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Matthew Rudd* (mrudd@uidaho.edu), Department of Mathematics, University of Idaho, P.O. Box 441103, Moscow, ID 83844-1103. *Analysis of a family of model quasilinear boundary-value problems*. Preliminary report.

I will discuss solvability results for quasilinear boundary-value problems of the form

$$-r^{-\gamma} (\varphi(u'))' = f(u), \quad 0 < r < 1, \quad u'(0) = u(1) = 0,$$

where $f(\cdot)$ is a step function defined by the constants K and L . The specific focus will be determining regions in the (K, L) -plane where this problem has positive or sign-changing solutions. (Received September 14, 2006)