Questions from the DySoC/NIMBioS CES Webinar "How to teach modeling, or Thoughts on a pedagogy for cultural evolution" with Paul Smaldino.

1. Where do the arts fit in? Are the arts a form of inquiry that might be listed alongside all of the disciplines on Paul's multidisciplinary cultural evolution slide?

2. The problem with cultural evolution for me is to understand its exact defination. For example: humans invented a ball, and they created games that play with the ball. And some of these games survived and others failed. Surviving games help human to be fit, come together, and feel like warriors. And now we have football culture, which we play, watch and spend money for. Is that an example of cultural evolution?

3. Are social sciences inexact just by definition or just becuase there is arguably no good formal theory framework available yet to put it to the same level of exact sciences?

4. Can't social scientists just partner with a math whiz?

5. While more training in math is important for social scientists, a question arises about what sort of math beyond linear algebra, calculus and some dynamical systems? (They already have some training in statistics and probability.)

6. Paul, do you have any related materials using R?

7. How about Python?

8. We used NetLogo to build an agent based model on a small world network to study potential control measures for SARS-COV-2. The three control measures where shelter in place, contact tracing, and mask wearing (Braun et. al. 2020 PlosOne). We didn't program agent based models or network models before this. It is very accessible.

9. Hamilton's rule pays a core role in in explaining cooperation in microbes. In human social evolution many of the models developed made by Nowak have a strong opinion against inclusive fitness. Why do you think Hamilton's rule/Inclusive fitness are being so little used in the field of cultural evolution?

10. Thoughts about the role of major transitions in evolution? Cooperation in the human species is thought to be one, essentially going from one stable state to another (one adaptive peak to another). The question is how, of course, and whether models can help us confirm or deny.

11. What is a social norm? Is it the same as a cultural trait?

12. Do you know of any similar course taught in C++?

13. Any suggestion for a modeling book to accompany a grad level course (before yours is published)?

14. Should we also talk in such a course about connecting models and data (preferably historical data)? That is the aspect I struggle with when teaching these topics. Especially thinking of cultural macro-evolution.

15. I have a question for Paul about complexity theory and computational social sciences (CSS) as an alternative educational or methodological strategy to evolutionary theory and modeling to understand cultural evolution. Complexity theory focuses on non-linear systems with emergent properties. Complex adaptive systems "adapt" at near-chaos conditions and give rise to new emergent properties. CSS can measure big quantities of data and analyze through a holistic perspective which assumes that the observed phenomena are "emergent" (i.e. more than the sum of their parts). Are human socieities such phenomena? In other words, are most social processes phenomena emergent? Regardless, couldn't social phenomena (emergent or otherwise) be better understood through the reductionist study of individual motivations, especially if (individual motivations for) cooperation is the bedrock of human behavior?

16. What is the difference between social and cultural evolution?

17. What is your view of Dan Sperber's approach in terms of cultural attractors, and models based on that approach?

18. You should do it in Julia, Paul! As julia people advertise; as intuitive than python, but faster, which might be useful at some point in the future for more complex ABM models.

19. Perhaps a sub-unit about wotking in teams?

20. So, "you have to know and understand each other's skills" is part of the art of assembling a team?

21. Is it only social science that is inexact? Aren't even the ecological sciences and soil sciences or even aquatic sciences also inexact sciences? Any sciences about systems that involve biotic systems are inevitably inexact science, at the population level at least. What do you think Paul, about only social sciences being called the inexact sciences?

22. How to advocate for the importance and use of cultural evolution in public policies?

23. I've always thought the difference between the 'hard' sciences and the social sciences is that with the hard sciences we start from some physical thing that anyone born with a standard set of senses can agree exists. With the social sciences everything we study is imagined. We all interpret each others behaviour all the time. So really what are known as the hard sciences ought to be called the easy sciences.

24. Did I miss a discussion on whether cultural evolution = social evolution? Are they the same thing?