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Continuation of weak solutions of systems of conservation laws.

Sufficient conditions are established for the continuation of weak solutions of nonlinear systems of conservation laws as the initial/boundary data is varied. The symmetric form of the given system is essential in this discussion, but neither a single space dimension nor small data is assumed. The results illuminate specific obstacles to obtaining existence theorems by this means. Perhaps unsurprisingly, in the case of multiple space dimensions, the principal difficulty is the need to solve a class of generalized Riemann problems. In the case of a single space dimension, the familiar obstacles to continuation to large data are possible blowup in L-infinity and the appearance of classically unsolvable Riemann problems. It is seen here that in the absence of such phenomena, continuation to large data is broadly possible. (Received June 11, 2012)