Visualization of Football Data

Rasmus Bo Adeltoft
Sebastian Seneca Haulund Hansen
Steffen Berg Klenow
Christian Bjørn Moeslund
Andreas Staurby Olesen
Henrik Sejer Pedersen
Supervisor: Marco Chiarandini

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4 Introduction

Data is collected at a rapidly increasing rate in all fields and it becomes necessary to present data in different ways in order for humans to make sense of it. One way to do this is through data visualization. Visualization can help human's understanding of large data sets, as the data can be summarized very effectively, and patterns can quickly be recognized by humans. When

making visualizations it is important to understand how the human cognitive system works, such that visualizations can be designed to make it easier for humans to understand the data. In order to do this, we will apply principles from the field of visualization to present football data. We will use tools such as R to process data and plot static visualizations, and use D3 to make interactive and dynamic visualizations.

Specifically, we will do this both by making visualizations that can help explore the questions that we present below, and by doing exploratory analysis such that new patterns can be discovered. The specific questions that we will be investigating are:

- How does a team evolve throughout a season in terms of goals, points, etc.?

- How does a team's playing style (for example passes, possession and tackles) change throughout a match?

- How does a winning team differ from a losing team?

During the visualization process we will consider different visualization techniques and choose a suitable one based on principles and analysis tools given by Tamara Munzner in "Visualization Analysis and Design" to make sure that the data is presented in an accurate and easily understandable manner. This includes considerations regarding the human cognitive system.

5 Theory

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