

A *paradigm* is defined as an: “example, pattern; especially an outstandingly clear or typical example or archetype,” (Merriam-Webster Dictionary). In class, we discussed how we have been trained to think in this linear way, and explored how paradigms can shift. The tomato story demonstrated how implementing certain flows and feedbacks to adjust the stock can lead to other changes within the system. In this age of technology and competition, we as a society are taught to continually strive for more if we want to improve. The paradigm, “more more more is better better better” was shifted in this story of introducing a new variety of tomato to farmers in Mali. Molly and her colleagues technically solved the explicitly stated problem of needing a new tomato species, but unintentionally sparked further complications in the system. This was a case where they had a correct answer, without having the entire answer.

When the problem was initially presented to Molly and her colleagues, they most likely viewed the boundary as the land where the tomatoes were grown and harvested, as this was the location of the issue at hand. The stock was the number of tomatoes, which was sustained by an inflow of tomato seeds/the new variety that could thrive in Mali, and the outflow of farming/cropping. At the time, the stock was depleted. After experimenting with varieties of tomatoes, they solved this “problem” by introducing a new inflow feedback loop that could sustain life in Mali. Viewing the boundary as the tomato farm, they solved the problem of increasing the stock of the tomatoes. However, if you stretch the boundary to include the town where this was taking place, or the farmers lives, it becomes obvious that this “solution” led to more problems in the system. This example demonstrates the importance of time. When the tomatoes first began to grow, they simply increased the stock of the tomato, as was the original purpose. However, as time went on, the inflow became too much and the threshold of the system was reached. A sustainable system is one that is not going over the threshold. Once you hit the threshold, everything has to change in order to reach sustainability. When you look at the boundary as the food system in Mali, the anomaly was that too many tomatoes didn’t make people better; instead it crashed the food system with success in only one area.

The boundary of the system inherently changes the definition of the “problem”. If you look at the system as Molly herself, then the problem is completely different. The stock could be her career, with flows of “successful” and “unsuccessful” projects. With these boundaries, the “problem” would be the need to advance her career. Even within this system there could be more in depth boundaries: one being her career on paper (how it would look on a resume) vs. her career/success from her own perspective. On paper, the new tomato variety technically was a “success” because they found a variety of plant that thrived in this unique landscape (which would act as an inflow to the stock of her career). However, if the boundaries are her perspective of her career, there are flows of seeing initial success, but with time she discovered that it led to further problems for the tomatoes because there was too much inflow, and the threshold of the system was reached. All of these different boundaries result in different apparent problems.

If the definition of the problem differs depending on the boundary of the system you are working with, it follows that the definition of “success” or solving this “problem” will also differ. Does a problem always have a tangible solution? If it is possible to have the correct answer without having the entire answer, is this still considered success? I think it almost takes viewing the problem itself as its own system to determine what will constitute success. The stock could be the “success,” and to keep it at a steady level the feedback loops (inflow and outflow) will have to be steady over time. However, I do not think that you can ever truly have success in a system. As pessimistic as this might sound, you can always shift the boundaries of the system and reveal further problems. In this way, it is possible to have the “correct” answer in

terms of the boundaries you set for the system, but you cannot have the *entire* answer ever. Even if the level of the new variety of tomatoes was sustained and did not go over the cliff of the system, you could claim that the farmers had to then work harder to harvest the crops. Or maybe a small bug species was affected because they no longer had their same habitat. The point is that there are always more problems within a system when you change the boundaries, meaning that the *entire* solution can never be discovered.

I do not believe that changing the boundaries of a system creates a *new* problem; instead, I think that it alters your *awareness* of the problems that already exist. The closer you keep your boundaries, the more narrow and defined the problems will be. Zooming out and viewing the system from a different perspective will not *create* new problems, as they exist regardless of how you individually view the system. Instead, a changing boundary will expose you or hide you from certain problems in systems. In some cases, it is okay to view success as straightforward and attainable, even if it is not the entire answer. I am arguing that complete success is not possible, as you can always shift the boundaries of the system and be exposed to other incurring problems. However, it is okay to label a system “successful” as long as you clearly define the boundaries.