**Finished Product**

**Facial Expressions from Three Species**: Human, Non-Human Primate, and Dog

**Photograph Set**:42 (grayscale?) photographs from each category, matched on:

1. Average Photograph Luminance
2. Average Photograph Valence/Intensity
3. Location of Basic Facial Features: Eyes, Mouth

**Question Set**: 12 YES/NO questions that can be asked of each species, match across species on:

1. Inter-observer agreement regarding the best answer. This could be achieved in various ways:
   1. Use same cut-off (e.g., 90% agreement) for all species when selecting stimuli
   2. Ensure average agreement is the same across species, either for each questions individually (ideal) or for the entire group of questions
2. Same frequency of YES/NO responses to each image, ideally with each question with 4 yes and 3 no responses
3. 6 questions that refer to concrete descriptions of the facial expression (e.g., gazing left? open mouth?), and 6 questions that refer to less concrete descriptions of the internal mental state implied by the facial expression (e.g., friendly? curious?)
   1. **IMPORTANT**: For mental questions, foils should match the valence of the question

**Design**: 2 x 3 factorial design, with the following factors

1. **Question Type**: Behavioral vs. Mental
2. **Target Species**: Human vs. Non-Human Primate vs. Dog

**With 7 trials/block, total runtime would be 13-14 minutes**

**Strategy Moving Forward**

1. Use Qualtrics to Get Data on Mental Questions for Non-Human Primates and Dogs
   1. Questions should be reasonably applied to human facial expressions
   2. Pair each photo with questions that are valence matched. You might start doing this by including only those photos that matched the valence according to at least 33% (or some other % cutoff) of the pilot sample.
   3. Note that this means that different photos will feature different question types. Use the export/import QSF method to build these.
2. Use Qualtrics to Get Data for Behavioral Questions. I recommend the following basic set of questions
   1. Gazing up?
   2. Gazing down?
   3. Looking to the side?
   4. Looking at the camera?
   5. Looking at something?
   6. Open mouth?
   7. Showing teeth?
   8. Smiling? (may not work for all three species)
3. Compute or Collect Data that will be used for Matching
   1. Luminance (compute)
   2. Eyes/Mouth Location (use Qualtrics)
4. Process Data to Select Good Questions and Good Stimuli, Keeping in Mind the Matching Criteria Noted Above
5. Once we have the Dog and Non-Human Primate Sets, we can use our large set of Human Expressions to find ones that match