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Caroline J Klivans* (cjk@math.uchicago.edu), 1100 E. 58th Street, Chicago, IL 60637, and
Vic Reiner. *Generalized degree sequences and plethysm.*

I will begin by recalling the well-known connection between graph degree sequences and the $k = 2$ case of the problem of expanding plethysms $e_m[e_k]$ of elementary symmetric functions in terms of Schur functions s_λ . This problem was solved by the identity due to Littlewood:

$$\sum_{\text{all graphs } K} x^{d(K)} \left(= \prod_{i < j} (1 + x_i x_j) = \sum_{m \geq 0} e_m[e_2] \right) = \sum_{\text{shifted } K} s_{d(K)}.$$

We show that natural generalizations for $k > 2$ in terms of arbitrary shifted families, while *not* being equal, do have many properties in common. In particular, they have the same monomial support, extra symmetries and the Schur expansion for the plethysm is coefficientwise larger than for the shifted families.

I will end with a conjecture on further relations between these expansions. (Received February 04, 2008)