

## SCUDEM IV 2019

### Problem A: Group Affinity and Fashion Sense

People tend to congregate into groups in different ways. People can create strong links in small cliques or identify loosely as part of a larger trend. One example of the latter phenomena is hipsters. An amusing example of how someone identified and adapted their appearance to conform to the look of a stereotypical hipster is a person who complained that his image was used in an article about people conforming to a stereotypical look [1]. It later turned out the image in the article [2] was someone else who happened to look like the person complaining that image was appropriated.

This raises a number of questions about how people choose which groups to associate with as well as how they decide to adjust to the expectations of the other people within their group. We focus on the latter question, and you are asked to examine the propensity for a person to alter their appearance and conform to particular expectations. You should develop a model that describes how different people within an established group interact and decide to change some particular part of their appearance. How long does it take for people in the group to change their appearance? How many people will change, and how much alike will they eventually appear? You should provide an analysis about which parts of your model impact how different subgroups change and how quickly the change occurs.

Your description of the model should include the following:

- Clearly describe the aspect that is being changed.
- Describe how information about it is exchanged between people in the group.
- Describe the way people interact and how the model mimics those interactions.
- Describe the range of values of the parameters and the meaning associated with higher versus lower values of these parameters.

Note, the work that sparked this exchange included a mathematical model of how people decide whether or not to conform and change their appearance [3]. The model and analysis in the paper is advanced, and it is not a good starting point for the beginning development of a model. The model in the paper only included two different groups: conformists and nonconformists. It also included a delay to approximate the interactions between the two groups. (A delay can be difficult to approximate and analyze and should probably be avoided for a first effort in a short term project.)

#### References

- [1] Garcia-Navarro, Lulu and Feingold, Lindsey, "Man Inadvertently Proves That Hipsters Look Alike By Mistaking Photo As Himself, " March 10, 2019, <https://www.npr.org/2019/03/10/702063209/man-inadvertently-proves-that-hipsters-look-alike-by-mistaking-photo-as-himself> . Accessed June 2019.
- [2] "The hipster effect: Why anti-conformists always end up looking the same," MIT Technology Review, Feb 28, 2019, <https://www.technologyreview.com/s/613034/the-hipster-effect-why-anti-conformists-always-end-up-looking-the-same/> . Accessed June 2019.
- [3] Touboul, Jonathon, "The Hipster Effect: When Anticonformists All Look The Same," <https://arxiv.org/abs/1410.8001> . Accessed June 2019.