Can we fix the match fixing problem?

An Agent-Based Analysis

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WHO AM I?

Information Systems Student

Research Assistant

Agent-Based Modeller

“The Black Sox”

“Boxing’s secret $10 Million Match Fixing Scandal”

“Tennis Match Fixing Uncovered”

“Crashgate”

“Bundesliga Scandal”

“Sixties Scandal that shocked the Game”

INVOLVED PARTIES

Athletes

Betting-Mafia

Control-Authority

AGENT-BASED MODELLING

Computer Program

Artificial World

Heterogeneous Agents

Interaction

THE MATCH-FIXING ABM

Medium-high Number of agents: 100 athletes

Subdivided into 3 Behavioural Types: Rational, Social, Ethical

Betting Mafia & Control Authority

Heterogeneous Agents: Individual attributes for every athlete

Interaction with the environment that can be subject to variation

Temporal Aspect: Athletes age during the simulation → Age-related decision process

Adaptive Agents: decisions may vary during every period

TOURNAMENT PROCEDURE

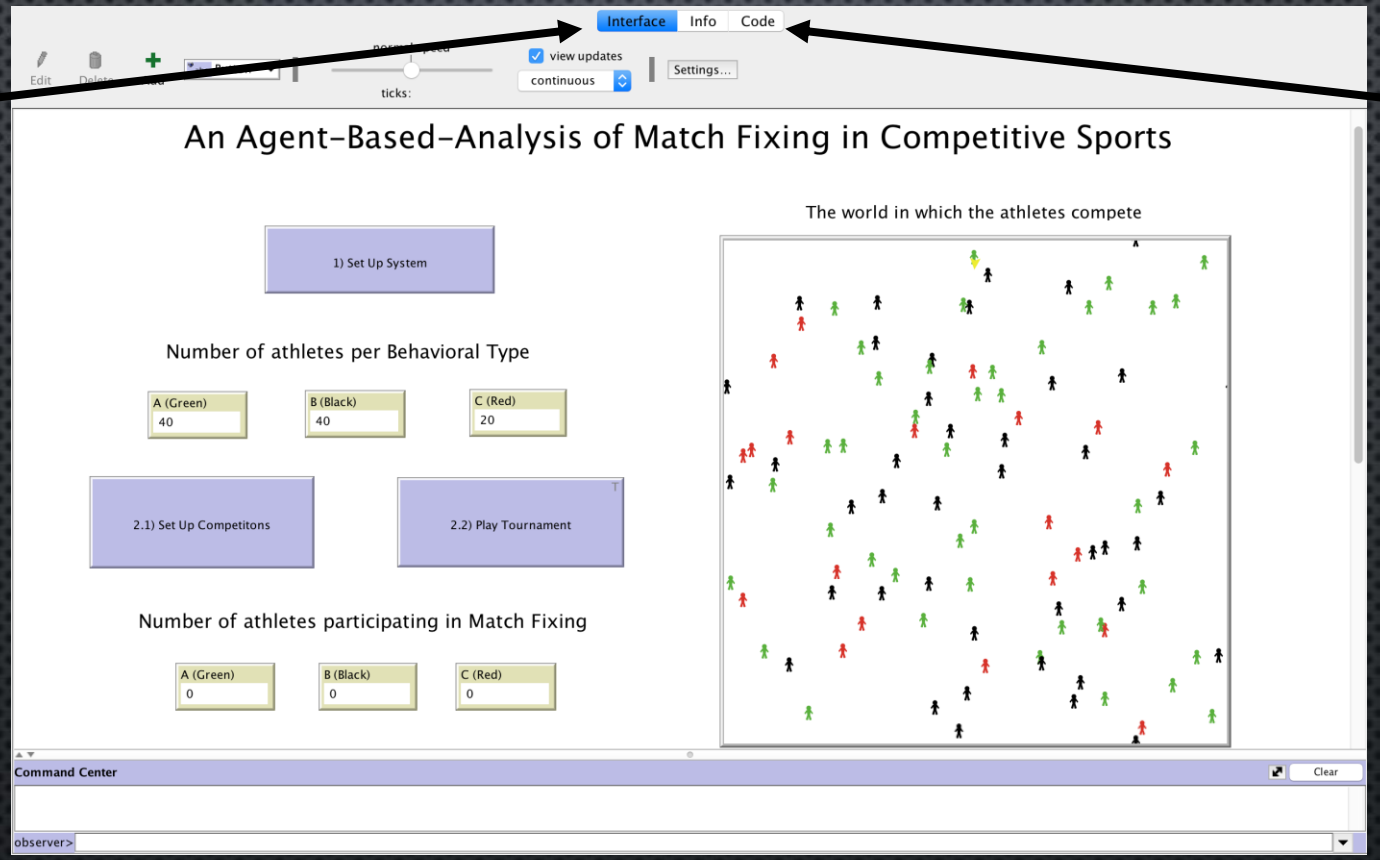
Pairs of 2 athletes are created

Athlete with higher talent-strength is targeted by Betting Mafia

Match Fixing Decision based on Behavioural Type Criteria

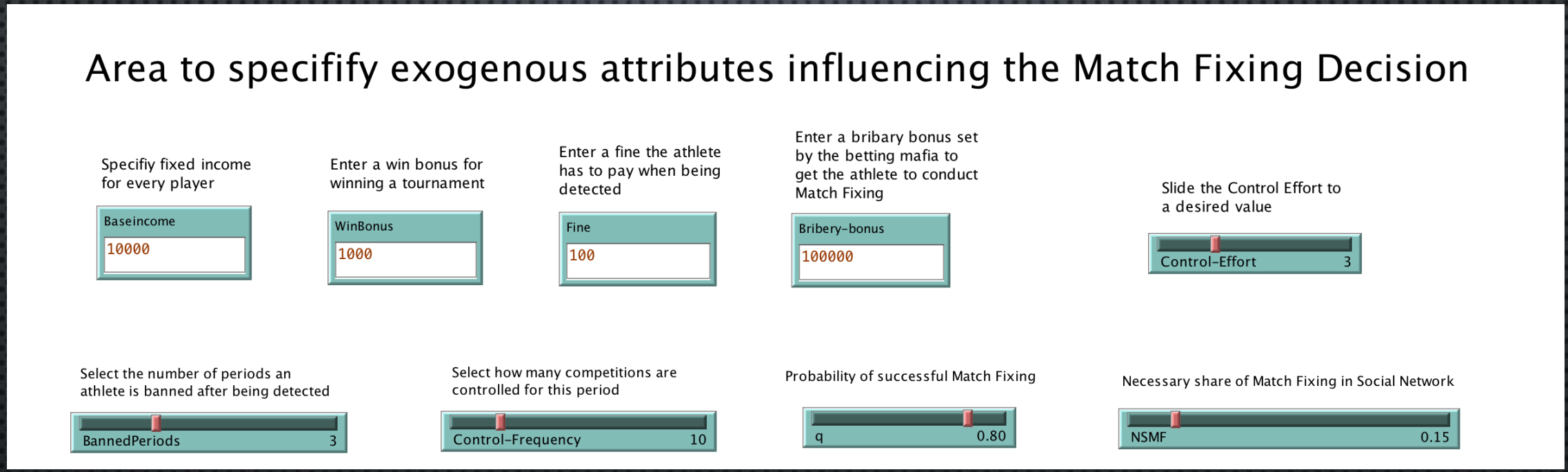
COMPUTER SIMULATION

Interface for Analysis

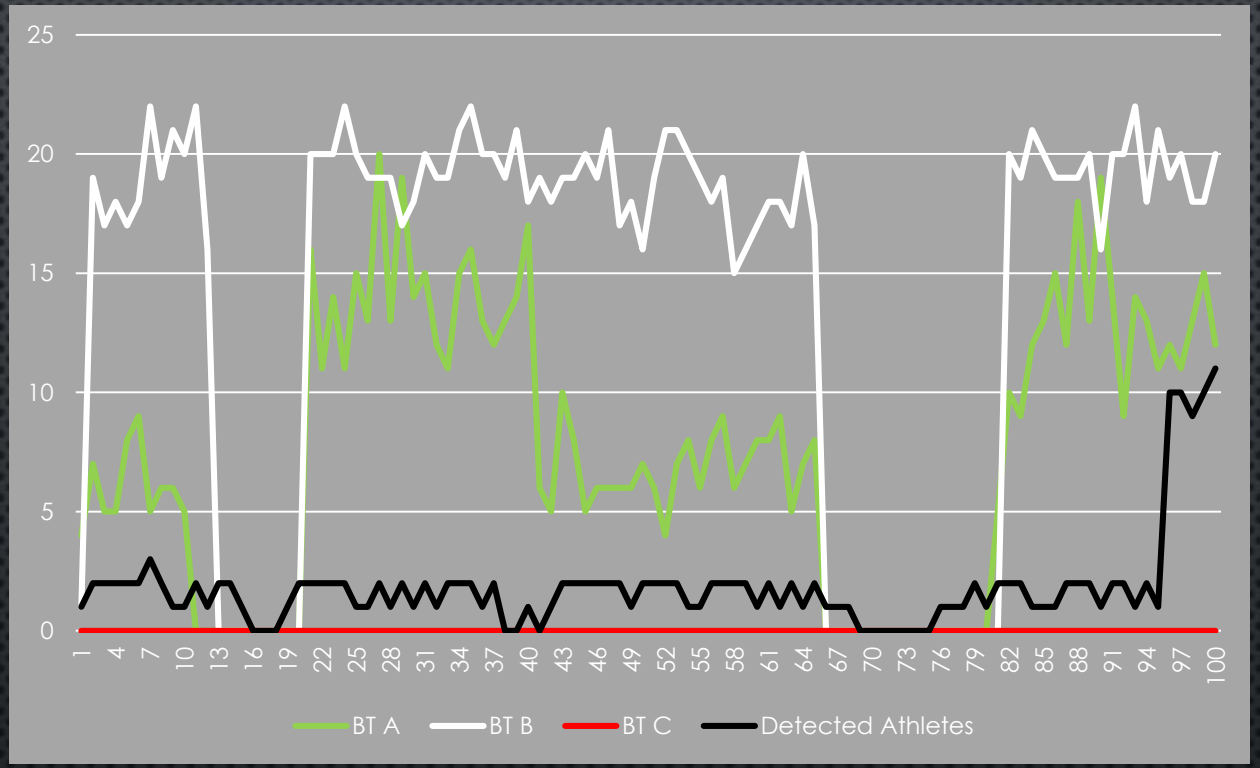


~5.000 lines of code

COMPUTER SIMULATION



ANALYSIS OVER 100 PERIODS



FIRST ANALYSIS RESULTS

Betting Mafias have the potential to dramatically influence the Match Fixing Decision of the Rational Type by setting a higher Bribery Bonus

This also has effects on the Social Type

Control-Authority can counteract with a higher Win Bonus/higher Ban

A higher fine appears not to have a significant influence

Control Authority can achieve a higher detection rate but only with significantly higher efforts

CONCLUSION

Computer Simulation has the potential to be a powerful tool in the fight against Match Fixing

Base model already delivers first results but needs to be further specified and extended

Possible extensions: athlete experience, adapted targeting, whistle blowing, referees

THANK YOU FOR YOUR ATTENTION!

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