A Proof of a Non-Commutative Central Limit Theorem by the Lindeberg Method

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Abstract

A Central Limit Theorem for non-commutative random variables is proved using the Lindeberg method. The theorem is a generalization of the Central Limit Theorem for free random variables proved by Voiculescu. The Central Limit Theorem in this paper relies on an assumption which is weaker than freeness.

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Bibliography

1. H. Bercovici and V. Pata, Stable laws and domains of attraction in free probability theory *Ann. of Math. (2)* 149 (1999), 1023--1060. Math. Review 1709310
2. G. Chistyakov and F. Gotze, Limit theorems in free probability theory, (2006). Math. Arxiv math.OA/0602219. Math. Review not available
3. K. L. Chung, *A course in probability theory.* Third edition (2001), Academic Press, San Diego, CA. Math. Review 1796326
4. T. Fack, Sur la notion de valeur caracteristique, *J. Operator Theory* 7 (1982), 307--333. Math. Review 0658616
5. I. C. Gohberg and M. G. Krein, *Introduction to the theory of linear nonselfadjoint operators*, (1969), Translated from the Russian by A. Feinstein. Translations of Mathematical Monographs, Amer. Math. Soc., Providence, R.I. Math. Review 0246142,
6. J. W. Lindeberg, Eine neue Herleitung des Exponentialgesetzes in der Wahrscheinlichkeitsrechnung, *Math. Z.* 15 (1922), 211--225. Math. Review 1544569
7. R. C. Lyndon and P. E. Schupp, *Combinatorial group theory.* (1977), Springer, Berlin. Math. Review 0577064
8. A. N. Shiryayev, *Probability.* (1984), Translated from the Russian by R. P. Boas, Springer, New York. Math. Review 0737192
9. M. Takesaki, *Theory of operator algebras. I.* (1979), Springer, New York. Math. Review 0548728
10. D. Voiculescu, Lectures on free probability theory, in *Lectures on probability theory and statistics (Saint-Flour, 1998)*, 279--349, Lecture Notes in Math., 1738, Springer, Berlin. Math. Review 1775641
11. D. Voiculescu, Symmetries of some reduced free product C*-algebras, in *Operator algebras and their connections with topology and ergodic theory (Busteni, 1983)*, 556--588, Lecture Notes in Math., 1132, Springer, Berlin. Math. Review 0799593
12. D. Voiculescu, Limit laws for random matrices and free products, *Invent. Math.* 104 (1991), 201--220. Math. Review 1094052