Pattern Recognition.pdf

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Pattern Recognition in a Video Game Battle Simulation
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Overall Idea
This project simulates the classic video game situation of a “boss fight”. Generally this consists of a “boss” which seems to be some unstoppable force of power, pitted against the “hero”.

In our simulation the boss is loaded with an arsenal of different abilities, all of which include a specific “tell” that goes before each ability is activated. This allows the hero, after taking damage from an attack, to remember specifically what the boss will do before specific attacks, resulting in the hero’s AI getting smarter over time.

The hero has the option of attacking by melee or from range. Each method of attack will have its own strengths and weaknesses, again adding to the depth of the decision making involved in each scenario.

Logic/ Pattern Recognition
The entire simulation will consist of the hero and boss trading attacks back and forth. Initially the boss will be much stronger, but since the hero will employ pattern recognition to help with the decision making, the hero is expected to be able to adapt and become more efficient as the fight goes on. The hero is expected to find the best way to do the maximum damage in specific situations, and the hero will try to recognize which attack is coming from the boss and use the correct action, thus attempting to take the smallest amount of damage possible. At certain points during the fight, the Boss will loose or gain protections towards specific attack types from the hero (e.g. ranged, melee). This adds another dimension for the AI to become as efficient as possible the more it learns about the hero.

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The hero should be given just enough potions to win the fight as burning through the stock of potions right away should be punished by long battles. This adds more decision making possibilities for the hero’s AI.