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Assignment 1

For this assignment rather than teaching the oldest person I know I taught 3 individuals of varying age the same thing, a videogame called Dota Auto Chess. The game itself is simple enough, (and can be seen here: https://youtu.be/nrKtlF_H5MQ) (I'll explain the video later), each turn players are given 5 random heroes to choose from, they can choose one piece to put on their chess board. Each turn after everyone has placed their pieces the game plays chess itself. The difficulty comes in the meta game and particularly in the pieces because they have different synergies and interactions with one another that can be very advantageous if used properly. Therefore, I thought it was a perfect opportunity to teach to people because this understanding of the meta data can be used to analyzed to understand individuals grasp and ability to fluently pick up new computer abilities / concepts associated with the interface.

The first person I taught was my girlfriend Maggie, coming in at 21 years old. This one shocked me because my Maggie both plays video games and is very familiar with the Dota universe (thanks to me). But while Maggie started the game decently with my explanation of the rules, once the game began to continue Maggie showed a clear lack of comprehension of how to learn or even memorize simple rules about the meta game. I talked to her afterwards investigating where the lack of continuing to learn the game was and ultimately it sounds like she was placed under pressure from me and that limited her freedom to learn because she felt

there was a need to perform well. This frame limited her because she was learning the game through the lens of competing against Konrad, rather than optimizing a problem. Another issue is that the game (which is exponentially complex) explains its own rules and systems in 4 pictures and 3 sentences. This means that the frame in which Maggie was limited to was how I could explain the game to her, this started fine as Maggie took quickly to the game and I was able to guide her during the start. When the game began to get more complex, and the rules that weren't explicit began to come out Maggie got frustrated and her openness to learning the game lowered. This frustration made her more focused on simply being mad at the game, this preoccupation meant that she viewed the game through her own frustration which shrouded her enjoyment of the game and made her less enthusiastic about the game, making her less open to learning. Eventually she even stopped listening to my advice and even stopped responding to me talking to her. Maggie is a clear example of a frame closing itself and narrowing the ability of an observer to understand and perceive a give concept.

The second person I taught was the oldest human Brian Srivastava coming in at 40+ years old. Sri picked up to the game quickly and after a quick practice match was even able to play in a real game (against other people!). I think the most interesting frame that Sri displayed was the frame of actual human senses, the limited of what people are looking at, feeling, hearing, or doing. What makes me say this is that I would explain something to Sri, and he would understand the concept very well. However, there would always be a period of pause before Sri did something after I suggested it. From what I observed is that this is due to Sri being unfamiliar with the interface of the game, he would search for different buttons on the screen and spend minutes staring at info text bubbles reading them to try to understand what

the different parts of the screen meant. This limit of human perception is then best represented by Sri because, (keeping in mind he's a hardcore gamer), he would immediately understand rules and meta game concepts that I would explain to him. The only limit was his ability to then execute actions through the, admittedly confusing, interface.

The third individual that I taught, that I personally think is the most interesting, would be an AI that I created to perceive and understand the game that I named Barracuda. Coming in at (336 hours x 12 years of training per hours) roughly 4,032 computer years old (or 336 human hours old), this AI was trained to recognize importance of areas of the screen and specifically trained to pay attention to which chess pieces do the best. In order to do this (it's an ongoing project) I have trained the AI on hundreds of hours of me playing the game, where I recorded many attributes and threw them into a recurrent neural network, in order to eventually produce where it thinks I would be looking based on the current game state. In the video you can see this on the top screen, the area that Barracuda thinks is important is represented by the crop in the black screen that reveals the Dota Auto Chess board below it. Out of all of the individuals taught I found that the behaviors exhibited by Barracuda were by far the most comprehensive in showing that it was understanding what was going on in the game. It can be seen regularly checking important stats like health, gold, heroes, and time while I played this match. These are all things that are vital to success in this game but I think Barracuda got a bit of an advantage in this way, because while Kurt, Maggie, and Sri were all told the rules of the system and made to figure out the meta game on their own, Barracuda had an omniscient view over the game, and was regularly fed every piece of information that I wanted it to know. In this case, the only frames that limit this individual in its "learning" would be the limits of my

understanding of the game. There was no absence of knowledge for this agent to learn from, in this way the interface that the agent interacted with the game was only limited by my understanding of the game.