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ASYMPTOTIC EXPANSIONS FOR CONDITIONAL DISTRIBUTIONS: THE LATTICE CASE

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Abstract: It is shown that the conditional distribution of $X_1 + ... + X_n$, given $Y_1 + ... + Y_n = y$, admits an asymptotic expansion whenever $(X_1, Y_1),\ (X_2, Y_2), ...$ is a sequence of independent identically distributed lattice random vectors and y lies in a set $A(n)$ for which $P\{Y_1 + ... + Y_n \in A(n)\}$ can be neglected. Explicit formulas are given for the terms of order $n^{-1/2}$ and n^{-1}.

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