MATHEMATICS OF COMPUTATION
Volume 67, Number 224, October 1998, Pages 1753–1754
S 0025-5718(98)01049-7

TABLE ERRATA

634.—*Table of integrals, series, and products*, by I. S. Gradshteyn and I. M. Ryzhik, 5th ed. (A. Jeffrey, ed.) (translated from the Russian by Scripta Technica, Inc.), Academic Press, Boston, 1994

Page	*Formula*	
701	**6.532 1.**	Replace the right-hand side by the following two equivalent forms: $= \frac{i}{a}[S_{0,\nu}(ia) - e^{-\frac{1}{2}i\nu\pi}K_\nu(a)] = \frac{1}{a}[is_{0,\nu}(ia) + \frac{\pi}{2}\sec\frac{\nu\pi}{2}I_\nu(a)]$ Delete ET II 340 (2). The formula in [1, No. 19.2 (2)] is also incorrect.
710	**6.565 8.**	Add $\operatorname{Re} k > 0$ to the restrictions.
757	**6.681 13.**	For $\frac{\pi^2}{4}$ read $\frac{\pi}{2}$.
1000	**8.570 2.**	Delete both sets of restrictions accompanying the two definitions of $S_{\mu,\nu}(z)$.
1001	**8.576**	This formula is incorrect. Replace the entry by
	8.576	Asymptotic expansion of $S_{\mu,\nu}(z)$:

$$S_{\mu,\nu}(z) \sim z^{\mu-1} \sum_{m=0}^{\infty} (-1)^m \left(\frac{1}{2} - \frac{\mu}{2} + \frac{\nu}{2}\right)_m \left(\frac{1}{2} - \frac{\mu}{2} - \frac{\nu}{2}\right)_m \left(\frac{z}{2}\right)^{-2m} \qquad \text{WA 347, 352}$$

$$[|z| \to \infty, |\arg z| < \pi].$$

The series terminates and is equal to $S_{\mu,\nu}(z)$ when $\mu \pm \nu$ is a positive odd integer.

References

1. A. Erdélyi et al., Tables of integral transforms, Vol. II. McGraw-Hill, New York, 1954.

Note on formulas 8.570 2

My intent was to have *no restrictions whatsoever* in the two formulas in 8.570 2. I will refer to these formulas as (a) and (b). In the annotated version I received from Dr. Wahlbin, (a) is to be written with the restriction "ν is not an integer", and (b) is to be written with the restriction "ν is an integer". For the following reasons, I find my original plan preferable.

Formula (a) becomes indeterminate in three cases:

(1) when ν is an integer (because $\sin\nu\pi$ appears in the denominator);
(2) when $\mu+\nu$ is an odd negative integer (because $s_{\mu,\nu}(z)$ and the second gamma function are undefined);
(3) when $\mu-\nu$ is an odd negative integer (because $s_{\mu,\nu}(z)$ and the first gamma function are undefined).

Formula (b) can be derived from (a) by substitution of $J_{-\nu}(z)$ from 8.403 1. Formula (b) is no longer indeterminate when ν is an integer, so that $S_{\mu,\nu}(z)$ has a limit in case (1) above.

It is shown in [1] that $S_{\mu,\nu}(z)$ has a limit in cases (2) and (3) above.

It follows from the above discussion that no restrictions are necessary in (b). Furthermore, since the indeterminacies in (1), (2) and (3) are of the same type (removable singularities), it seems inconsistent to exclude (1) in (a) but not (2) and (3).

In any case, having no restrictions whatsoever agrees with the definitions in [2], and is consistent with the discussions in [1] and [3].

References

1. G. N. Watson, *A treatise on the theory of Bessel functions*, 2nd edition, Cambridge Mathematical Library edition 1995, Cambridge University Press, pp. 347–349.
2. W. Magnus, F. Oberhettinger and R. P. Soni, *Formulas and theorems for the special functions of mathematical physics*, 3rd enlarged edition, Springer-Verlag, New York, Inc., 1966, pp. 108–109.
3. A. Erdélyi et. al., *Higher transcendental functions*, Vol. II, McGraw-Hill, New York, 1953, pp. 40–41. (Two lines after eqn. (69), for integer read negative integer.)

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