Online Coach Description
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Last year we only used the online coach for communicating the world model in standard situations, but this year the coach is responsible for choosing the right team formation and altering the player's positioning behaviour during a game.

The positioning behavior of a field player is determined by his role in a so called *Tactical Team Formation* (TTF). So far, we only used two TTFs (a defensive and an offensive one) in a single game, but this year we want to adapt the TTFs in the course of a game. An agent's role in a TTF consists of his *home* position (relative to both offside lines), of a value of how much he is attracted by the ball (i.e. how much the player alters his home position towards the ball position), of the area the player should cover, and of up to three other players the player watches and whose roles he might take (at least to some extent) if these players are not able to fulfill their roles (e.g. if they are attacking an opponent).

We developed an algorithm able to distinguish between different (idealized) *types* of team formations (e.g. 3-2-2-3 or 4-3-3)and to classify the actual formation (indicated by the positions of all field players at one time step) according to the formation types. The algorithm matches the actual formation onto the formation types and calculates the respective 'error' of this mapping. The formation with the smallest error is assumed to be played by the team. Preliminary results show that for most teams the algorithm can identify some typical formations.

To examine which formations are more successful than others we need criteria for successful formations. Our criterion for offensive formations is that the ball is moving towards the opponent's goal. For defensive formations the criterion is that the team regains ball possession. Obviously, these criteria are also dependent on both teams' overall skills and the formation of the opponent team. Therefore, a formation must be judged in respect to a certain team and to a certain opponent. Thus an opponent model is needed. At first, our model should only include the opponent's formation, but other characteristics will be added later (e.g. the opponent's abilities to dribble or pass). In playing with different formations against different opponents we get a probabilistic model for the success of our formations (dependent on the opponent's formation). This model can be used by the online coach to choose an adequate team formation. He updates the model by watching games (reading logfiles) and may decide to change the formation in the course of a game based on the model and his observations.