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CORRIGENDUM

'The fundamental matrix in three-dimensional dissipative gasdynamics',

by ERIC P. SALATHE, *J. Fluid Mech.* vol. **39**, 1969, p. 209.

The structure of the Mach cone (§4) was found in terms of the function

$$g = c_1 g_1 + c_2 g_2$$

(p. 222), where g_1 and g_2 are given by (4.22), (4.23). One condition on the constants c_1, c_2 is given by (4.26). Following (4.26), a second condition is discussed which concludes that $c_1 = 0$. It has been pointed out to the author by Professor L. Sirovich that this discussion is in error and the conclusion $c_1 = 0$ is incorrect.

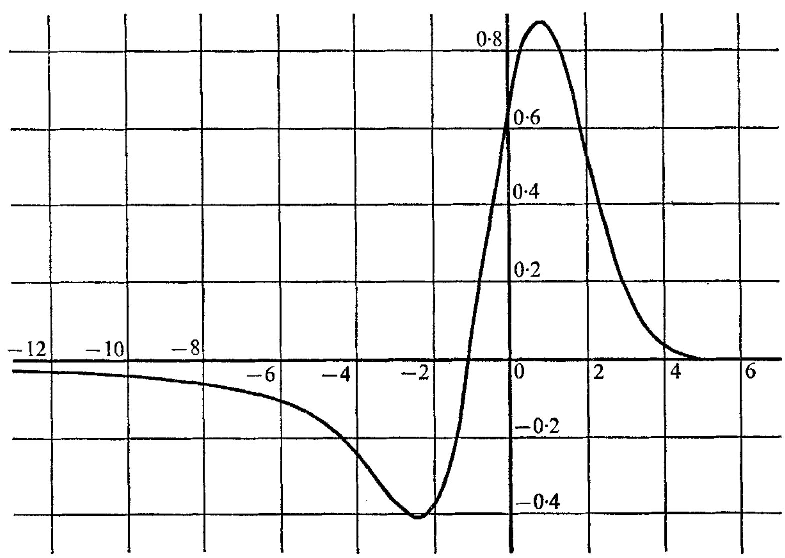

FIGURE 1. The function $L(\tau/\sqrt{h})$, which describes the structure of the Mach cone.

A much simpler means of determining a second condition on g will be given here. Equation (4.26) represents a matching with the inviscid solution as $\tau \to -\infty$. In a similar fashion, the solution can be matched to the uniform freestream as $\tau \to +\infty$. Using (4.24), (4.25) and the fact that the perturbations vanish as $\tau \to +\infty$ yields

$$c_1 [\Gamma(\tfrac{1}{2})/\Gamma(-\tfrac{1}{4})] - c_2 [\Gamma(\tfrac{3}{2})/\Gamma(\tfrac{1}{4})] = 0. \qquad (*)$$

Equations (4.26) and (*) determine c_1 and c_2, and the final solution is again given by (4.32) except that now

$$L(\tau/\sqrt{h}) = \tfrac{1}{2}\{(\tau/\sqrt{h})\, H(\tfrac{5}{4}, \tfrac{3}{2}, -\tau^2/4h) - [\Gamma(-\tfrac{1}{4})/\Gamma(\tfrac{1}{4})]\, H(\tfrac{3}{2}, \tfrac{1}{2}, -\tau^2/4h)\}.$$

$L(x)$ is plotted in figure 1. As $x \to -\infty$, $L(x) \sim -1{\cdot}382|x|^{\frac{3}{2}}$. The definition of τ (p. 220) should contain a factor $U^{\frac{1}{2}}$, which contributes a $U^{\frac{3}{4}}$ to the expression for B (p. 221) and $\mathbf{V}$ (equation (4.32)). Also, (4.32) can be reduced to the form

$$\mathbf{V} = 0{\cdot}191\, [(U^2-\gamma)^{\frac{1}{8}}/\gamma^{\frac{1}{2}}[\gamma\zeta + \gamma\eta + (\gamma-1)\xi]^{\frac{3}{4}}\, h^{\frac{5}{4}}]\, \mathbf{YY} L(\tau/\sqrt{h})$$