Bifurcation of positive and negative continua for quasilinear ODE involving nonlinearities depending on derivative

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Abstract. Let us consider boundary value problem

$$\begin{cases} -\left(|u'|^{p-2}u'\right)' &= \lambda|u|^{p-2}u + g\left(\lambda; x, u, u'\right), \\ u(0) &= u(1) = 0\,, \end{cases}$$

where $p > 1$ and $\lambda \in \mathbb{R}$ are parameters, and $g(\lambda, x, u, u')$ is Carathéodory function such that there exists $a(x) \in L^\infty(0,1)$ which satisfies $|g(\lambda, x, u, u')| \leq a(x)$. We study a bifurcation phenomena for λ near μ_1 which is the first eigenvalue of the problem

$$\begin{cases} -\left(|u'|^{p-2}u'\right)' &= \mu|u|^{p-2}u \\ u(0) &= u(1) = 0\,. \end{cases}$$

We show that Dancer's type bifurcation from the infinity occurs for $\lambda = \mu_1$.