Sesquilinear forms corresponding to a non-semibounded Sturm-Liouville operator

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Let $-DpD$ be a differential operator on the compact interval $[-b, b]$ whose leading coefficient is positive on $(0, b]$ and negative on $[-b, 0)$ with fixed separated selfadjoint boundary conditions at b and $-b$ and an additional interface condition at 0. The selfadjoint extensions of the corresponding minimal differential operator are non-semibounded and related to non-semibounded sesquilinear forms by a generalization of Kato's representation theorems. The theory of non-semibounded sesquilinear forms is applied to this concrete situation. In particular, the generalized Friedrichs extension is obtained as the operator associated to the unique regular closure of the minimal sesquilinear form. Moreover, among all closed forms associated to the selfadjoint extensions the *regular* closed forms are identified (with two exceptions).