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## ON THE EXISTENCE OF A DOUBLE S-SHAPED BIFURCATION CURVE

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We analyze the structure of the bifurcation curve of positive solutions to the two-point boundary value problem,

$$-u'' = \lambda e^{\frac{\beta u}{\beta+u}}; \quad (0, 1)$$

with nonlinear boundary conditions:

$$\begin{aligned} -\alpha(x, u)u' + [1 - \alpha(x, u)]u &= 0; & x = 0 \\ \alpha(x, u)u' + [1 - \alpha(x, u)]u &= 0; & x = 1. \end{aligned}$$

Here,  $\beta$  and  $\lambda$  are positive parameters and  $\alpha(x, u)$  is the fraction of what  $u$  represents that remains on the boundary. In particular, we consider the case when

$$\begin{aligned} \alpha(x, u) &= 0; & x = 0 \\ \alpha(x, u) &= \frac{u}{u+1}; & x = 1. \end{aligned}$$

We will discuss the existence of 6 positive solutions for a certain range of  $\lambda$  when  $\beta$  is sufficiently large.

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