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Erratum

Volume 49, Number 4 (1987), in the article "Uniform Inequalities for Ultraspherical Polynomials and Bessel Functions of Fractional Order," by A. K. Common, pages 331–339: The proof of Lemma 1 incorrectly uses inequality (8) of [1]. As $\frac{1}{2} \leqslant \alpha \leqslant 1$ we should have used instead inequality (10) of this reference. The lemma still holds but the last three lines of the proof should be replaced by

$$\geqslant \left[\frac{\Gamma(\alpha)(n+\alpha)^{\alpha}}{2^{1-\alpha}\Gamma(2\alpha)}\right]^{2/\alpha} - \frac{n(n+2\alpha)}{\alpha(1+2\alpha)}$$

$$\geqslant (n+\alpha)^2 \left\{\left[\frac{\Gamma(\alpha)}{\Gamma(2\alpha)\, 2^{1-\alpha}}\right]^{2/\alpha} - \frac{1}{\alpha(2\alpha+1)}\right\}$$

$$\geqslant \frac{n^2}{4}\left\{\frac{\pi^{1/\alpha}}{[\Gamma(\alpha+\frac{1}{2})]^{2/\alpha}} - \frac{4}{\alpha(2\alpha+1)}\right\}.$$

The last inequality follows from the positivity for $\frac{1}{2} \leqslant \alpha \leqslant 1$ of the term in $\{\cdots\}$ which may be proved using Lemma 3.

There is also a mistake in inequality (26) which should be

$$\beta \geqslant (2\alpha+1)^{-1}\{\cdots\}^{-1}.$$

As a consequence a new Lemma 4 is required and may be stated as follows:

"For $\frac{1}{2} > \alpha \geqslant 0.123$,

$$\alpha \geqslant (2\alpha+1)^{-1}\{\cdots\}^{-1}."$$

The method of proof is unchanged but the lemma holds in a reduced interval. As a result in the definitions of values for α, 0.065 has to be replaced by 0.123 wherever it occurs. Also Eq. (5) has to be changed to

$$f(\alpha) \equiv (2\alpha+1)^{-1}\{\cdots\}^{-1}.$$

The main result (3) is made only marginally weaker by these changes.

Finally, we note the following typographical errors:

(a) The middle minus sign in the equation following (8) should be a plus sign;

(b) In (23) the denominator should be $\alpha(2\alpha+1)$ and not $2(2\alpha+1)$;

(c) There is a missing exponent "2" on the bracket $[\cdots]$ in (21).

We thank the reviewer of this article (for *Mathematical Reviews*), Professor E. R. Love, who pointed out the error in the proof of Lemma 1 and also some typographical errors.