**Outline/To-do list for Dissertation Talk**

1. Introduction
   1. ~~The big problem: Why do collective social phenomena (extremism and polarization) emerge and increase or decrease?~~
   2. ~~Breaking the problem down into components and sub-problems~~
      1. ~~Work out carefully how to introduce the sub-problems. Right now I have the component questions framing the sub-problems, where each sub-problem can be animated to appear to fill in the different component framing questions.~~
   3. “Now, let’s go through the factors underlying extremism and polarization that I study in this talk.”
      1. ~~Communicative factor: metaphorical violence~~
         1. ~~Specific examples~~
         2. Kalmoe work on why it matters and how it contributes to extremism
         3. Framing more generally (say it briefly)
      2. ~~Cognitive factors~~
         1. ~~Slide on the four-factor model; note the importance of stubborn extremism for Study 2 and of negative influence for Study 4.~~
      3. ~~Social factors~~
         1. ~~Random chance and social network structure~~
   4. Mechanistic models of emergent behavior
      1. One slide that explains how mechanistic models differ from, e.g., statistical models, following Machamer, et al., 2000 and Craver 2006.
         1. Save Meehl stuff on problematic/over complicated assumptions when introducing Study 2. Say, “we will re-use this if-then structure for Study 4 to understand social factors that contribute to the emergence of social polarization”
2. Metaphorical violence in political discourse
   1. Problem: evidence that metaphorical violence biases people towards perpetrating real world violence. But not much is known about the actual distribution of metaphorical violence in the wild. So, I developed the following questions to study how metaphorical violence works in the wild:
      1. What is the distribution of metaphorical violence in the real world, specifically on cable TV news, and especially around important political events, specifically presidential debates and elections in the United States?
      2. What patterns emerge within and between election years and between different cable news channels?
      3. What patterns emerge regarding the subjects and objects of metaphorical violence, i.e., who perpetrates the metaphorical violence and who has metaphorical violence done to them?
   2. Analytical approach:
      1. Corpus building from TV News Archive
      2. Streamlined annotation with in-house software
      3. Statistical analysis to determine if and whether there was a change from a lower to higher state of metaphorical violence use within the three month period containing the debates and election, September 1 – December 1, in 2012 and 2016.
         1. Based on initial analysis and close reading, we additionally hypothesized that Twitter use . In many ways Twitter discourse feels more violent (WORK THIS OUT—WHY HYPOTHESIZE CONNECTION BETWEEN TWITTER AND METAPHORICAL VIOLENCE)
3. Pause for transition to modeling work
   1. Expand on the problem of extremism and polarization in the United States, does not have to be much, just drive home the point that *bimodality* of opinions is increasing in general.
      1. But, again, *is it?* What does Rollwage 2019 say? How do they introduce the problem?
      2. I think I need to study this material. It has always been the weakest link, so don’t let it overwhelm you.
      3. I think the problem I’m having is that much of the data shows that bi-modality is increasing, but often frames it in terms of ideology/partisanship. JUST EXPLAIN THAT TO GO BEYOND CONTEXT-DEPENDENT STUDIES OF EXTREMISM AND POLARIZATION WE NEED CONTEXT-INDEPENDENT MEASUREMENT METHODS. Simple—increased average opinion = extremism, and increased bi-modality in population-level opinion distributions
         1. Will need to introduce the idea of opinion distributions, which will help explain the results of all three modeling studies.
4. Group polarization emerges from stubborn extremism
   1. Introduce problem of group polarization as an experimental induction of increased extremism
      1. Slide to introduce group polarization and set terms including “opinion shift” (WHICH OTHERS?)
      2. Emergent rising extremism and higher-order pattern in magnitude of group polarization opinion shift
      3. ~~Slide on experimental setup~~
   2. ~~Slide on existing explanations of group polarization~~
      1. ~~Or four VERY SIMPLE slides with illustrations of each explanation~~
   3. Stubborn extremism explanation
      1. There is a wide variety of empirical evidence that suggests those with more extreme opinions are also more “stubborn” or less susceptible to social influence.
      2. INTRO THIS EVIDENCE pick 3 or 4 (Reiss; Zmigrod; Kinder; Toner, et al., 2013)
   4. Results of computational experiments demonstrating
5. Evidence for group polarization may not be reliable due to floor and ceiling effects in ordinal opinion measurements.
   1. Set up problem in light of Chapter 3, e.g., “we assumed in chapter 3 that we could directly measure individuals’ latent opinions. But in the real world, participants must self-report their opinions on some measurement instrument and scale. Many or most group polarization experiments use an ordinal scale, such as a Likert scale, where participants report their opinions as one of a few integer values corresponding to the extremity and valence of their opinions, e.g., on a seven-point Likert scale -3 may correspond to “Strongly Disagree” with a statement, 0 corresponds to either no opinion or a neutral opinion on some statement, and +3 correspond with “Strongly Agree”.
   2. Group polarization relies on detecting a change in opinions after group deliberation. Note, however, that shifts in extreme latent opinions may not be detected due to floor or ceiling effects. For example, a participant with a latent opinion in the 99.999th percentile of all opinions would have to map their opinion to the 85th percentile if reporting their opinion on a 7-point Likert scale. If their latent opinion shifted after deliberation from the 99.999th percentile to the 86th percentile, Likert scale measurements would not detect this change—both their pre- and post-deliberation opinions would be a “3 – Strongly Agree”.
   3. This causes distributional tests assuming normally distributed data to make false detections of a shift in attitudes. t-tests and similar statistical methods determine whether two datasets are drawn from the same or different distributions. When consensus occurs with data measured on an ordinal scale, these tests can be tricked into detecting a shift when none in fact occurred since only shifts in more moderate opinions are detected.
   4. This leads us to wonder which group polarization results are valid, and which may be equally plausibly explained by assuming no shift in latent mean occurred after deliberation, only consensus that was failed to be adequately measured by the ordinal scale. To answer this question, I developed a generative group polarization model to create simulated pre- and post-deliberation data with identical means, but different standard deviations, with the pre-deliberation variance being greater than the post-deliberation variance to
   5. The model
   6. Results
   7. Discussion on group polarization.
      1. Outstanding questions:
6. Paths to polarization: extreme views, miscommunication, and random chance
   1. Here we ask the question of how well we can predict bimodal polarization by adopting the same assumptions and using the same model as I developed in Chapter 3. We hypothesize there are critical initial conditions or model parameter settings where bimodal polarization either evolves to high levels, or where polarization goes to zero, indicating full consensus among the population. We inspect the effect of initial societal extremism, the rate of miscommunication, and the role of random chance in the timing of who interacts with whom in predicting polarization outcomes under different social network configurations.
   2. Explain model again briefly, especially noting differences between K=1 from previous and now K > 1.
   3. Introduce computational experiments.
   4. Show results