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Complexity Paper

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Complexity

To me, a complex system would be defined as a set of things that constantly work together for a common goal but are very hard to fully understand. I believe to classify something as a complex system, it must be nearly impossible to predict the complex system's future events and completely replicate it. The reason that this definition appeals to me is because it captures every aspect of a complex system in my mind. I think this definition captures my understanding of how complex and complicated a complex system is to me. My definition says that a complex system cannot be completely replicated or understood. This appeals to me because it was very hard for to fully understand the complex systems that were addressed in the Mitchell's novel Complexity. It was tough for me to read some of the sections, because when the material got too deep into describing the complex systems I no longer could fully understand or describe how they worked. Also, my definition captures my understanding of a system by the many different things working together for a common goal. For this part, I related it to a complex system that I face everyday playing sports, because I am constantly working together with a group of girls to meet our common goal of winning games. I believe that there are infinite complex systems in the world and new ones are forming all the time, which is why I made my definition very open and general.

The two examples of complex systems from Mitchell's novel Complexity that I found to be very interesting were the organisms, or ants, and the brain neurons. I found the complex systems of ants moving matter to be very interesting, because I never thought about how

complex an ant's life is. I find it very interesting how tiny ants can complete many tasks, like moving sticks and dirt, by simply working together as a team. I believe that the ants working together meets my definition of a complex system, because there are millions of ant that are constantly working together for their common goal of moving matter. In addition, I do not fully understand how or why they are working together. I do not understand how they can communicate with each other and effectively complete tasks that would be impossible for one ant to do alone. I believe that it would be very hard for a human to correctly predict why and how this happens and to handmake something to replicate these ants working together. Therefore this ant example meets my definition of a complex system. The second example from Mitchell's novel Complexity that I found interesting is the neuron. I learned all about neurons in my Psychology class last year, so I have a lot of background information on the neuron. There are many parts of the neuron that I find to be very complex and interesting. I think it is extremely interesting how tiny neurons can work together and communicate to send such complicated messages to the brain and how the neuron goes through the complicated process so quickly. Also, I find the process of the neurotransmitters entering the synaptic gap, binding like a lock and key and then reuptake by synapse gap to be extremely complex and interesting. Due to all the complexities of neurons and the brain, their processes and connection fit into my definition of a complex system. In addition, my definition is highlighted by the fact that there are many different neurons that work together for their common goal of transferring a message to the brain. The system of the neurons working together and sending messages to the brain is very complex and hard for me or anyone else to fully understand. It is impossible to predict when the action potential will be sent and exactly how the neurons are working together at a given moment. The way neurons communicate can be taught, but I believe that it could not be

completely replicated by a human. Both examples from Mitchell's novel clearly illustrate real world complex systems and they appeal to me since they are constantly affecting my life.

There are unlimited complex systems that are constantly surrounding and affecting me. The game of lacrosse is just one complex system that effects my everyday life. I believe that the game of lacrosse and the interactions on my lacrosse team are complex systems. These complex systems are important to me, because lacrosse is a huge part of my life and it would be impossible for me to compete without them. There are many aspects of lacrosse that qualify as complex systems. First, one of the ways to move down the field to score is to connect passes. The connection of passes between teammates is a complex system. It is a complex system, because it is nearly impossible to predict who will get the next pass, where they will be when they get the pass and if they will catch the pass. For the passing connection to work, there needs to be communication between the players and they need to be on the same page and work together to achieve their common goal of completing the pass to get closer to scoring the goal. In one game of lacrosse, every individual on the field is working with their teammates to string together passes. The passing between the individuals on a team is more complex than just two individuals working together. For the pass to make it to the designated person, the perfect amount of strength and velocity need to be exerted on the ball, the pass needs to be on target, and there cannot be any defenders that get in the way or intercept the pass. It is nearly impossible to know beforehand if everything will work out for the pass to be completed and if it does not the individuals will need to respond to the event. Passing is only one of the many complex systems in the game of lacrosse. Lacrosse is a game of situational play; therefore, every play is a complex system that cannot be predicted beforehand. Right now, there are no solutions to the complex systems in a lacrosse game. There is no way to determine what plays or connections will happen

at any given point in a lacrosse game. The only possible solution for the future would be to program players' minds to do certain things and be in certain positions at certain times throughout the game, but that would likely destroy the game of lacrosse, so as of right now there are no solutions to the complex systems in lacrosse games. Lacrosse is a fun, complicated game filled with infinite complex systems that will never have a solution.