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Vortices Behind Asymmetric Bodies Forming Closed Wakes ALAN ELCRAT, KEN MILLER, Wichita State University, LUCA ZANNETTI, Politecnico di Torino — We describe flows past bodies in 2D inviscid flow which are uniform at infinity, and in which there are two point vortices standing in equilibrium with the flow. The bodies are not symmetric, and in general there is a circulation around the body plus vortices. This model then has three degrees of freedom which can be reduced by specifying separation points on the body. In particular for bodies with sharp corners the Kutta condition can be imposed at these corners. There results a model for the wake in which, in general, there is flow from upstream infinity to downstream infinity through the recirculation region ie the separating streamlines do not rejoin. The wake is not closed. We give examples in which the remaining free parameters can be used to force closure of the wake ie to have a closed recirculation region. These include arcs for which the Kutta condition is imposed at each end and Joukouski airfoils with the Kutta condition imposed at the trailing edge.

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