

Errata for the book *Orthogonal polynomials of several variables*,
Second edition, 2014, by C. F. Dunkl and Y. Xu

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These are errata for the book

C. F. Dunkl and Y. Xu, *Orthogonal polynomials of several variables*, Cambridge University Press, Second edition, 2014, ISBN 9781107071896 (hardcopy) and 9781316057179 (eBook). Errors given below may not occur in all versions of the eBook and the hardcopy. Furthermore, page numbers are omitted below, because more recent eBook versions do not give page numbers

Section 2.4, formula in Proposition 2.4.3:

Replace $[W_{\alpha,\beta,\gamma}(x)]^{-1}$ by $[x^\alpha y^\beta (1-x-y)^\gamma]^{-1}$.

Section 2.4, formula before Proposition 2.4.4: The quotient in the second line of the formula for $V_{m,n}^{(\alpha,\beta,\gamma)}(x,y)$ should read:

$$\frac{(\alpha+1)_m(\beta+1)_n(\alpha+\beta+\gamma+2)_{n+m+i+j}}{(\alpha+1)_i(\beta+1)_j(\alpha+\beta+\gamma+2)_{2n+2m}}$$

Furthermore, replace $x^j y^j$ by $x^i y^j$.

Section 2.4, formula in Proposition 2.4.4: The quotient on the right-hand side should read:

$$\frac{(-1)^n(\alpha+1)_k(\beta+1)_{n-k}(\gamma+1)_n k!(n-k)!}{(\alpha+\beta+\gamma+3)_{2n}}$$

Section 2.5, fifth item in classification by Krall and Sheffer [1967]: The pde in item 5 should read as:

$$\begin{aligned} x(1-x)v_{xx} - 2xyv_{xy} + y(1-y)v_{yy} - [(\alpha+\beta+\gamma+3)x - (\alpha+1)]v_x \\ - [(\alpha+\beta+\gamma+3)y - (\beta+1)]v_y = -n(n+\alpha+\beta+\gamma+2)v. \end{aligned}$$

Section 2.6.3, Disk polynomials, Proposition 2.6.7(i): The proof given in the book is not correct. An alternative proof is by a special case of Theorem 2 in the paper

J. M. Carnicer, E. Mainar and J. M. Peña, *Stability properties of disk polynomials*, Numer. Algorithms (2020), <https://doi.org/10.1007/s11075-020-00960-3>.

There are also proofs by using the product formula or addition formula for disk polynomials. See §A.1 in

T. Koornwinder, A. Kostenko and G. Teschl, *Jacobi polynomials, Bernstein-type inequalities and dispersion estimates for the discrete Laguerre operator*, [arXiv:1602.08626v3](https://arxiv.org/abs/1602.08626v3) [math.CA].