Abstract Submitted
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Drag calculations using the inviscid Euler equations alone GALEN GISLER, PGP/University of Oslo — Recently Hoffman and Johnson[1] have proposed a new resolution of d'Alembert's Paradox, the problem that inviscid potential flow predicts zero drag on a body, in contrast to observations. They reject the commonly accepted resolution, that drag results from the very thin viscous boundary layer between the no-slip condition on the surface of the body and the free-flowing fluid. Instead they argue that drag results from turbulence in the body's wake, even if free-slip is assumed. They used a finite-volume code to verify their conclusions. While their calculations look promising, and offer prospects for calculation of rather more complex flows at modest resolution, it is desirable to perform independent verification. I will present independent tests of the Hoffman-Johnson resolution using a finite-volume Euler-equation code, studying the dependence of the inferred drag on meshing style and resolution.

[1] Johan Hoffman and Claes Johnson, J. Math. Fl. Dyn. 12, 321-334 (2010).

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