	2.305,524	.821,092	.233,196	
	4.2	5.360,672	2.100,986	.851,246	.227,386	
	4.3	5.878,014	1.918,512	.879,244	.219,490	
	4.4	6.513,761	1.751,518	.905,414	.209,324	
	4.5	7.333,856	1.594,248	.930,045	.196,468	
4.6	8.473,843	1.440,495	.953,420	.180,041		
4.7	10.289,155	1.280,636	.975,889	.157,937		
4.8	14.457,708	1.084,855	.998,320	.122,136		
.55	3.2	2.292,809	22.693,730	.230,187	.109,054	
	3.3	2.469,985	11.460,107	.338,979	.153,733	
	3.4	2.654,058	7.803,279	.424,225	.184,232	
	3.5	2.846,322	5.979,735	.495,578	.206,113	
	3.6	3.048,414	4.879,397	.557,039	.221,844	
	3.7	3.262,410	4.137,368	.610,914	.232,876	
	3.8	3.490,943	3.598,478	.658,752	.240,172	
	3.9	3.737,393	3.185,492	.701,678	.244,398	
	4.0	4.006,164	2.855,581	.740,551	.246,021	
	4.1	4.303,119	2.583,014	.776,044	.245,362	
	4.2	4.636,304	2.351,298	.808,698	.242,626	
	4.3	5.017,142	2.149,249	.838,957	.237,910	
	4.4	5.462,652	1.968,820	.867,191	.231,207	
	4.5	5.999,699	1.803,806	.893,722	.222,380	
	4.6	6.674,437	1.648,848	.918,845	.211,096	
	4.7	7.575,988	1.498,441	.942,859	.196,668	
4.8	8.913,687	1.344,872	.966,145	.177,562		
4.9	11.425,474	1.169,741	.989,514	.149,084		
.60	2.2	-19.025,748	.029,137	.359,124	.305,067	
	2.4	-12.072,844	.051,146	.388,558	.314,517	
	2.6	-10.013,249	.067,996	.415,912	.321,854	
	2.8	-8.976,991	.083,066	.441,860	.327,593	

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
	3.0	-8.347,465	.097,392	.466,866	.332,044	
	3.2	2.065,687	190.006,936	.069,986	.035,643	
	3.3	2.225,512	20.308,790	.232,679	.113,601	
	3.4	2.390,254	11.043,016	.333,616	.156,237	
	3.5	2.560,740	7.709,889	.414,791	.186,402	
	3.6	2.738,061	5.983,105	.483,630	.208,595	
	3.7	2.923,568	4.919,839	.543,453	.224,962	
	3.8	3.118,962	4.193,832	.596,254	.236,819	
	3.9	3.326,379	3.662,259	.643,404	.245,052	
	4.0	3.548,519	3.252,635	.685,919	.250,291	
	4.1	3.788,883	2.924,176	.724,590	.252,986	
	4.2	4.052,009	2.652,191	.760,039	.253,453	
	4.3	4.344,030	2.420,720	.792,774	.251,902	
	4.4	4.673,465	2.218,884	.823,218	.248,449	
	4.5	5.052,629	2.038,878	.851,728	.243,117	
.60	4.6	5.500,292	1.874,726	.878,619	.235,820	
	4.7	6.047,110	1.721,420	.904,180	.226,326	
	4.8	6.748,229	1.574,115	.928,709	.214,147	
	4.9	7.719,427	1.426,781	.952,577	.198,259	
	5.0	9.277,961	1.268,376	.976,422	.176,090	
.65	3.4	2.148,737	19.787,487	.224,659	.113,344	
	3.5	2.301,485	11.087,569	.320,606	.155,451	
	3.6	2.458,934	7.826,072	.399,033	.186,026	
	3.7	2.621,957	6.108,466	.466,178	.209,017	
	3.8	2.791,654	5.041,606	.524,936	.226,381	
	3.9	2.969,389	4.309,444	.577,086	.239,341	
	4.0	3.156,858	3.771,736	.623,869	.248,741	
	4.1	3.356,181	3.356,692	.666,221	.255,188	
	4.2	3.570,043	3.023,705	.704,874	.259,124	
	4.3	3.801,897	2.748,036	.740,416	.260,869	
	4.4	4.056,295	2.513,677	.773,329	.260,644	
	4.5	4.339,392	2.309,735	.804,018	.258,586	
	4.6	4.659,833	2.128,413	.832,827	.254,751	
	4.7	5.030,268	1.963,828	.860,060	.249,107	
	4.8	5.470,373	1.811,186	.886,002	.241,512	
	4.9	6.013,117	1.666,144	.910,935	.231,650	
	5.0	6.720,365	1.523,964	.935,187	.218,888	
	5.1	7.731,421	1.377,717	.959,245	.201,844	
	5.2	9.499,657	1.210,910	.984,252	.176,449	
.70	2.4	-15.099,472	.034,294	.344,832	.306,964	
	2.6	-10.989,382	.052,080	.371,620	.316,468	
	2.8	-9.410,658	.066,607	.396,638	.324,101	
	3.0	-8.547,903	.079,808	.420,429	.330,303	
	3.2	-7.999,715	.092,405	.443,374	.335,351	
	3.4	-7.621,294	.104,789	.465,763	.339,427	

SYSTEMS OF DISTRIBUTIONS

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
	3.5	2.064,904	20.669,509	.207,982	.108,682	
	3.6	2.206,288	11.550,302	.300,862	.151,364	
	3.7	2.351,422	8.145,328	.377,511	.182,950	
	3.8	2.501,004	6.355,901	.443,594	.207,155	
	3.9	2.655,908	5.246,239	.501,745	.225,831	
	4.0	2.817,211	4.485,915	.553,588	.240,148	
	4.1	2.986,231	3.928,486	.600,271	.250,923	
	4.2	3.164,601	3.499,043	.642,666	.258,754	
	4.3	3.354,352	3.155,266	.681,461	.264,083	
	4.4	3.558,050	2.871,386	.717,217	.267,237	
.70	4.5	3.778,999	2.630,802	.750,391	.268,452	
	4.6	4.021,528	2.422,216	.781,373	.267,889	
	4.7	4.291,657	2.237,585	.810,504	.265,635	
	4.8	4.597,639	2.070,983	.838,070	.261,707	
	4.9	4.951,833	1.917,688	.864,345	.256,040	
	5.0	5.373,599	1.773,649	.889,595	.248,451	
	5.1	5.895,812	1.634,967	.914,101	.238,573	
	5.2	6.581,989	1.496,888	.938,241	.225,672	.448
	5.2	91.338,036	.626,240	1.009,891	.024,995	.481
	5.3	7.582,697	1.351,595	.962,646	.208,073	
	5.4	9.463,770	1.176,384	.989,158	.180,116	.459
	5.4	24.143,685	.795,161	1.020,155	.085,459	.475
.75	3.6	1.976,147	23.178,840	.183,700	.099,616	
	3.7	2.106,903	12.488,763	.274,997	.143,811	
	3.8	2.240,570	8.693,358	.350,629	.176,932	
	3.9	2.377,704	6.739,858	.416,158	.202,724	
	4.0	2.518,983	5.542,967	.474,074	.223,001	
	4.1	2.665,246	4.729,607	.525,900	.238,910	
	4.2	2.817,505	4.137,092	.572,712	.251,257	
	4.3	2.976,995	3.683,094	.615,331	.260,635	
	4.4	3.145,231	3.321,451	.654,412	.267,495	
	4.5	3.324,090	3.024,255	.690,488	.272,174	
	4.6	3.515,940	2.773,588	.724,005	.274,926	
	4.7	3.723,819	2.557,380	.755,339	.275,933	
	4.8	3.951,733	2.367,130	.784,813	.275,314	
	4.9	4.205,112	2.196,603	.812,712	.273,126	
	5.0	4.491,616	2.040,991	.839,296	.269,365	
	5.1	4.822,540	1.896,371	.864,809	.263,947	
	5.2	5.215,600	1.759,238	.889,506	.256,675	
	5.3	5.701,055	1.625,992	.913,677	.247,168	
	5.4	6.337,490	1.492,063	.937,725	.234,668	
	5.5	7.265,527	1.349,409	.962,387	.217,424	
	5.6	9.042,553	1.172,479	.990,040	.189,144	
.80	2.4	-51.830,506	.008,276	.300,448	.294,710	
	2.6	-13.575,011	.035,149	.327,211	.306,783	

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
	2.8	-10.402,744	.050,383	.351,693	.316,481	
	3.0	-9.042,699	.063,123	.374,598	.324,467	
	3.2	-8.266,036	.074,747	.396,383	.331,139	
	3.4	-7.759,255	.085,816	.417,369	.336,756	
	3.6	-7.402,180	.096,642	.437,802	.341,490	
	3.8	2.005,188	14.088,423	.243,433	.132,523	
	3.9	2.128,310	9,536,006	.318,692	.167,672	
	4.0	2.254,058	7.292,464	.384,089	.195,398	
	4.1	2.382,954	5.950,402	.442,082	.217,549	
	4.2	2.515,643	5.052,465	.494,139	.235,275	
	4.3	2.652,889	4.405,780	.541,280	.249,380	
	4.4	2.795,622	3.914,750	.584,288	.260,466	
	4.5	2.944,950	3.526,664	.623,786	.268,988	
	4.6	3.102,243	3.209,946	.660,291	.275,302	
	4.7	3.269,176	2.944,583	.694,232	.279,677	
	4.8	3.447,850	2.717,202	.725,975	.282,317	
	4.9	3.640,957	2.518,494	.755,834	.283,367	
	5.0	3.852,012	2.341,707	.784,086	.282,921	
	5.1	4.085,768	2.181,764	.810,979	.281,021	
	5.2	4.348,851	2.034,651	.836,744	.277,652	
	5.3	4.651,014	1.897,009	.861,608	.272,729	
	5.4	5.007,227	1.765,773	.885,805	.266,069	.446
	5.4	127.871,979	.565,836	1.008,765	.018,881	.488
	5.5	5.443,170	1.637,666	.909,632	.257,309	
	5.6	6.006,765	1.508,561	.933,483	.245,764	.452
	5.6	39.774,955	.659,943	1.020,886	.056,888	.485
	5.7	6.810,370	1.371,128	.958,109	.229,865	
	5.8	8.262,415	1.203,538	.985,782	.204,366	.462
	5.8	17.769,953	.828,150	1.024,690	.115,049	.477
.85	3.9	1.902,665	16.787,790	.206,462	.117,140	
	4.0	2.016,173	10.806,432	.281,951	.154,823	
	4.1	2.131,610	8.073,311	.347,568	.184,819	
	4.2	2.249,371	6.500,860	.405,907	.209,112	
	4.3	2.369,940	5.474,363	.458,407	.228,876	
	4.4	2.493,891	4.747,781	.506,055	.244,926	
	4.5	2.621,913	4.203,379	.549,601	.257,875	
	4.6	2.754,825	3.777,726	.589,645	.268,192	
	4.7	2.893,606	3.433,609	.626,684	.276,247	
	4.8	3.039,443	3.147,728	.661,137	.282,327	
	4.9	3.193,785	2.904,731	.693,358	.286,658	
	5.0	3.358,435	2.694,051	.723,657	.289,407	
	5.1	3.535,677	2.508,146	.752,300	.290,699	
	5.2	3.728,479	2.341,424	.779,529	.290,612	
	5.3	3.940,791	2.189,602	.805,602	.289,180	
	5.4	4.178,084	2.049,230	.830,608	.286,391	

SYSTEMS OF DISTRIBUTIONS

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
	5.5	4.448,226	1.917,383	.854,872	.282,171	
	5.6	4.763,167	1.791,367	.878,575	.276,361	
	5.7	5.142,502	1.668,345	.901,985	.268,664	
	5.8	5.621,921	1.544,747	.925,472	.258,516	
	5.9	6.278,718	1.414,683	.949,695	.244,716	
	6.0	7.349,728	1.263,208	.976,366	.223,795	
.90	2.6	-33.592,902	.011,700	.282,705	.292,329	
	2.8	-13.000,122	.033,499	.307,232	.304,531	
	3.0	-10.127,315	.046,939	.329,693	.314,506	
	3.2	-8.845,502	.058,259	.350,697	.322,867	
	3.4	-8.099,881	.068,553	.370,641	.329,989	
	3.6	-7.607,169	.078,299	.389,806	.336,120	
	3.8	-7.256,162	.087,759	.408,403	.341,431	
	4.0	1.800,497	21.718,428	.164,187	.097,179	
	4.1	1.905,323	12.777,753	.240,614	.138,007	
	4.2	2.011,500	9.190,589	.306,783	.170,621	
	4.3	2.119,326	7.249,404	.365,687	.197,316	
	4.4	2.229,165	6.027,496	.418,812	.219,336	
	4.5	2.341,442	5.183,828	.467,121	.237,518	
	4.6	2.456,663	4.563,170	.511,340	.252,490	
	4.7	2.575,438	4.084,871	.552,052	.264,738	
	4.8	2.698,458	3.702,858	.589,732	.274,645	
	4.9	2.826,565	3.388,840	.624,789	.282,518	
	5.0	2.960,761	3.124,481	.657,569	.288,601	
	5.1	3.102,260	2.897,372	.688,373	.293,084	
	5.2	3.252,558	2.698,753	.717,465	.296,116	
	5.3	3.413,526	2.522,260	.745,078	.297,803	
	5.4	3.587,559	2.363,101	.771,423	.298,219	
	5.5	3.777,831	2.217,547	.796,693	.297,395	
	5.6	3.988,581	2.082,580	.821,075	.295,329	
	5.7	4.225,887	1.955,617	.844,755	.291,964	
	5.8	4.498,605	1.834,297	.867,932	.287,180	.448
	5.8	59.120,196	.575,085	1.018,859	.041,181	.492
	5.9	4.820,774	1.716,195	.890,842	.280,751	
	6.0	5.216,472	1.598,420	.913,800	.272,267	.453
	6.0	30.499,327	.659,137	1.028,040	.075,191	.490
	6.1	5.733,746	1.476,560	.937,335	.260,897	
	6.2	6.493,030	1.341,580	.962,563	.244,654	.461
	6.2	17.477,803	.787,408	1.030,964	.120,950	.484
.95	4.1	1.699,588	32.697,593	.116,321	.071,877	
	4.2	1.796,609	16.075,642	.194,847	.116,804	
	4.3	1.894,517	10.855,173	.261,911	.152,422	
	4.4	1.993,536	8.293,100	.321,572	.181,784	
	4.5	2.093,931	6.765,394	.375,465	.206,277	
	4.6	2.196,019	5.746,806	.424,566	.226,780	

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
	4.7	2.300,176	5.015,970	.469,582	.243,941	
	4.8	2.406,835	4.463,463	.511,071	.258,261	
	4.9	2.516,503	4.028,950	.549,497	.270,140	
	5.0	2.629,774	3.676,422	.585,253	.279,901	
	5.1	2.747,342	3.383,055	.618,678	.287,808	
	5.2	2.870,034	3.133,656	.650,068	.294,071	
	5.3	2.998,837	2.917,713	.679,680	.298,858	
	5.4	3.134,955	2.727,686	.707,743	.302,302	
	5.5	3.279,872	2.558,012	.734,461	.304,501	
	5.6	3.435,465	2.404,447	.760,020	.305,524	
	5.7	3.604,155	2.263,670	.784,594	.305,409	
	5.8	3.789,145	2.132,979	.808,348	.304,161	
	5.9	3.994,838	2.010,075	.831,446	.301,748	
	6.0	4.227,525	1.892,878	.854,064	.298,088	
	6.1	4.496,684	1.779,331	.876,405	.293,024	
	6.2	4.817,663	1.667,124	.898,725	.286,277	
	6.3	5.218,033	1.553,153	.921,408	.277,334	
	6.4	5.756,297	1.432,089	.945,152	.265,115	
	6.5	6.605,445	1.290,294	.971,796	.246,579	
1.00	2.8	-37.592,244	.009,476	.263,067	.287,757	
	3.0	-13.068,026	.030,050	.285,705	.300,232	
	3.2	-10.102,815	.042,342	.306,405	.310,543	
	3.4	-8.794,494	.052,544	.325,718	.319,287	
	3.6	-8.035,677	.061,736	.344,004	.326,831	
	3.8	-7.534,128	.070,362	.361,514	.333,420	
	4.0	-7.176,003	.078,658	.378,436	.339,226	
	4.2	1.600,580	75.150,186	.060,742	.039,208	
	4.3	1.690,623	22.470,488	.144,684	.090,693	
	4.4	1.781,200	13.522,563	.213,171	.129,853	
	4.5	1.872,416	9.815,940	.273,744	.162,152	
	4.6	1.964,535	7.780,951	.328,516	.189,332	
	4.7	2.057,767	6.490,713	.378,506	.212,344	
	4.8	2.152,385	5.596,230	.424,414	.231,862	
	4.9	2.248,705	4.936,947	.466,778	.248,402	
	5.0	2.347,094	4.428,629	.506,046	.262,382	
	5.1	2.447,971	4.022,929	.542,595	.274,139	
	5.2	2.551,826	3.689,945	.576,758	.283,956	
	5.3	2.659,223	3.410,369	.608,818	.292,058	
	5.4	2.770,828	3.170,981	.639,034	.298,637	
	5.5	2.887,426	2.962,565	.667,625	.303,841	
	5.6	3.009,958	2.778,372	.694,794	.307,793	
	5.7	3.139,573	2.613,392	.720,721	.310,587	
	5.8	3.227,685	2.463,769	.745,571	.312,291	.445
	5.8	430.089,604	.457,211	1.003,780	.006,369	.505
	5.9	3.426,107	2.326,475	.769,498	.312,946	

SYSTEMS OF DISTRIBUTIONS

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
	6.0	3.587,147	2.199,033	.792,649	.312,572	.447
	6.0	88.962,325	.506,919	1.015,738	.029,400	.503
	6.1	3.763,922	2.079,362	.815,170	.311,156	
	6.2	3.960,662	1.965,622	.837,209	.308,651	.450
	6.2	45.442,008	.564,494	1.025,908	.054,855	.500
	6.3	4.183,617	1.856,035	.858,940	.304,955	
	6.4	4.442,055	1.748,775	.880,562	.299,899	.454
	6.4	28.220,140	.634,323	1.033,632	.083,794	.495
	6.5	4.751,381	1.641,619	.902,351	.293,178	
	6.6	5.139,853	1.531,357	.924,740	.284,223	.459
	6.6	18.712,907	.726,605	1.037,381	.118,638	.491
	6.7	5.670,008	1.412,009	.948,578	.271,801	
	6.8	6.548,242	1.265,997	.976,403	.252,039	.467
	6.8	11.916,601	.883,876	1.030,895	.169,214	.483
1.10	3.2	-13.852,552	.025,403	.263,285	.293,931	
	3.4	-10.339,287	.036,992	.282,473	.304,638	
	3.6	-8.891,192	.046,351	.300,308	.313,776	
	3.8	-8.072,533	.054,658	.317,128	.321,722	
	4.0	-7.538,217	.062,361	.333,167	.328,723	
	4.2	-7.159,158	.069,690	.348,599	.334,955	
	4.4	-6.875,177	.076,789	.363,558	.340,545	
	4.6	1.566,446	29.934,881	.104,421	.069,736	
	4.8	1.723,358	11.539,059	.224,684	.142,462	
	5.0	1.881,594	7.407,784	.324,386	.195,730	
	5.2	2.042,396	5.566,600	.409,828	.235,749	
	5.4	2.207,412	4.511,672	.484,085	.265,814	
	5.6	2.378,735	3.818,446	.549,432	.288,197	
	5.8	2.559,062	3.320,515	.607,683	.304,525	
	6.0	2.751,924	2.939,153	.660,306	.315,948	
	6.2	2.962,123	2.632,052	.708,506	.323,255	.449
	6.2	143.908,683	.447,666	1.011,861	.019,594	.513
	6.4	3.196,528	2.374,114	.753,306	.326,939	.451
	6.4	67.123,749	.491,580	1.022,280	.040,216	.510
	6.6	3.465,643	2.149,011	.795,621	.327,221	.453
	6.6	41.372,620	.540,745	1.031,208	.062,428	.508
	6.8	3.787,072	1.944,808	.836,369	.324,003	.456
	6.8	28.436,327	.597,325	1.038,278	.086,719	.504
	7.0	4.194,418	1.750,908	.876,663	.316,694	.458
	7.0	20.562,812	.665,268	1.042,823	.113,982	.499
	7.2	4.767,707	1.553,698	.918,359	.303,526	.463
	7.2	15.090,637	.753,503	1.043,342	.146,217	.494
	7.4	5.828,505	1.316,251	.967,281	.277,327	.470
	7.4	10.591,476	.895,583	1.034,296	.190,774	.487
1.20	3.4	-15.970,470	.019,608	.240,475	.285,684	
	3.6	-10.928,190	.031,116	.258,396	.296,862	

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
1.20	3.8	-9.165,383	.039,921	.274,966	.306,425	
	4.0	-8.223,128	.047,552	.290,517	.314,767	
	4.2	-7.625,278	.054,520	.305,276	.322,152	
	4.4	-7.208,060	.061,068	.319,408	.328,762	
	4.6	-6.898,615	.067,340	.333,039	.334,730	
	4.8	-6.659,188	.073,428	.346,268	.340,156	
	5.0	1.504,554	24.629,355	.109,772	.076,538	
	5.2	1.640,592	11.329,863	.213,057	.141,750	
	5.4	1.776,866	7.592,537	.302,169	.192,248	
	5.6	1.914,189	5.816,981	.380,247	.231,755	
	5.8	2.053,639	4.769,280	.449,194	.262,628	
	6.0	2.196,556	4.070,076	.510,617	.286,644	
	6.2	2.344,573	3.564,053	.565,833	.305,148	
	6.4	2.499,739	3.175,657	.616,017	.319,150	.454
	6.4	279.031,316	.393,802	1.007,361	.010,974	.524
	6.6	2.664,656	2.863,597	.662,127	.329,396	.455
	6.6	103.241,761	.429,494	1.017,806	.028,414	.520
	6.8	2.842,783	2.603,279	.704,984	.336,403	.455
	6.8	60.254,824	.467,777	1.027,166	.046,706	.519
	7.0	3.038,893	2.378,881	.745,312	.340,511	.457
7.0	40.924,528	.509,402	1.035,321	.006,003	.516	
7.2	3.260,024	2.179,429	.783,786	.341,876	.459	
7.2	29.951,982	.555,404	1.042,082	.086,520	.513	
7.4	3.517,314	1.996,529	.821,096	.340,453	.461	
7.4	22.858,841	.607,373	1.047,156	.108,588	.509	
7.6	3.830,466	1.822,637	.858,073	.335,802	.463	
7.6	17.846,178	.668,017	1.050,041	.132,786	.505	
7.8	4.240,062	1.648,878	.895,978	.327,233	.466	
7.8	14.027,244	.742,719	1.049,741	.160,251	.500	
8.0	4.860,272	1.458,202	.937,667	.311,596	.469	
8.0	10.834,182	.845,923	1.043,622	.194,004	.494	
8.2	6.843,275	1.120,217	1.005,757	.262,292		
1.30	3.6	-23.067,957	.011,999	.217,637	.275,532	
	3.8	-12.144,547	.024,763	.234,535	.287,292	
	4.0	-9.695,460	.033,368	.250,053	.297,334	
	4.2	-8.520,489	.040,546	.264,531	.306,095	
	4.4	-7.811,890	.046,961	.278,198	.313,859	
	4.6	-7.331,685	.052,898	.291,217	.320,823	
	4.8	-6.982,128	.058,515	.303,711	.327,129	
	5.0	-6.715,027	.063,907	.315,776	.332,883	
	5.2	-6.503,655	.069,141	.327,486	.338,166	
	5.4	1.425,085	26.161,392	.094,150	.068,983	
	5.6	1.543,343	12.252,089	.185,605	.130,299	
	5.8	1.660,987	8.248,555	.266,743	.179,796	
6.0	1.778,586	6.334,351	.339,205	.219,907		

SYSTEMS OF DISTRIBUTIONS

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
1.30	6.2	1.896,836	5.203,380	.404,104	.252,336	
	6.4	2.016,570	4.449,818	.462,508	.278,480	
	6.6	2.138,776	3.906,432	.515,414	.299,473	.464
	6.6	1068.674,941	.343,231	1.002,307	.003,148	.538
	6.8	2.264,626	3.491,669	.563,708	.316,213	.462
	6.8	175.636,559	.373,613	1.012,699	.018,306	.535
	7.0	2.395,530	3.160,965	.608,167	.329,398	.462
	7.0	90.718,777	.405,331	1.022,231	.033,971	.532
	7.2	2.533,230	2.887,829	.649,463	.339,558	.462
	7.2	58.980,495	.438,693	1.030,852	.050,190	.527
	7.4	2.679,942	2.655,424	.688,184	.347,084	.463
	7.4	42.474,127	.474,114	1.038,502	.067,032	.525
	7.6	2.838,600	2.452,395	.724,860	.352,247	.463
	7.6	32.393,719	.512,100	1.045,086	.084,588	.523
	7.8	3.013,288	2.270,628	.759,982	.355,200	.463
	7.8	25.604,151	.553,350	1.050,476	.102,991	.520
	8.0	3.209,985	2.103,858	.794,047	.355,983	.465
	8.0	20.712,002	.598,834	1.054,476	.122,425	.516
	8.2	3.438,172	1.946,734	.827,611	.354,475	.467
	8.2	16.995,156	.650,088	1.056,786	.143,199	.512
8.4	3.714,468	1.793,804	.861,403	.350,307	.469	
8.4	14.037,471	.709,695	1.056,889	.165,825	.508	
8.6	4.073,061	1.637,734	.896,629	.342,571	.471	
8.6	11.565,804	.782,681	1.053,771	.191,293	.503	
8.8	4.609,258	1.463,001	.936,157	.328,634	.475	
8.8	9.319,875	.883,287	1.044,682	.222,439	.496	
1.40	4.0	-14.974,565	.017,666	.211,123	.275,979	
	4.2	-10.678,314	.026,679	.225,802	.286,596	
	4.4	-9.037,666	.033,671	.239,400	.295,826	
	4.6	-8.133,148	.039,721	.252,158	.303,991	
	4.8	-7.549,300	.045,209	.264,244	.311,311	
	5.0	-7.137,041	.050,324	.275,782	.317,941	
	5.2	-6.828,449	.055,175	.286,866	.323,997	
	5.4	-6.587,772	.059,834	.297,570	.329,566	
	5.6	-6.394,254	.064,350	.307,955	.334,717	
	5.8	1.335,778	34.914,730	.065,509	.050,667	
	6.0	1.439,089	14.541,151	.147,281	.109,513	
	6.2	1.541,259	9.486,348	.221,707	.158,800	
	6.4	1.642,668	7.181,373	.289,470	.200,067	
	6.6	1.743,762	5.853,929	.351,033	.234,452	
	6.8	1.845,063	4.984,891	.407,011	.263,012	
	7.0	1.947,171	4.367,051	.458,084	.286,678	.477
	7.0	382.998,708	.321,306	1.007,066	.009,333	.549
	7.2	2.050,770	3.901,426	.504,914	.306,240	.475
	7.2	147.783,535	.348.841	1.016,661	.023,090	.547

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
	7.4	2.156,648	3.534,741	.548,113	.322,345	.473
	7.4	87.941,534	.377,144	1.025,512	.037,176	.544
	7.6	2.265,717	3.235,742	.588,229	.335,513	.471
	7.6	60.851,776	.406,433	1.033,599	.051,614	.540
	7.8	2.379,061	2.984,841	.625,751	.346,153	.471
	7.8	45.510,760	.436,942	1.040,892	.066,434	.536
	8.0	2.497,998	2.769,079	.661,109	.354,584	.470
	8.0	35.686,133	.468,943	1.047,348	.081,675	.532
	8.2	2.624,184	2.579,473	.694,696	.361,040	.470
	8.2	28.877,247	.502,764	1.052,911	.097,388	.530
	8.4	2.759,772	2.409,497	.726,871	.365,687	.470
	8.4	23.887,441	.538,818	1.057,500	.113,641	.527
	8.6	2.907,683	2.254,170	.757,988	.368,616	.471
	8.6	20.071,147	.577,658	1.061,007	.130,532	.524
	8.8	3.072,082	2.109,431	.788,409	.369,843	.471
	8.8	17.049,615	.620,046	1.063,271	.148,199	.521
	9.0	3.259,287	1.971,638	.818,550	.369,282	.472
	9.0	14.582,546	.667,130	1.064,054	.166,854	.517
1.50	4.2	-28.492,765	.008,116	.188,273	.262,918	
	4.4	-12.725,454	.019,623	.202,338	.274,262	
	4.6	-9.947,745	.026,856	.215,249	.284,055	
	4.8	-8.662,713	.032,764	.227,275	.292,677	
	5.0	-7.899,136	.037,968	.238,597	.300,383	
	5.2	-7.385,558	.042,725	.249,344	.307,348	
	5.4	-7.013,213	.047,172	.259,615	.313,703	
	5.6	-6.729,262	.051,392	.269,485	.319,544	
	5.8	-6.504,675	.055,441	.279,014	.324,948	
	6.0	-6.322,081	.059,357	.288,250	.329,972	
	6.2	1.241,925	74.224,193	.029,369	.024,055	
	6.4	1.332,837	19.550,142	.102,225	.080,710	
	6.6	1.422,317	11.689,779	.170,200	.129,784	
	6.8	1.510,611	8.529,460	.233,508	.172,259	
	7.0	1.598,009	6.815,789	.291,987	.208,693	
	7.2	1.684,839	5.734,788	.345,803	.239,765	
	7.4	1.771,479	4.986,255	.395,319	.266,187	.494
	7.4	285.965,879	.295,486	1.010,569	.013,462	.565
	7.6	1.858,343	4.433,791	.440,973	.288,617	.489
	7.6	141.134,028	.320,658	1.019,547	.025,969	.559
	7.8	1.945,891	4.006,426	.483,218	.307,632	.486
	7.8	90.604,516	.346,186	1.027,880	.038,686	.556
	8.0	2.034,632	3.663,584	.522,485	.323,722	.484
	8.0	65.162,308	.372,225	1.035,564	.051,620	.553
	8.2	2.125,136	3.380,370	.559,172	.337,296	.482
	8.2	49.960,798	.398,933	1.042,588	.064,786	.550
	8.4	2.218,055	3.140,639	.593,641	.348,687	.480

SYSTEMS OF DISTRIBUTIONS

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
	8.4	39.913,293	.426,472	1.048,935	.078,197	.546
	8.6	2.314,143	2.933,435	.626,215	.358,163	.479
	8.6	32.809,870	.455,019	1.054,582	.091,874	.542
	8.8	2.414,297	2.751,024	.657,189	.365,939	.478
	8.8	27.537,890	.484,773	1.059,498	.105,844	.538
	9.0	2.519,614	2.587,749	.686,833	.372,178	.478
	9.0	23.477,378	.515,972	1.063,639	.120,137	.536
1.60	4.6	-19.393,036	.011,222	.179,682	.260,319	
	4.8	-11.764,721	.019,853	.192,107	.270,824	
	5.0	-9.572,915	.025,973	.203,577	.280,000	
	5.2	-8.460,461	.031,092	.214,296	.288,154	
	5.4	-7.770,812	.035,638	.224,408	.295,494	
	5.6	-7.295,292	.039,808	.234,018	.302,170	
	5.8	-6.944,790	.043,708	.243,205	.308,294	
	6.0	-6.674,278	.047,407	.252,032	.313,949	
	6.2	-6.458,354	.050,949	.260,549	.319,202	
	6.4	-6.281,508	.054,367	.268,796	.324,105	
	6.6	-6.133,694	.057,685	.276,808	.328,703	
	6.8	1.227,724	33.643,177	.054,569	.045,824	
	7.0	1.306,854	16.004,244	.115,443	.093,821	
	7.2	1.384,579	10.797,382	.173,857	.136,968	
	7.4	1.461,089	8.295,385	.229,010	.175,152	
	7.6	1.536,602	6.819,265	.280,573	.208,595	.525
	7.6	948.006,675	.242,887	1.004,002	.004,730	.588
	7.8	1.611,358	5.841,132	.328,551	.237,713	.516
	7.8	263.213,429	.266,401	1.013,066	.016,019	.583
	8.0	1.685,620	5.142,031	.373,131	.262,986	.510
	8.0	145.611,833	.289,761	1.021,559	.027,431	.578
	8.2	1.759,670	4.614,790	.414,590	.284,891	.505
	8.2	97.659,754	.313,138	1.029,488	.038,971	.572
	8.4	1.833,815	4.200,761	.453,232	.303,861	.501
	8.4	71.926,959	.336,678	1.036,858	.050,643	.567
	8.6	1.908,383	3.865,138	.489,365	.320,282	.496
	8.6	56.023,617	.360,502	1.043,668	.062,448	.564
	8.8	1.983,728	3.585,977	.523,277	.334,480	.494
	8.8	45.295,590	.384,726	1.049,915	.074,394	.561
	9.0	2.060,241	3.348,706	.555,242	.346,737	.492
	9.0	37.611,345	.409,464	1.055,592	.086,486	.557
1.70	5.0	-17.184,382	.011,817	.169,922	.256,097	
	5.2	-11.378,117	.019,067	.181,019	.265,982	
	5.4	-9.421,267	.024,421	.191,297	.274,688	
	5.6	-8.383,048	.028,941	.200,921	.282,474	
	5.8	-7.725,140	.032,969	.210,010	.289,521	
	6.0	-7.265,397	.036,663	.218,651	.295,960	
	6.2	-6.923,414	.040,116	.226,912	.301,887	

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
1.70	6.4	-6.657,695	.043,384	.234,845	.307,380	
	6.6	-6.444,482	.046,507	.242,493	.312,498	
	6.8	-6.269,114	.049,512	.249,891	.317,288	
	7.0	-6.122,009	.052,421	.257,068	.321,791	
	7.2	-5.996,625	.055,250	.264,049	.326,038	
	7.4	1.196,263	27.202,366	.061,235	.053,076	
	7.6	1.265,466	15.190,980	.113,510	.095,521	
	7.8	1.333,308	10.787,003	.164,494	.134,588	
	8.0	1.399,935	8.494,987	.213,252	.169,866	.560
	8.0	728.317,775	.211,543	1.006,117	.006,981	.612
	8.2	1.465,509	7.084,851	.259,361	.201,365	.548
	8.2	272.008,687	.234,204	1.014,733	.017,371	.602
	8.4	1.530,205	6.126,360	.302,704	.229,307	.538
	8.4	159.456,684	.256,360	1.022,839	.027,833	.597
	8.6	1.594,206	5.429,823	.343,341	.254,005	.529
	8.6	109.508,845	.278,221	1.030,446	.038,368	.592
	8.8	1.657,706	4.898,686	.381,418	.275,795	.523
	8.8	81.706,828	.299,944	1.037,563	.048,974	.586
	9.0	1.720,912	4.478,457	.417,136	.295,010	.518
	9.0	64.184,941	.321,655	1.044,196	.059,654	.580
1.80	5.4	-16.858,349	.011,165	.159,490	.250,554	
	5.6	-11.366,592	.017,631	.169,495	.259,978	
	5.8	-9.443,776	.022,442	.178,779	.268,325	
	6.0	-8.411,013	.026,505	.187,481	.275,824	
	6.2	-7.752,320	.030,121	.195,703	.282,636	
	6.4	-7.290,132	.033,431	.203,519	.288,879	
	6.6	-6.945,320	.036,517	.210,988	.294,643	
	6.8	-6.676,808	.039,431	.218,156	.299,996	
	7.0	-6.460,965	.042,207	.225,060	.304,994	
	7.2	-6.283,161	.044,872	.231,731	.309,682	
	7.4	-6.133,813	.047,443	.238,194	.314,095	
	7.6	-6.006,365	.049,936	.244,472	.318,265	
	7.8	-5.896,163	.052,362	.250,583	.322,216	
	8.0	1.153,421	26.949,058	.056,381	.050,683	
	8.2	1.214,309	15.787,455	.101,521	.088,830	
	8.4	1.273,903	11.404,129	.146,305	.124,868	.612
	8.4	736.198,261	.175,721	1.007,441	.008,193	.644
	8.6	1.332,314	9.057,180	.189,738	.157,889	.593
	8.6	308.231,331	.198,431	1.015,694	.017,797	.632
	8.8	1.389,659	7.591,306	.231,304	.188,017	.576
	8.8	184.953,356	.220,143	1.023,486	.027,435	.621
	9.0	1.446,063	6.585,968	.270,780	.215,210	.564
	9.0	128.000,229	.241,183	1.030,832	.037,108	.613
1.90	5.8	-17.930,823	.009,676	.148,733	.243,913	
	6.0	-11.698,645	.015,755	.157,836	.253,002	

SYSTEMS OF DISTRIBUTIONS

TABLE I cont.

α_3	α_4	c	k	μ	σ	Max f(z)
1.90	6.2	-9.633,781	.020,191	.166,289	.261,080	
	6.4	-8.542,396	.023,909	.174,214	.268,359	
	6.6	-7.851,687	.027,201	.181,699	.274,986	
	6.8	-7.369,225	.030,201	.188,812	.281,072	
	7.0	-7.010,362	.032,989	.195,605	.286,701	
	7.2	-6.731,447	.035,613	.202,119	.291,938	
	7.4	-6.507,581	.038,104	.208,387	.296,833	
	7.6	-6.323,364	.040,488	.214,436	.301,430	
	7.8	-6.168,753	.042,781	.220,290	.305,764	
	8.0	-6.036,889	.044,998	.225,968	.309,861	
	8.2	-5.922,915	.047,148	.231,487	.313,749	
	8.4	-5.823,293	.049,241	.236,861	.317,445	
	8.6	1.103,453	30.794,038	.044,412	.041,546	
	8.8	1.157,414	17.694,521	.083,149	.075,871	.695
	8.8	913.397,254	.132,993	1.008,082	.008,585	.691
	9.0	1.210,157	12.676,607	.122,417	.109,081	.660
	9.0	387.917,363	.157,502	1.016,039	.017,502	.668
	2.00	6.2	-21.416,286	.007,433	.137,895	.236,343
6.4		-12.465,414	.013,546	.146,252	.245,201	
6.6		-10.020,598	.017,762	.154,009	.253,089	
6.8		-8.791,087	.021,232	.161,277	.260,206	
7.0		-8.031,145	.024,275	.168,139	.266,695	
7.2		-7.507,666	.027,031	.174,654	.272,662	
7.4		-7.121,838	.029,578	.180,870	.278,185	
7.6		-6.823,937	.031,965	.186,825	.283,327	
7.8		-6.585,976	.034,223	.192,548	.288,139	
8.0		-6.390,891	.036,377	.198,066	.292,660	
8.2		-6.227,638	.038,442	.203,400	.296,924	
8.4		-6.088,733	.040,431	.208,567	.300,959	
8.6		-5.968,907	.042,356	.213,582	.304,789	
8.8		-5.864,337	.044,223	.218,459	.308,432	