On equivalent descriptions of boundary conditions for Friedrichs systems

Abstract. Recently a new view on the theory of Friedrichs systems has been proposed, rewriting them in terms of Hilbert spaces, and a new way of representing the boundary conditions has been introduced. The admissible boundary conditions are characterised by two intrinsic geometric conditions in the graph space, thus avoiding the traces at the boundary. Another representation of boundary conditions via boundary operators has been discussed as well, which is equivalent to the intrinsic one (with boundary conditions enforced by two geometric requirements) if the sum of two specific subspaces $V$ and $\widetilde{A}$ of the graph space is closed. However, the validity of the last condition was left open. We give a simple criterion (corresponding to the case of one space dimension) which ensures that $V + \widetilde{A}$ is closed in the graph space. In the case of one equation in one space dimension we also give a complete classification of admissible boundary conditions.