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1.1.0 Introduction

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In this section, we explore another example of a bifurcation in the context of two species competing for the same resources. John Wesley (Wes) Cain, a bio-mathematician, shows how changing the strength of the competition can mean the difference between happy coexistence and extinction of one or the other species. Wes also explains how this can relate to economic as well as biological situations.

In this section, you will

- Build a basic **model for two species in competition**, using logistic population models.

- Use **phase plane analysis** to analyze a system of differential equations.

- Determine the **bifurcation** behavoir in systems of differential equations which model species in competition.
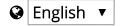
> For this section, you will need an understanding of **bifurcation** (see Bifurcation Part I: Extinction, Chaos and Other Bifurcation Behavior) and an understanding of **phase plane analysis for systems** (see Population Dynamics Part I: the Evolution of Population Models.)

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