

# CONTRIBUTION TO A COLLECTIVE BEHAVIOR IN TEAM SPORT

## Exploratory Study of Informational Resources

**Mathieu FEIGEAN**  
**UNIVERSITÄT BERN**

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**Jérôme Bourbousson & Roland Seiler**

CONTEXT

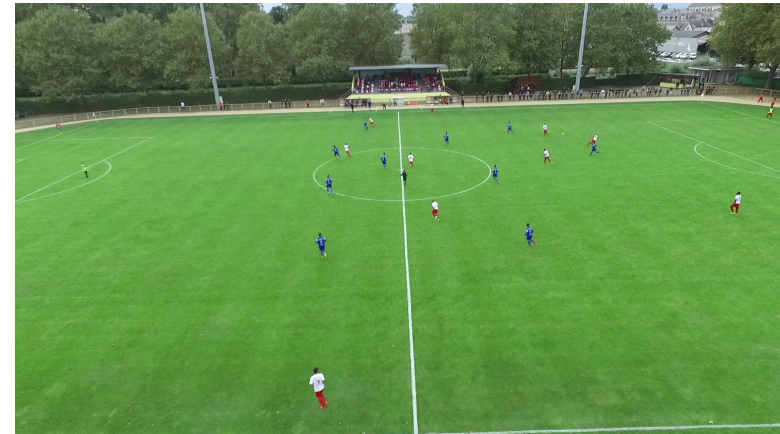
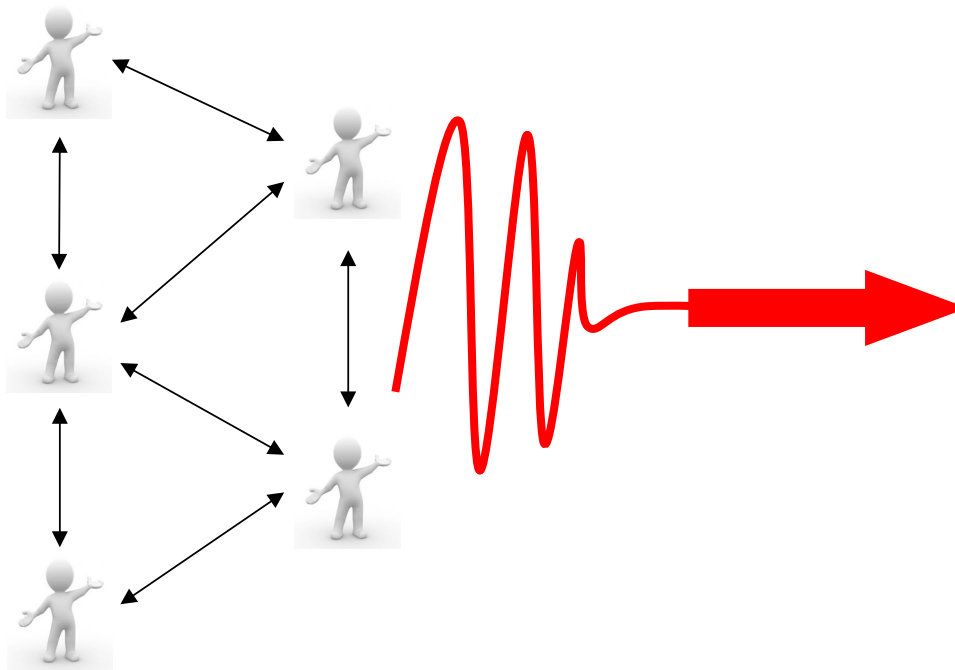
FRAMEWORK

STATE OF ART

Player

Emergence

Team



HOW DO **PARTICIPANTS** MAKE TO REGULATE THEIR ONGOING ACTIVITY TO **CONTRIBUTE** TO THE **COLLECTIVE COMPLEX BEHAVIOR**?

CONTEXT

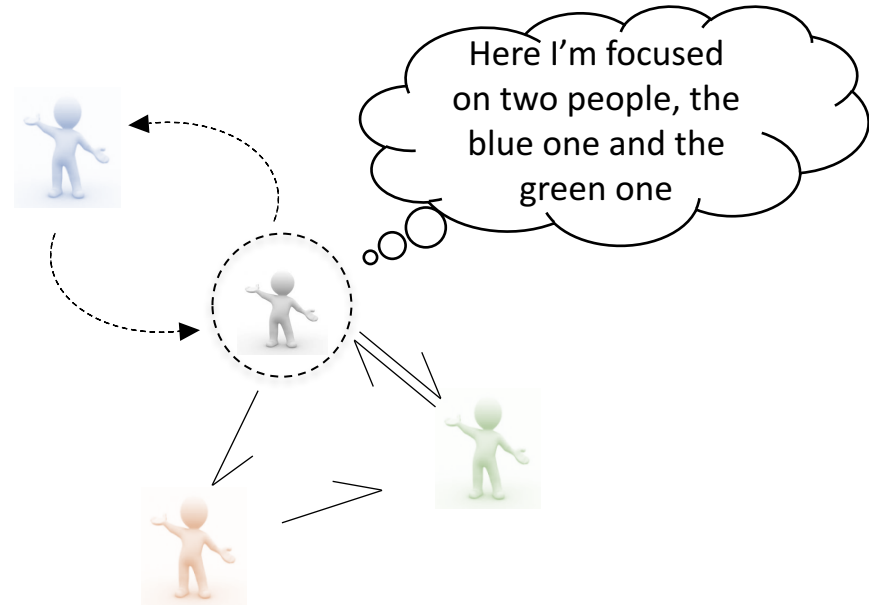
FRAMEWORK

STATE OF ART

## ENACTIVE APPROACH

(Varela et al., 1993)

(Araujo & Bourboursson, 2016)



UNDERSTAND HOW A **HUMAN REGULATE** HIS BEHAVIOR IS ASSOCIATED TO THE  
**DESCRIPTION OF CONSCIOUSNESS (SELF)**

CONTEXT

FRAMEWORK

STATE OF ART



**WHAT DO WE KNOW ABOUT THE REGULATION?**



**THEORETICALLY PRESUPPOSED RATHER THAN EMPIRICALLY INVESTIGATED**

RATIONAL

METHOD

RESULTS

DISCUSSION

The study aims on analyzing the individual informational resources (i.e., regulation) which contribute to a collective behavior in team sports

## OBJECTIVES:

- Identify the variety of the informational resources of human individual activity when they contribute to a collective behavior
- Identify to which extent informational resources are used by the team members





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## Data Collect

✓ 10 participants: national 5th french football

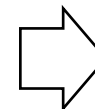


## Data treatment

Meaningful  
Unit

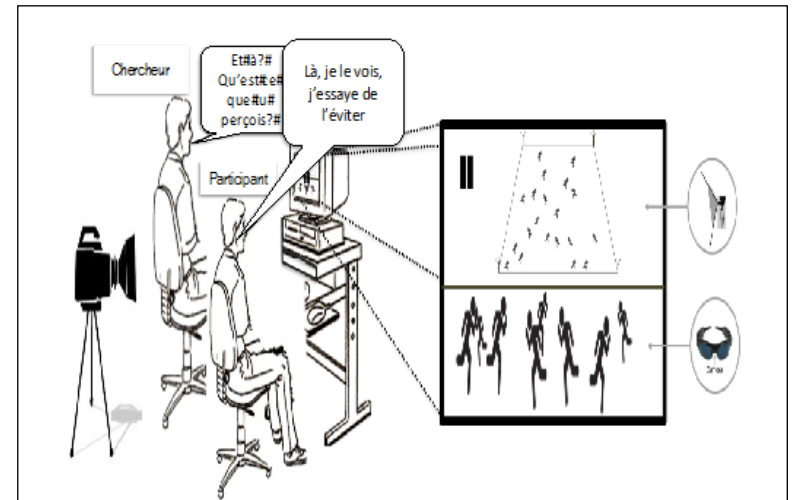


Informational  
Resources



Thematic  
Analysis

## Self-confrontation interviews



RESEARCH METHODS RESULTS DISCUSSION

Focusing on the trajectory and movement of the ball

Focusing on the player behaviors around the ball

Perception of global spatio-temporal state of the team

Perception of the a small collective unit (e.g., attack, defense)

Perception of a free area that afford a possibility of action

Perception of situation that reveal an high density of player in a area

Judgement on the configuration of the instantaneous power balance between the two teams

Perception of global spatio-temporal state of the team (n = 27)

Perception of the a small collective unit (e.g., attack, defense) (n = 46)

Perception of a free area that afford a possibility of action (n = 23)

Perception of situation that reveal an high density of player in a area (n = 3)

Judgement on the configuration of the instantaneous power balance between the two teams (n = 9)

Perception of a spatiotemporal behaviour of a player unit (n = 73)

Perception of the space by one of the two teams (n = 35)

Informational resource relying on the global shape

( n= 108)

N=622 (info

- 19 differ
- 12 second-order themes
- 6 third-order themes

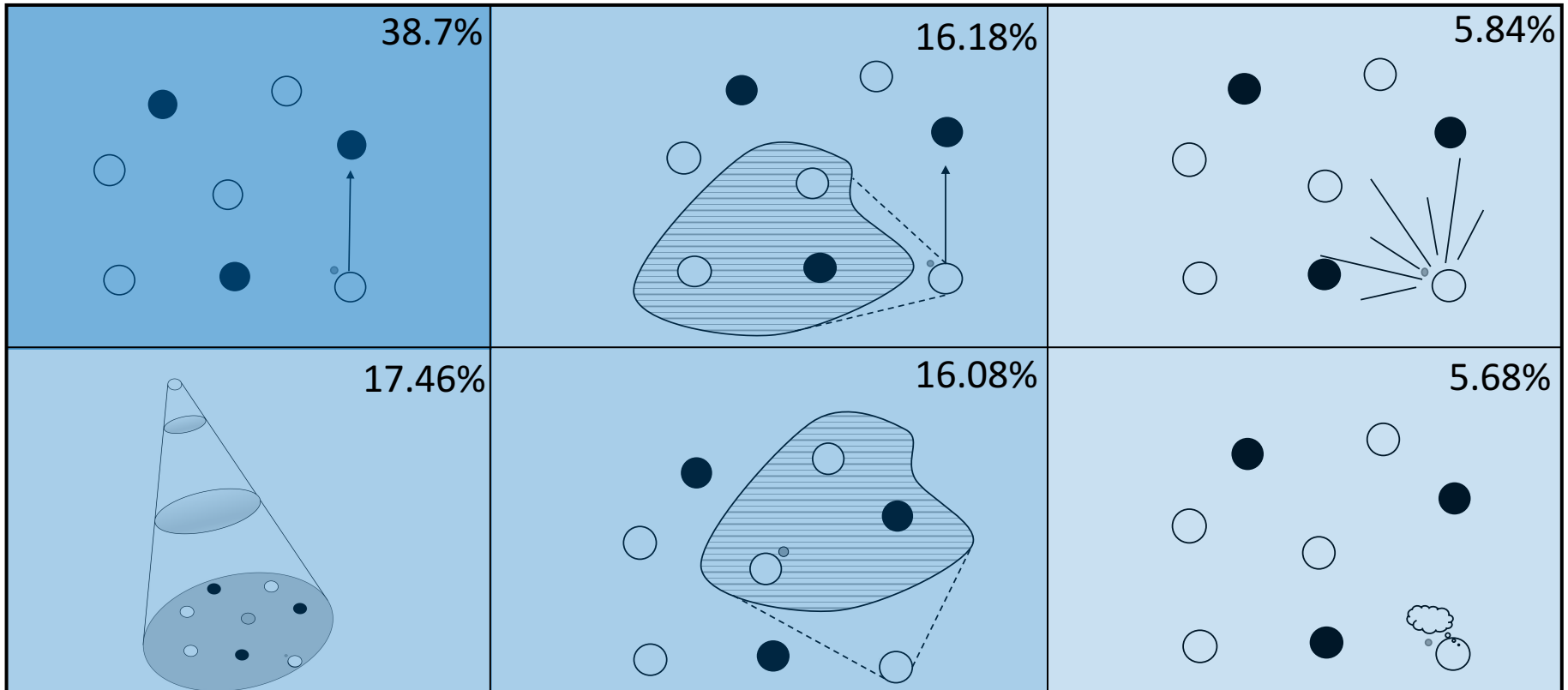
RATIONAL

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- Informational resource relying on different proportion..





RATIONAL

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## 1- INFORMATIONAL RESOURCES SUPPORTING THE PLAYER'S ACTIVITIES...ALREADY WELL KNOWN

Local  
regulation

Collective behaviour  
emerge from simple  
local adjustment and  
interaction

(Perna et al., 2010)

Shared  
Knowledge

The collective behavior  
improve when the  
players shared  
knowledge about the  
team and the task

(Blickensderfer et al., 2010)



RATIONAL

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## 2- INFORMATIONAL RESOURCES ILLUSTRATING A NEW WAY OF EMERGENCE



Extrapersonal  
Coordination

Individual coordinate  
their behavior from the  
physical environment

Global  
regulation

Interpersonal  
coordination has  
neglected that co-agents  
are able to grasp the  
global picture

(R'kiouak et al., 2016)

(Bourbousson & Bourbousson, 2016)

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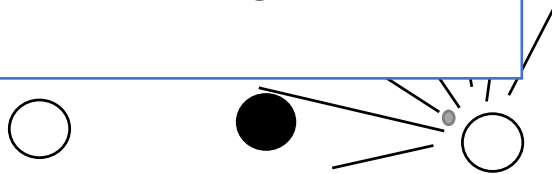
## 3- OTHER INFORMATIONAL RESOURCES ILLUSTRATING THE HUMAN COMPLEXITY



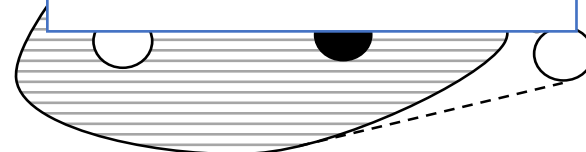
Radar

Simultaneous  
perception

Special human ability to  
have an overall  
perception of the close  
surrounding behaviour



Complexity of the  
human behavior...not  
only one affordance



- Coaching:
  - ✓ New knowledge about the individual regulation
  - ✓ Idea about how to create collective behavior



- Robotics:
  - ✓ Multi-agent system



Thanks for  
your  
Attention

- Futur research:

What are the spatiotemporal conditions that can explain why people tend to use different informational resources and switch to a specific one ?

