Assessment 1 – Scoping Exercise

Rugby Union became a professional sport in 1995, and since then it has developed a more complex structure. This can be seen in the endless tug-of-war between offensive and defensive strategies. As Rugby Union is an invasion sport, the goal is to score more points than the opposition.  
The defensive side of the ball is stopping your opponent from doing just that. This can be through limiting the territory gained by the opposition or forcing a turnover and limiting their possession. Can modern data collection tools like GPS and processing techniques through computer modelling help inform defensive strategies?

Notational analysis can be used to attempt to quantify the aspects of a defence that are most important for achieving success. Defence is described as the structured movement of players in a dynamic system which consists of one or two movements to create its shape. These movements are generally dictated by the attack style of the opposition, the behaviour of players on the defensive team reacting to the current situation and the information received from coaches before and during a game. The analysis found that the chances of creating a turnover increased as the ball moved away from the previous breakdown and if the defensive team moved towards the team in possession at a moderate or fast pace (Hendricks et al., 2013).

In a study looking at the offensive side of the game, notational analysis was used to assess team and individual patterns through skill execution during attacking ball carries. They aimed to provide insight into what contributes to try-scoring and team success during a game of Rugby Union. Specific attacking and defensive variables were coded. They considered the movement of the defensive line in response to the ball carrier (Static, Rush or Lateral) and how many defenders were in the tackle. Similar results were found in the study above showing that rush defence increased breakdown wins while also the number of players in a tackle increased the chance of a breakdown win (Wheeler et al., 2010).

Attempts have been made to develop computer simulations to help identify how effective an attacking set move would be following the restart of play from a set piece (Line-out or Scrum). The study used agent-based modelling to have agents react to the set piece moves in a realistic real-time way, rather than in a pre-planned manner. The first phase following a set piece was adhered to strictly as the capability of the modelling to generate realistic responses decreased with each subsequent phase (Lauren et al., 2013).

There doesn’t appear to be any studies using tracking data to map gameplay structures. It would be interesting to have GPS data collected and studied to provide added context to defensive systems. Mapping Rugby Union gameplay in a similar way to how Second Spectrum map the NBA would allow the game to be seen like never before and open the potential for certain machine-learning scenarios to help develop different strategies for situations during a game.

References

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