1. **What wikiHow article did you pick and why?**

We selected an article titled “How to Create a Secret Society” because we felt that this article would provide sufficient actions and problems to convert to the PDDL, while still being amusing to work on. After all, who doesn’t want to create their own secret society?

2. **What portions of the article did you select to translate to PDDL?**

We translate step 1 (create a secret or secret mission), step 2 (read a few books to learn about how to create a secret society), step 3 (creating a name for the society), step 6 (finding new members), step 7 (inducting new members), step 8 (deciding on a location for the secret society to meet), step 9 (creating a dress code), step 11 (initiating new people to join the group), step 12 (telling members about the actual secret over time), and step 13 (getting rid of those who become untrustworthy. We essentially skipped the steps relating to the actual initiating process and figuring out what the secret society does, but the rest of the steps translated well into PDDL. We even expanded on some of these steps, such as determining whether a player was trustworthy or not, and defining the concept of friendship to help expand the network and initiate new people.

3. **Give some examples of the actions, types, and predicates you used in your domain.**

The main types, player and secret_society, could be people like students in this class, friends, family, etc. A secret_society can be pretty much anything. Has_dress_code could be a boolean value representing some type of clothing, such as togas or aprons or top hats. Setting a meeting location could be focused on any geographical location, and teaching a member a new secret could be something like showing a classmate how a particular Python library works in an in-class activity. Both members of the transaction are trusted, but only one knows the knowledge which is being shared.

4. **Explain what goal you selected for your problem, and give the initial state and solution that you created.**

The first goal was to initialize the society by creating a name for it, a dress code, meeting location, and a secret. Once these were done, we marked the society as “ready” to add new people to it. The initial state for this problem was just the npc that was in the secret society.

The main goal we selected was to create a cult, which we defined as at least 4 trustworthy members in a secret society all of whom know the secret and are initiated to the secret society by their friends who were already in the clan. The initial state consisted of an npc that was in the secret society, along with 9 other players, some of whom were trustworthy and others that were not, and some of whom were friends with each other. The solution was to initiate the clan by creating a name, creating a dress code, etc. Then, we add at least 3 trustworthy members and share the secrets with them.

Finally, we wanted to test whether we could remove untrustworthy members that somehow made it into the secret society. To do this, we initialized the society with 5 members, one of whom was untrustworthy, and the goal was to make sure that member was removed and the society was considered a cult. The solution was just to remove that member and then share the secret with the trustworthy members.

5. **What limitations of PDDL did you encounter that makes it difficult to precisely convert a wikiHow description into PDDL?**

One of the most significant limitations we encountered was the fact that PDDL only allows for boolean variables. Unlike other paradigms such as OOP, PDDL cannot have lists of values or keep track of a count of a variable. This made it difficult to perform tasks such as checking the number of members in a society, setting a dress code, and reading clique-type books.

6. **Could your PDDL be used as an interesting challenge for a text-adventure-style game? If so, how? If not, what would be needed to create an interesting challenge?**

We don't believe our PDDL could be used to create very interesting challenges at this point. It provides solutions to simple problems, but it lacks engaging content. Referring to Sid Meier's description of "a game is a series of interesting choices", we would need more interesting choices to be present for this to create interesting challenges. For example, what if we had restrictions on the dress code? What if you could only pick certain locations for the meetings? What if trusting one friend loses the trust of another? These gray-area questions would allow for more meaningful decisions on the player's part, which could present engaging challenges.

7. **Discuss how you might use GPT-3 to automatically or semi-automatically convert a wikiHow article to PDDL.**

Perhaps we could use it as a very rudimentary POS tagger, sorting the nouns into types, the verbs into actions, and parsing out the preconditions. If an individual step in the article is too complex or large in scope, we might break it down into sub-goals and create smaller actions to achieve each of those. You could then fine-tune another GPT-3 model to fill out this information in the PDDL format, and join the two together to automate the process end-to-end. However, not every step will be easily translatable into PDDL - so we might have to manually pre-determine the conditions for a step to be parsed in this way, making the process only semi-automatic.