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ENSE 480 Project Proposal

Introduction

For my project, I plan on making an interactive narrative game that will try to judge a player's bias and morals and then make them feel or do the opposite. The game will take input from the player by asking questions that describe them such as age, health, etc. The AI will then ask more questions that are based on the Trolley Problem. The Trolley Problem tests a person's moral psychology and can give them a sense of moral dilemma.

Once these questions are answered, the AI will calculate what it believes the user's ethics are i.e. if the player is good (least people killed), neutral (does nothing), or evil (most killed). Also, it will check if they are biased to a variable such as age. From there, the AI will follow an interactive narrative based on its calculations. Regardless of the route, the AI will ask questions and put the user in situations that are meant to challenge their beliefs and biases.

Scope

I plan to have the AI search through various plot line questions that are tailored to the user's beliefs and biases. As the game progresses, the AI will learn and change how it perceives the user by the choices the player makes. By doing this, the AI will try to ask the player questions that leads them away from their current stance. For example, if the player is good then the AI will try to get them to answer evil. I also hope to implement directive management that will keep the user on a path to the end of the game, even if they try to "break" the narrative.

The program will be split into a few different parts. It will first be tasked to calculate the initial user inputs, their description, and the original questions. The next part will updated its perception of the user's morals and biases to compare to the original. Third, I will have a part specifically for searching for the next best story plot. Finally, the director manager will be made separately so that it only becomes involved with the story direction when needed. The director's role will be constantly monitoring the player, but avoid stepping in unless needed.

Most out of scope ideas involve the level of immersion for the user, this is mostly non-AI components such as creating a full 3D graphic game (using Unreal Engine 4) with audio instead of using a command line approach. Also, it would be preferred to add more options to learn about the player that may be more insightful and helpful in the deciding algorithm. However, this could become a lot more complex and would take up more time than needed.

Representations and Data Structure

The output information to the user, or the narrative, will be shown by either command line, text messages, or by audio. The narrative itself will be stored in a plot graph so the AI can navigate through ideal plot points. This plot graph will most likely be split into sub graphs for the different affinities of morality and biases. The player information will be stored as weighted variables. For example, morality will be from 0 to 1 with 0 being evil and 1 being good. Another set of variables will be added to each plot point to assist the AI in deciding the best possible answer or to change its perception on the player.

Techniques and Algorithms

I am going to be using searching algorithms such as breadth first search and depth first search to get further into the narrative if many nodes can be skipped. Depth first will also be used for direction management. By using breadth first, I can find the most ideal path that does not skip ahead in the plot and will not take as much time to compute. Depth first search can help direction management by bringing the player a desired plot point that brings them away from where the AI does not want them to go. For example, if the player tries to ignore all actions that leads to the next plot point, the manager AI can go deeper and pick the next plot point. This pulls the player away from that point and allows them to continue. The plot graph itself will be hard coded to help the AI parts follow the narrative, but be more free to traverse the different options.

Structure Diagram of Major "Modules"

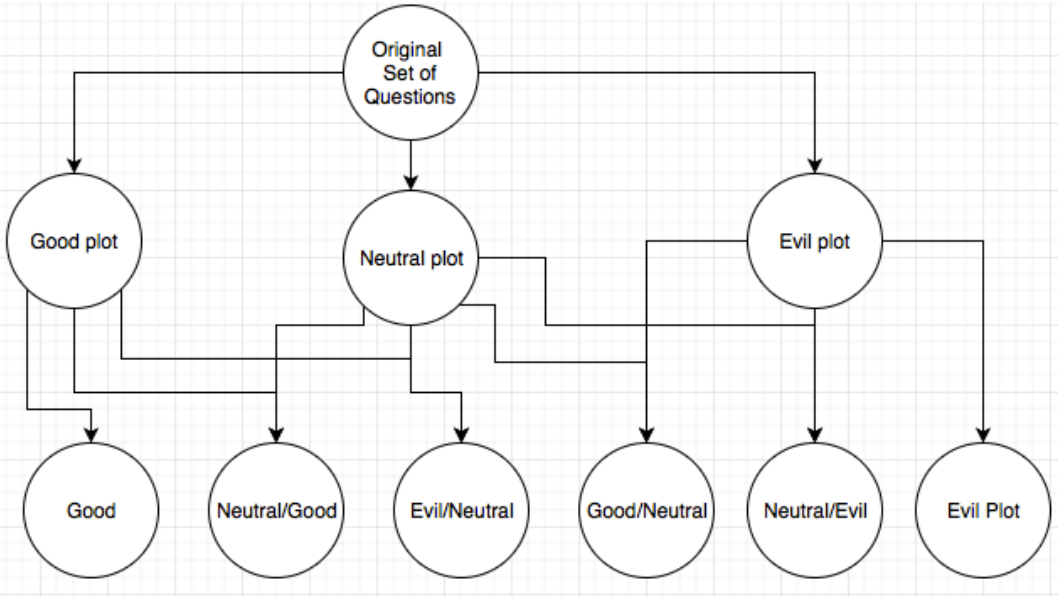

Fig. 1 Example of Narrative Plot Graph

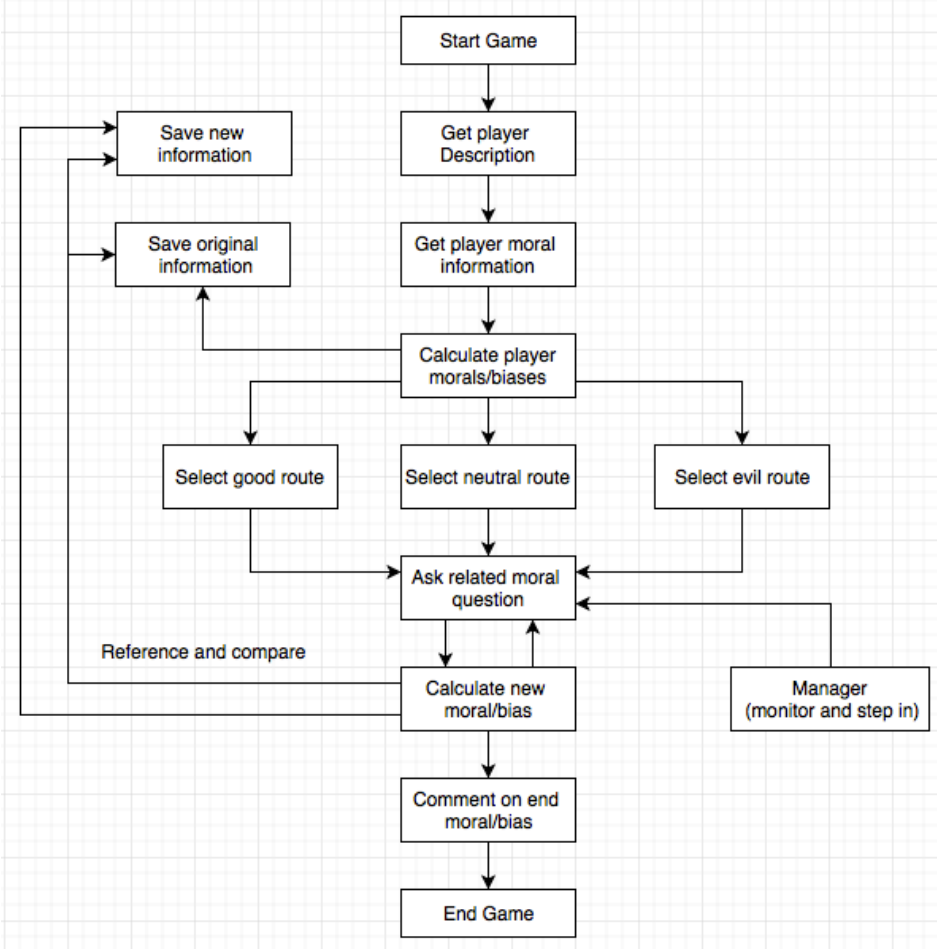

Fig.2 Structure of Game

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