Abstract: Adjoints are used in optimization to speed-up computations (e.g. optimal shape design), also when the system has to be solved a large number of time (Dupire’s equation in finance), or simplify to compute sensitivities. Because time is reversed in adjoint equations with first order time derivatives, boundary conditions and transmission conditions through singularities and shocks can be difficult to understand. The difficulties do not show in the discrete adjoints but it has not been proved that the discrete adjoint converges to the continuous adjoints. In this talk we shall show numerically on examples that even in the presence of singularities the discrete adjoints obtained by automatic differentiation or hand calculations converge to the continuous adjoints.