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Signed integral functionals in BV without prescribed boundary data

We characterize weak* lower semicontinuity in BV, for integral functionals with linear growth. They are “signed” in the sense that linear growth of the negative part is also allowed. Unlike earlier work of J. Kristensen and F. Rindler, we do not prescribe Dirichlet boundary data (or, equivalently, add corresponding jump terms on the boundary). Besides quasiconvexity, another condition on the integrand then appears, accounting for concentration effects at the boundary.

This is joint work with B. Benešová (Aachen) and M. Kružík (Prague).