

Making sense of Paramecium plasticity and growth across temperatures

Introduction

One goal of our project is to gain a better understanding of both the morphological and growth plasticity of paramecia in response to temperature. One reason for this is that the changes we see in paramecia under our warm and cold treatments are likely to partly be attributable to plasticity. Another reason is that plasticity is likely to play an important role in determining which outcrossed lines in our original evolution populations were likely to do well at high and low temperatures. For example, some outcrossed lines may perform better than others at higher versus colder temperatures and vice versa. Moreover, there are some questions that we might be able to examine about plasticity in morphology and growth that are broadly interesting. For example, is degree of plasticity in morphology related to the degree of plasticity in growth across temperatures? What changes in morphological traits are associated with changes in growth in paramecium?

What did we do?

The data we have to attempt to answer these questions comes from two experiments that we performed last year. The first was our TPC experiment for the 20 outcrossed lines that we used to start our original evolution populations. The second was a plasticity experiment in which we acclimated each of the 20 lines across different temperatures and then video phenotyped them to examine morphological and phenotypic plasticity across temperatures.

Characterizing Morphological and Behavioral Plasticity

The first thing we can do is try to characterize the morphological and behavioral plasticity of the paramecia across temperatures. First, we will load the data.

```
morph_data <- read.csv('Plast_StartPop_Data.csv')
```