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An existence theorem of positive solutions to a singular nonlinear boundary value problem

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Abstract: In this note we consider the boundary value problem $y'' = f(x, y, y')$ $(x \in [0, X]; X > 0)$, $y(0) = 0$, $y(X) = a > 0$; where f is a real function which may be singular at $y = 0$. We prove an existence theorem of positive solutions to the previous problem, under different hypotheses of Theorem 2 of L.E. Bobisud [J. Math. Anal. Appl. 173 (1993), 69–83], that extends and improves Theorem 3.2 of D. O'Regan [J. Differential Equations 84 (1990), 228–251].

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