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EECS 372

**Progress Report #4**

The behavior of each kick is now very well physically adjusted to real-life data. The table below shows the success rates for the choices in movement of the goalkeeper and the kicker, L being goalkeeper’s left and the kicker’s right. The option to simulate the model when the kicker’s natural foot is left is eliminated, with the assumption that the game remains identical whether the kicker is left-footed or right-footed.

|  |  |  |
| --- | --- | --- |
| Goalkeeper\Kicker | L | R |
| L | 59% | 94% |
| R | 88% | 70% |

There are now multiple goalkeepers and kickers. Specifically there are 20, but a slider will be implemented to set the number up to a limit. They each queue on the sidelines and await their turn. Currently each goalkeeper only faces one kicker and vice versa, an unintended consequence of the queues. There will be a chooser for a method of rotation, e.g. round robin, random selection.

There is now a slider called memory, a chooser called focus, and choosers called keepers-decision-method and kickers-decision-method. For both choosers, the choices of method are independent, keeper-dependent, kicker-dependent, dependent, and mixed. The dependency is about whose history to consider when making a decision. For example, if memory is set to 20 and the kickers-decision-method is keeper-dependent, the kicker looks at the last 20 kicks taken against the goalkeeper he is facing and chooses the strategy which has been the most effective in those 20 kicks. If there is a tie, the kicker decrements the size of this 20-sublist until he finds a most effective strategy. The options for the focus chooser are choices, and results. Returning to the previous example, when the focus is on choices, the kicker looks at whether the keeper dove to his left or right in the 20 kicks, and notes if that choice was the correct one, regardless of whether the keeper saved the shot or not. When the focus is on results, the kicker looks at the 20 kicks and notes if the goalkeeper saved each shot or not. This is important because even if choices were not random, saves always will be random.

There will be another chooser called learning-method, which will decide how the agents will learn, e.g. evolutionary. I will be meeting with Prof. Wilensky in the near future to discuss the implementation of the learning methods. The evolutionary learning method, along with the decision methods, will be adapted from the code written for El Farol.

Here are my notes on questions to be discussed with Prof. W.:

1. Different learning methods and their implementations/examples

2. The nature of the learning method used in El Farol

3. Probabilistic/deterministic decision methods and the consequences of the latter