Errata and comments for the book *Special functions*
by G. E. Andrews, R. Askey and R. Roy

collected by Tom Koornwinder, `T.H.Koornwinder@uva.nl`

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These are errata and comments for the (very slightly corrected) 2000 softcover version of the book

G. E. Andrews, R. Askey and R. Roy, *Special Functions*, Cambridge University Press, 1999, ISBN 0-521-62321-9.

p.ix, 7.4: Replace "Bieberback" by "Bieberbach".

p.39, fourth line from below: Replace $x(1-x)$ by $x(1-x)^{-1}$.

p.40: It is confusing to write $\chi\eta \neq e$ in line 4 and write $\chi\eta \neq id$ in line 8.

p.53, Exercise 34: Replace $a^{p-1/2}$ by $a^{(p-1)/2}$.

p.53, Exercise 36(a): Replace $(-\frac{1}{p})$ by (the Legendre symbol) $(\frac{-1}{p})$.

p.94, Section 2.5:
Better call this Section "Contiguous relations and Jacobi polynomials".

p.99, (2.5.13): Replace $\frac{d^n}{dx^n}$ by $\frac{d^n}{dy^n}$.

p.99, Remark 2.5.1: (5.13) $\to$ (2.5.13)

p.101, three lines below (2.5.17): $T_x(x) \to T_n(x)$

p.108, 7th line: Replace $(k-m+n)$ by $(k+m-n)$.

p.110, Proof of Theorem 2.8.1: In the formula on the second line of the proof insert a minus sign at the beginning of the right-hand side.

p.111, fourth line from below: Replace $\int_a^{t_{n-1}}$ by $\int_a^{t_{n-2}}$.

p.115, Exercise 4(a): $\frac{1}{2}((1+x)^n + (1-x)^n) \to \frac{1}{2}((1+x)^{n+1} + (1-x)^{n+1})$

p.121, Exercise 39(b): On the third line replace $+\frac{x(1-y)}{y(1-x)}\Big]$ by $+\operatorname{Li}_2\left[\frac{x(1-y)}{y(1-x)}\right]$.
Also replace on that line $\log 2y$ by $\log^2 y$.

p.145, Corollary 3.4.3: This is also a terminating case of (2.2.10).

p.146, Proof of Theorem 3.4.4, l.7: The numerator should have additional factors $(-1)^r(a-b-c+1)_r$.

p.156, l.2: Replace "Theorem 3.3.1" by "Theorem 3.3.3".

p.169, 6th line from below: Replace $\frac{ab(1-n)}{c(2-n+a+b-c)}$ by $\frac{ab(-n)}{c(1-n+a+b-c)}$.

p.169, 5th line from below: Replace $\frac{(2-n)ab}{c(3-n+a+b-c)}$ by $\frac{(1-n)ab}{c(2-n+a+b-c)}$.

p.177, Exercise 3(b): The Gamma quotient on the right-hand side should be

$$\frac{\Gamma(a+\frac{3}{4})\Gamma(1/2)}{\Gamma((2a+3)/4)\Gamma((a+1)/2)}$$

p.201, line after (4.5.9): Replace $x = 1/2$ by $a = 1/2$, and replace $\alpha^2 = 1/a$ by $\alpha = 1/3$.

p.253, Theorem 5.4.1: Even better, the Theorem holds with on l.3 $[a, b]$ being replaced by (a, b). Then also make this replacement on l.1 of the Proof.

p.283, (6.2.4): The interchange of summation in the second equality has to be justified. This can be done by dominated convergence. Just observe that the double sum in the fourth expression converges absolutely if $\alpha > -1$ and $r, x \in \mathbb{C}$ with $|r| < 1$. The generating function is valid under these constraints.

p.300, Remark 6.4.1: Write that the expression with the n-th derivative is equal to $P_n^{(\alpha,\beta)}(x)$ and observe that this is the Rodrigues formula (2.5.13´) for Jacobi polynomials.

p.306, (6.4.26): Replace x/λ by $x/\lambda^{\frac{1}{2}}$.

p.344, Exercise 27: Refer for the Rodrigues formula to (2.5.13´).

p.362, (7.1.14): The ratio of shifted factorials $\frac{(\beta+1)_n}{(\alpha+\beta+2)_n}$ right after the equation mark should be deleted.

p.484, third line after (10.0.8):
Replace $y(xy) = (yx)y = q(xy)y$ by $(xy)x = x(yx) = qx(xy)$.

p.495, Proof of Theorem 3.3.3: This is essentially the proof given in Appendix B of Koornwinder [1990].

p.500, (10.4.8) and p.501, l.6: In the denominator after the product sign replace $(1-q)^{2n+1}$ by $(1-q)^{2n-1}$.

p.527, (10.11.1): In the first line replace $(\beta; q)_n$ by $(\beta; q)_k$.

p.589, line 7: This math equation should be labelled by equation number (12.3.8). Reference to (12.3.8) is later made on p.591, Exercise 6.

p.627, Exercise 2, l.3: $\frac{B_j}{j} \to \frac{B_j}{j!}$

p.646, reference to Gegenbauer: Replace 1875 by 1874.

p.660: Add the subject index item:
Legendre symbol, 53

p.663: Insert after $(a; q)_n$ the symbol index item:
$(\frac{a}{p})$, 53