Polar Coordinate Analysis using Matlab, an application in soccer

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The polar coordinate analysis [1] is a double data reduction strategy which provides a vector representation which determines the relation between the criterion behavior, this is, between the criterion which is our object of study and the other categories which conform the taxonomic system. With the intention of automatically perform the polar coordinates analysis a Matlab [2] script file was created.

Six matches played during the final phase of the Germany '06 World Championship were selected for this study, in which a taxonomic system (ad hoc) was defined with the objective of specifying the interaction contexts performed by the teams and the use of the space during the game. The observation and data registering was performed using SOCCAF v2.2video [3]. Afterwards, a sequential analysis using SDIS-GSEQ [4] and a polar coordinate analysis were performed.

The results obtained from the polar coordinates analysis allow describing the game action in soccer, adding the diachronic dimension of the events and combining the prospective and retrospective perspectives. By automatically performing the calculations using the Matlab approach, we have dramatically reduced the time for the calculations, as well as increased the quality of the results.

References

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