

**78[8].**—ROBERT R. BRITNEY & ROBERT L. WINKLER, *Tables of  $n$ th Order Partial Moments about the Origin for the Standard Normal Distribution,  $n = 1(1)6$* , ms. of four typewritten pp. + 10 computer sheets deposited in the UMT file.

These unpublished tables consist of 11S floating-point decimal values of the integral  $(2\pi)^{-1/2} \int_{-\infty}^z x^n e^{-x^2/2} dx$  for  $z = 0(0.01)5$  and  $n = 1(1)6$ . The underlying extended-precision computer calculations utilized data from the 15D NBS tables [1] of the normal probability function.

The introductory text cites several applications of such tables, with corresponding references to the literature.

These tables supersede the corresponding 7D table of Pearson [2], which is not mentioned by the authors.

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1. NATIONAL BUREAU OF STANDARDS, *Tables of Normal Probability Functions*, Applied Mathematics Series, v. 23, U. S. Government Printing Office, Washington, D. C., 1953.

2. K. PEARSON, EDITOR, *Tables for Statisticians and Biometricians, Part I*, third edition, Biometric Laboratory, University College, London, 1930, pp. 22–23 (Table 9).

**79[8].**—IRWIN GREENBERG, *Tables of the Compound Poisson Process with Normal Compounding*, ms. of 10 pp. + 15 computer sheets, deposited in the UMT file.

These manuscript tables give the cumulative distribution function of a compound Poisson process with normal compounding. This c. d. f. may be expressed as

$$F(z) = e^{-\lambda} + \sum_{n=1}^{\infty} \frac{\lambda^n}{n!} e^{-\lambda} N(z | 0, n)$$

for  $z \geq 0$ , where  $\lambda > 0$  and  $N(z | 0, n)$  denotes the c. d. f. of a normally distributed random variable  $Z$  with mean 0 and variance  $n$ . For  $z < 0$ , the relationship  $F(z) = 1 - F(-z)$  holds. The tables give  $F(z)$  to 5D for 15 values of  $\lambda$  (1(1)5, 10, 15, 20, and their reciprocals) with  $z = 0.00(0.01)4.99$ .

The manuscript describes some properties of the probability function and gives two approximation formulas. A brief table indicates that for selected values of  $z$  and  $\lambda$  a simple approximation to the c. d. f. gives values which differ from the exact values by less than 0.01. Two errors were found in this table. For  $z = 5.0$  and  $\lambda = 20$ , the approximation formula gives 0.8682 (not 0.8708) and the exact value is 0.8708 (not 0.8683).

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**80[10].**—C. J. BOUWKAMP, A. J. W. DUIJVESTIJN & P. MEDEMA, *Table of  $c$ -Nets of Orders 8 to 19, Inclusive*, Philips Research Laboratories, Eindhoven, Netherlands, 1960. Ms. of trimmed and bound computer output sheets in two volumes each of 206 pp., 24 × 30 cm., deposited in the UMT file.

This table is a by-product of the research of the authors on squared rectangles [1], [2], [3]. A *c*-net, as the term is used here, is another name for a 3-connected planar graph; the number of edges is called the order of the *c*-net. Since 3-connected planar graphs are isomorphic with convex polyhedra, the table is also a table of convex polyhedra with up to 19 edges. The method of deriving the table and the program are given in [3], which also lists the nets with 15 and 16 edges. Drawings of the nets with up to 14 edges are given in [1]. (Two missing drawings can be constructed from the last line of data on page 71 of that reference.) The table is referred to in [5] and [6].

The two parts of the table give the same data in two different arrangements. In each part the listing is first by order; in Part I further arrangement is by the "complexity," and in Part II by an identification number. The following is the arrangement of the tabular columns, from left to right.

1. *Order*. In each part orders 8 to 14 are on one page each; order 15, pages 8 and 9; order 16, pages 10–14; order 17, pages 15–28; order 18, pages 29–72; and order 19, pages 73–206.

2. *Complexity*. This is the common absolute value of the cofactors of a certain incidence matrix of the graph, which plays a role in the theory of squared rectangles. It is also equal to the number of spanning trees of the graph. Two different graphs can have the same complexity.

3. *Identification number*. This number is given in octal; if converted to binary, it specifies the upper triangular part of the vertex-vertex incidence matrix of the graph. For further details see [3].

4. *Symmetry*. The degree of symmetry is indicated by the numerals 1, 2, or 3; a blank indicates no symmetry.

5. *Duality*. The letter *S* indicates that the graph is self-dual, otherwise this column is blank. Only one of a dual pair of nets is listed in the table; when the number of faces is different, the one with the greater number is the one included. In Part II the arrangement by the identification number brings together, under each order, the nets with the same number of faces.

6. *Code of the c-nets*. Each vertex of the *c*-net is lettered A, B, C, etc., and the code gives the circuit of each face of the net, repeating at the end the first letter given, with the face circuits separated by spaces.

The correction of an erroneous listing (due to the incorrect replacement of a torn punched card and discovered by J. Haubrich in the preparation of [4]) has been entered in ink on page 37 of Part I and page 34 of Part II.

#### AUTHORS' SUMMARY

1. C. J. BOUWKAMP, "On the dissection of rectangles into squares," *Proc. Acad. Sci. Amst.*, v. 49, 1946, pp. 1176–1188; v. 50, 1947, pp. 58–78, 1296–1299. (Same as *Nederl. Akad. Wetensch. Indag. Math.*, v. 8, 1946, pp. 724–736; v. 9, 1947, pp. 43–63, 622–625.)

2. C. J. BOUWKAMP, A. J. W. DUIJVESTIJN & P. MEDEMA, *Tables Relating to Simple Squared Rectangles of Orders Nine through Fifteen*, Technische Hogeschool, Eindhoven, Netherlands, 1960. (See *Math. Comp.*, v. 15, 1961, p. 315, RMT 84.)

3. A. J. W. DUIJVESTIJN, *Electronic Computation of Squared Rectangles*, Thesis, Technische Hogeschool, Eindhoven, Netherlands, 1962. (Also, in *Philips Res. Rpts.*, v. 17, 1962, pp. 523–613.)

4. C. J. BOUWKAMP, A. J. W. DUIJVESTIJN & J. HAUBRICH, *Catalogue of Simple Perfect Squared Rectangles of Orders 9 through 18*, ms. of 12 volumes, 3090 pp., containing 154490 squared rectangles, Philips Research Laboratories, Eindhoven, Netherlands, 1964.

5. B. GRUNDBAUM, *Convex Polytopes*, Interscience (Wiley), New York, 1967, pp. 48, 289, 431.  
 6. P. J. FEDERICO, "Enumeration of polyhedra: the number of 9-hedra," *J. Combinatorial Theory*, v. 7, 1969, pp. 155-161.

**81[10].**—FRANK HARARY, Editor, *Proof Techniques in Graph Theory*, Academic Press, New York, 1969, xv + 330 pp., 25 cm. Price \$14.50.

This book contains the proceedings of the Second Ann Arbor Graph Theory Conference, held in February 1968, and comprises the following papers.

- F. Harary, The Four Color Conjecture and other Graphical Diseases.  
 L. W. Beineke and J. W. Moon, Several Proofs of the Number of Labeled 2-Dimensional Trees.  
 G. Chartrand and J. B. Frechen, On the Chromatic Number of Permutation Graphs.  
 B. Descartes, The Expanding Unicurse. [A poem.]  
 P. Erdős, Problems and Results in Chromatic Graph Theory.  
 D. Geller, Forbidden Subgraphs.  
 D. Geller and S. Hedetniemi, A Proof Technique in Graph Theory.  
 R. P. Gupta, Independence and Covering Numbers of Line Graphs and Total Graphs. [Abstract only.]  
 R. K. Guy, The Decline and Fall of Zarankiewicz's Theorem.  
 F. Harary, On the Intersection Number of a Graph. [Taken from pages 19, 20 and 25 of F. Harary, *Graph Theory*, Addison-Wesley, Reading, Mass., 1969.]  
 Z. Hedrlín, On Endomorphisms of Graphs and their Homomorphic Images.  
 T. A. Jenkyns and C. St. J. A. Nash-Williams, Counterexamples in the Theory of Well-Quasi-Ordered Sets.  
 W. Kuich and N. Sauer, On the Existence of Certain Minimal Regular  $n$ -Systems with Given Girth.  
 B. Manvel, Reconstruction of Unicyclic Graphs.  
 A. Mowshowitz, The Group of a Graph whose Adjacency Matrix has all Distinct Eigenvalues.  
 U. S. R. Murty, Extremal Nonseparable Graphs of Diameter 2.  
 E. A. Nordhaus, A Class of Strongly Regular Graphs.  
 E. M. Palmer, The Exponentiation Group as the Automorphism Group of a Graph.  
 G. Ringel and J. W. T. Youngs, Remarks on the Heawood Conjecture. [Comments on the same authors' solution of the Heawood map-coloring-problem, *Proc. Nat. Acad. Sci. U.S.A.*, v. 60, 1968, pp. 438-445.]  
 F. S. Roberts, Indifference Graphs.  
 R. W. Robinson, Enumeration of Euler Graphs. [The solution of problem 8 on F. Harary's third list of unsolved graphical enumeration problems—see *Graph Theory and Theoretical Physics*, edited by F. Harary, Academic Press, New York, 1967, p. 30.]  
 J. Turner, A Graph-Theoretical Model for Periodic Discrete Structures. [This is a shortened version of a paper with the same title appearing in *J. Franklin Inst.*, v. 285, 1968, pp. 52-58.]  
 W. T. Tutte, Even and Odd 4-Colorings.