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Coordination patterns in scoring opportunities of the German team in the 2014 FIFA World Cup

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Introduction
Analysis of actions leading to scoring opportunities helps coaches and researchers to identify and employ the most effective playing methods (Hughes and Franks, 2005). Numerical dominance is key to create defensive stability or shooting opportunities. A new method of analysis was proposed to detect and analyze numerical relations between teams (Vilar, Araújo, 2013). Accordingly, the aim of this study is to examine the emergent coordination patterns from the goal-scoring opportunities of the German Team in the 2014 FIFA World Cup.

Methods
We analyzed video sequences of scoring opportunities (8 goals, 16 saved shots and 9 intercepted shots) in open play of the German Team in the 2014 FIFA World Cup. Teams’ numerical relations were examined taking into consideration the definition of effective play-space (EP-S), defined by Gréhaigne, Mahut (2001) as the polygonal area obtained through the imaginary line linking all involved players located at the periphery of play at a given instant. Editing of video footage was performed through Video Observer® software. From the location of all outfield players in each frame, the EP-S was calculated through a MatLab® convex hull computation. The EP-S was divided into seven sub-areas, according to the classification proposed by Vilar et al. (2013). Numerical relations were examined in four moments: i) when the assisting attacker received the ball; ii) when the assisting attacker passed the ball to the shooting attacker; iii) when the shooting attacker received the ball; iv) when the shooting attacker shot at goal (Vilar, Araújo, 2014). Numerical uncertainty between the teams across sub-areas was calculated through Shannon’s entropy, H (Shannon, 1948), in MatLab®.

Results Discussion
Results indicated that the numerical uncertainty between teams was higher within the German Central Offensive sub-area, in comparison with the other sub-areas, for all three situations: goal (2.41 bits), saved shots (2.34 bits) and intercepted shot (2.33 bits). Considering the EP-S as a whole, we also found more numerical uncertainty in goal situations (2.31 bits), when compared to both of the other situations.

Conclusion
Findings showed that Germany generated more numerical uncertainty in the sub-area closer to the opposing goal in all situations. It is possible to infer that higher numerical uncertainty is related to scoring success, whereas intercepted shots appear to be a byproduct of defensive stability.

References

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