

Errata: Fourier Transforms and Non-compact Rotation Groups, Vol. 24 (1974), 499–526

ROBERT S. STRICHARTZ

Theorem 1 in the cited paper [2] is true as stated in all cases except the following: α is a positive integer, n is even, and $q + \sigma + \varepsilon$ and $p + \sigma - \varepsilon$ are even. Corollary 2 and the example that follows it concern this case, and are false. None of the other applications in the paper are affected by this correction.

The proof of the theorem for α not an integer contains an error: at the bottom of page 512 it is tacitly assumed that $\square^k(Q(x, x)_+^j g(x)) = 0$ if $k > j$, whereas in fact this is a singular distribution supported on the cone. However, the additional singular terms arising from the three integrals I_1, I_2, I_3 will cancel in the expression for the Fourier transform, so for non-integer α the error can be corrected without changing the statement of the theorem. The statement of the theorem for α an integer can be correctly interpreted by analytic continuation as indicated in the remarks following the statement of the theorem in all cases except the one mentioned above. In that case the statement involves the product of a coefficient which vanishes times a distribution that becomes singular.

To give the correct statement in the remaining case we define distributions supported on the cone by

$$\begin{aligned}\delta^{(k)}(Q)g &= (-1)^k k! \operatorname{res}_{\lambda=-k-1} Q(x, x)_+^\lambda g(x) \\ &= k! \operatorname{res}_{\lambda=-k-1} Q(x, x)_-^\lambda g(x)\end{aligned}$$

(see [1, Chapter III 2.2] for the case $g \equiv 1$) for $k \leq \alpha - 1$, as can be justified by Lemma 1 of [2]. In terms of these distributions we can compute

$$\begin{aligned}\square^k(Q(x, x)_+^j g(x)) &= \frac{2^{2k} j! \Gamma(\alpha + j + 1)}{\Gamma(\alpha + j + 1 - k)} \delta^{(k-j-1)}(Q)g \\ \square^k(Q(x, x)_-^j g(x)) &= \frac{(-1)^{j+1} 2^{2k} j! \Gamma(\alpha + j + 1)}{\Gamma(\alpha + j + 1 - k)} \delta^{(k-j-1)}(Q)g\end{aligned}$$