REFERENCES

1. Bolthausen.E. An estimate of the remainder in a combinatorial central limit theorem,Z. Wahrsch. Verw. Gebiete 66(1984) : 397-386.
2. Chen,L.H.Y. and Shao. Q.M. A non-uniform Berry-Esseen bound via Stein's method. Probab. Theory Related Fields 120(2001) : 236-254.
3. Does.R.J.M.M. Berry-Esseen theorem for simple linear rank statistics. Ann. Probability 10(1982) : 982-991.
4. Durrett, R. Probability: Theory and examples.U.S.A. : Brooks/Cole Publish ing Company,1991.
5. Fraser ,D.A.S. Nonparametric Methods in Statistics.New York : Wiley, 1957.
6. Hájek,J. Some extensions of the Wald-Wolfowitz-Neother theorem. Ann.Math. Statist 32(1961) : 506-523.
7. Ho,S.T.,Chen,L.H.Y. An L_p bound for the remainder in a combinatorial central limit theorem, Ann,.Probability 6(1978) : 231-249.
8. Ho,S.T. The remainders in the central limit theorem and in a generalization of Hoeffding's combinatorial limit theorem.M.Sc.thesis,Univ.of Singapore,1975.
9. Hoeffding,W. A combinatorial central limit theotem, Ann.Math.Statist 22(1951) 558-566.
10. Kolchin,V.F. and Chistyakov,V.P. On a combinatorial limit theorem. Theor. Probability Appl 18(1973) : 728-739.

11. Loh,Wei-Yin. A combinatorial central limit theorem for randomized orthogonal array sampling designs. The Annals of Statistics 24, No.3(1996) : 1209-1244.

12. Matoo,M. On the Hoeffding's combinatorial central limit theorem. Ann.Inst. Statist.Math 8 (1957) : 145-154.

13. Puri,M.L. and Sen,P.K. Nonparametric Methods in Multivariate Analysis. New York : Wiley,1971.

14. Robinson,J. A converse to a combinatorial limit theorem. Ann.Math.Statist 43(1972) : 2053-2057.

15. Schneller,W. A Short Proof of Matoo's Combinatorial Central Limit Theorem Using Stein's Method. Probab. Th. Rel.Fields 78(1988) : 249-252.

16. Stein,C. A bound of the error in the normal approximation to the distribution of a sum of dependent random variables. Proc. Sixth Berkeley Symp. Math.Statist. Prob, 2, 583-602. Univ. of California Press,1972.

17. Stein,C. Approximate Computation of Expectations, 7, Lecture Notes-Monograph Series,Purdue University,U.S.A.1986.

18. Von Bahr,B. Remainder term estimate in a combinatorial limit theorem. Z. Wahrsch. Verw. Gebiete 35(1976) : 131-139.

19. Wald,A. and Wolfowitz.J. Statistical tests on permutations of observations. Ann.Math.Statist 15(1944) : 358-372 .

APPENDICES

APPENDIX 1

For $a_1, a_2, a_3, a_4 \geq 0$, we have

$$(a_1 + a_2 + a_3 + a_4)^3 \leq 16(a_1^3 + a_2^3 + a_3^3 + a_4^3).$$

Proof.

First we note that for $0 \leq b \leq a$,

$$(a - b)(a^2 - b^2) \geq 0$$

which implies

$$a^3 + b^3 \geq ab^2 + a^2b, \tag{A1}$$

so

$$\begin{aligned}(a + b)^3 &= (a + b)^2(a + b)\\ &\leq 2(a^2 + b^2)(a + b)\\ &= 2(a^3 + b^3 + a^2b + ab^2)\\ &\leq 4(a^3 + b^3),\end{aligned}$$

where the last inequality come form (A1). Hence

$$\begin{aligned}(a_1 + a_2 + a_3 + a_4)^3 &\leq 4(a_1 + a_2)^3 + 4(a_3 + a_4)^3\\ &\leq 16(a_1^3 + a_2^3 + a_3^3 + a_4^3).\end{aligned}$$

□

APPENDIX 2

For $a, b > 0$ we have

$$\min(a,b) \geq b - \frac{b^2}{4a}.$$

Proof. Let $a, b > 0$.

If $a > b$, then $\min(a,b) = b \geq b - \dfrac{b^2}{4a}$.

Assume that $b > a$, so $\min(a,b) = a$.

Note that

$$\begin{aligned}
(2a-b)^2 &\geq 0 \\
4a^2 - 4ab + b^2 &\geq 0 \\
4a^2 &\geq 4ab - b^2 \\
a &\geq \frac{4ab - b^2}{4a} \\
&= b - \frac{b^2}{4a}.
\end{aligned}$$

Hence $\min(a,b) \geq b - \dfrac{b^2}{4a}$. □

VITA

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