

SOCIAL ERROR MONITORING IN PROFESSIONAL BASKETBALL GAMES

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INTRODUCTION

In **social error monitoring**, a frequently observed behavioural effect is **observational post-error slowing** which involves slowing down after an observed error, similar as we do after our own errors. This effect is dependent on the **observer-agent relationship**, and more pronounced in cooperative settings.

Team sports provide a unique opportunity to distinguish errors by oneself, teammates, and opponents. This teammate-opponent distinction reflects a cooperative-competitive relationship, with cooperation potentially intensified by the intensive shared training and goal.

Previous analyses of post-error behaviour in NBA games predominantly focused on the adaptation of the shooting player.

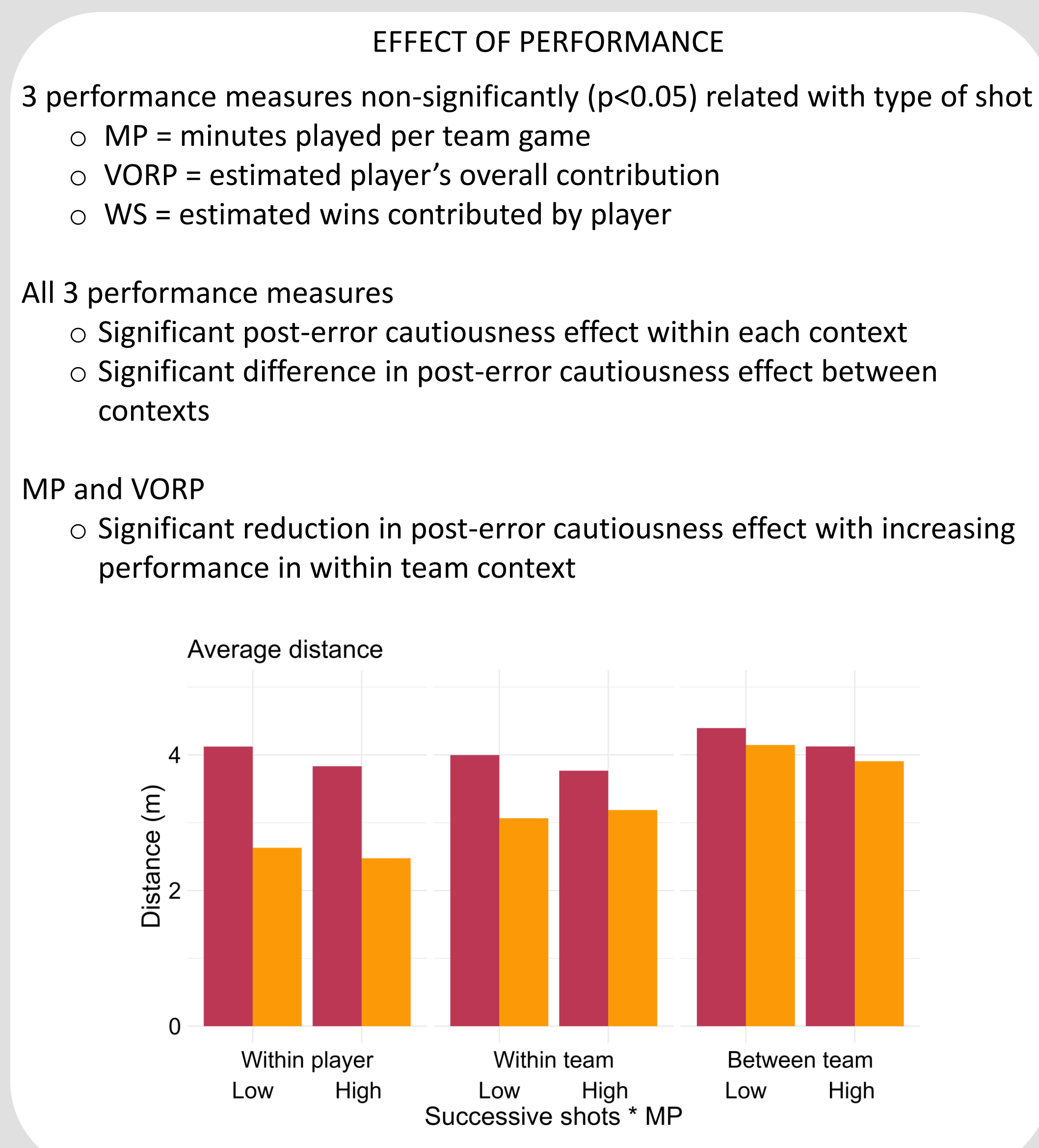
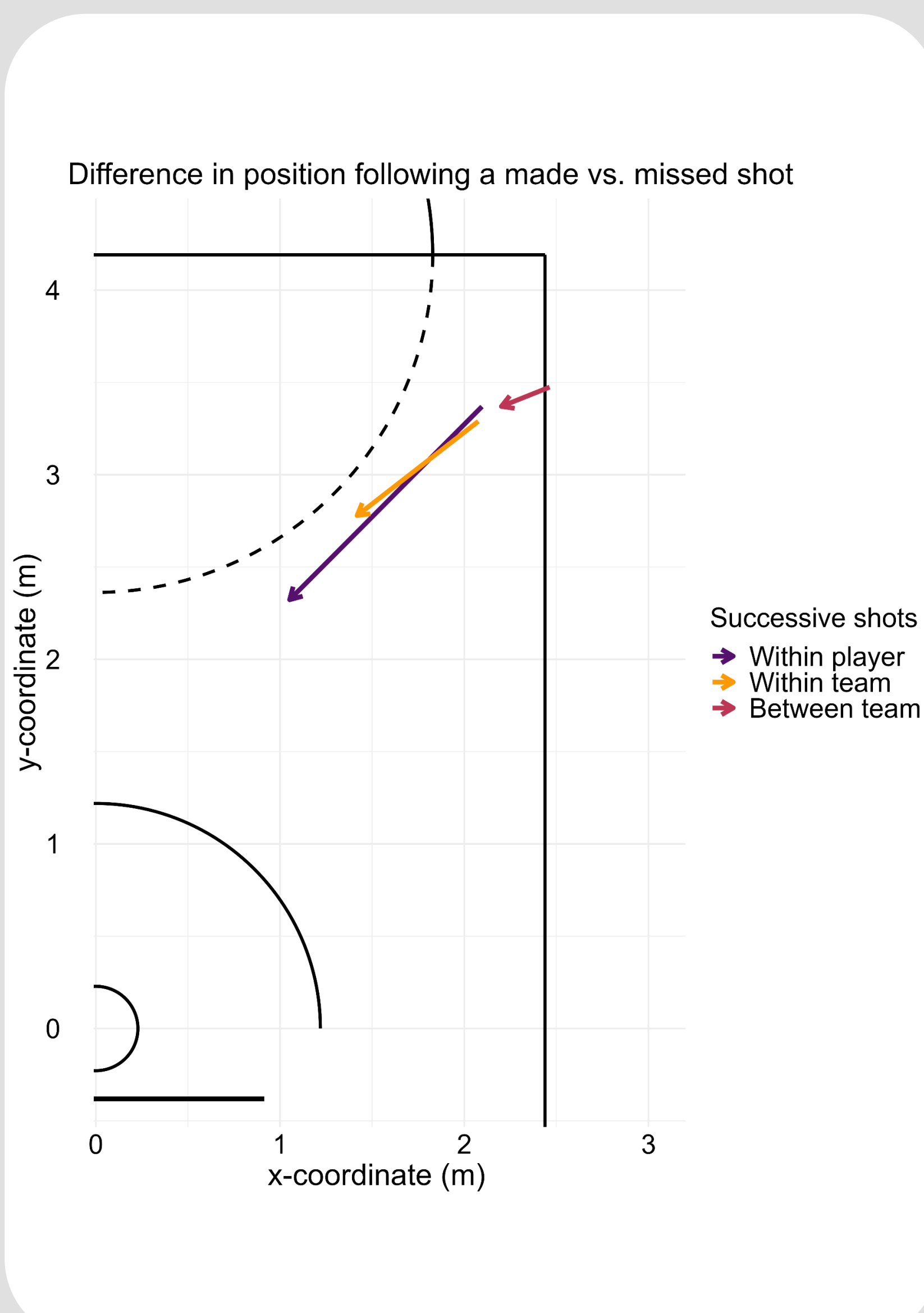
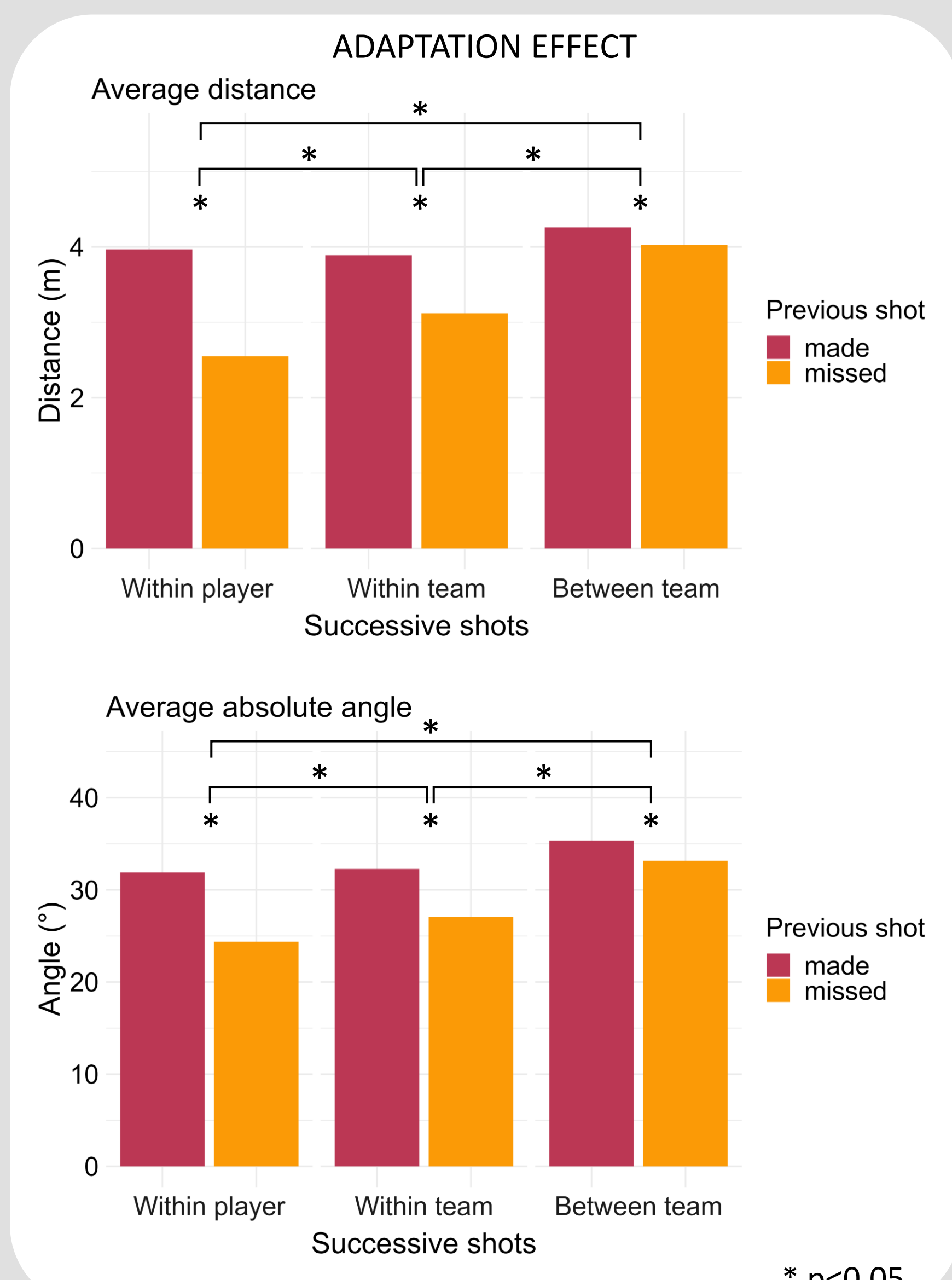
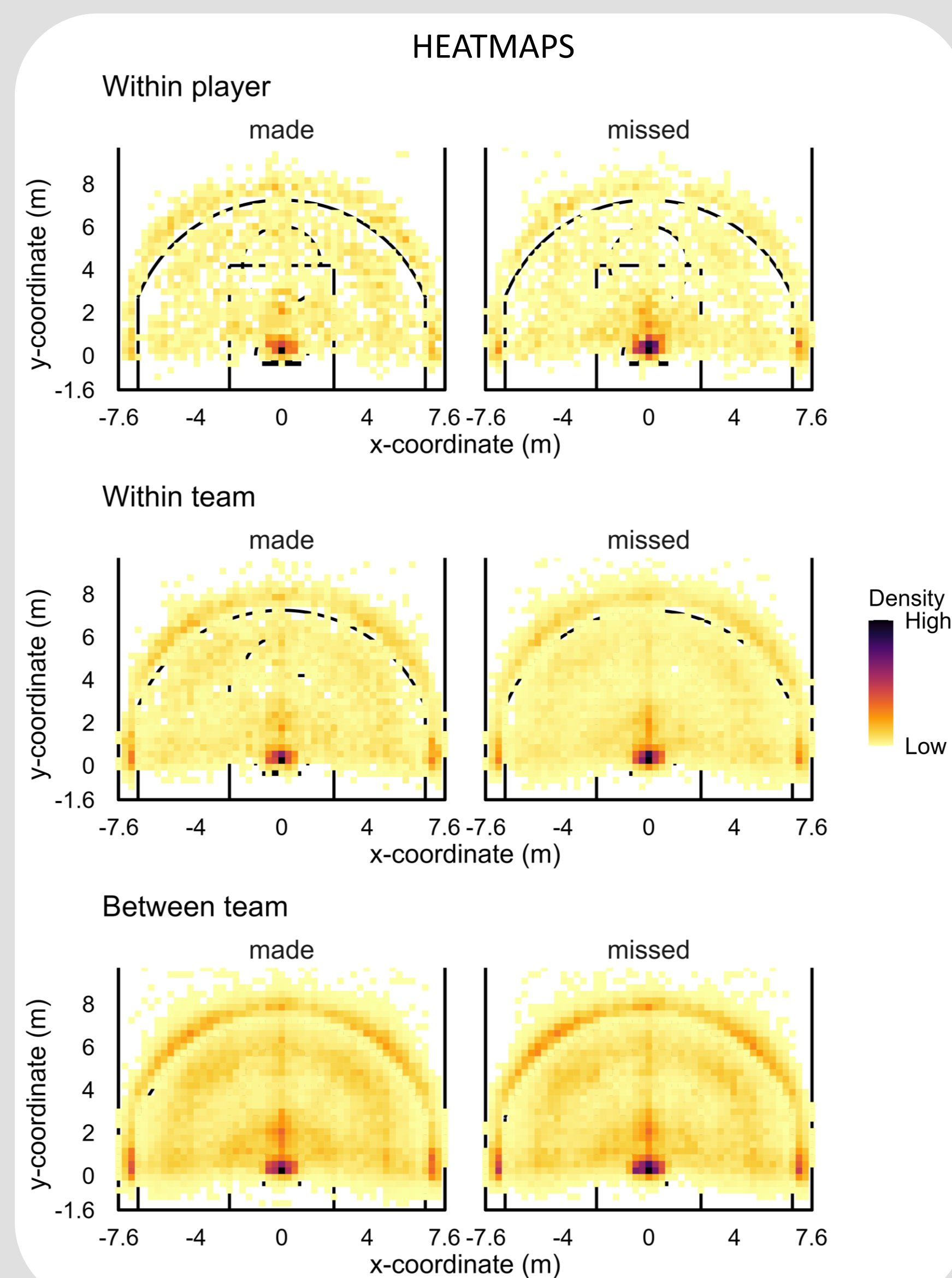
We analyse **NBA games** to investigate whether players adapt their shooting strategy differently after missed attempts by themselves, teammates or opponents, and whether these adaptations change depending on player performance.

METHODS

- NBA games 2009-2010 regular season
- Adaptation in distance and angle
- Successive shots
 - within player: previous shot by player himself
 - within team: previous shot by teammate
 - between team: previous shot by opponent
- Previous shot missed vs. made
- Linear mixed models with random effects
 - Player: player baseline distance
 - Team: team strategy
 - Game: time dimension
- Explore effect of performance on adaptation effect

RESULTS

DATA POINTS PER CONDITION		
Previous shot	Made	Missed
Successive shots		
Within Player	3 253	6 526
Within team	10 600	26 296
Between team	59 175	50 133



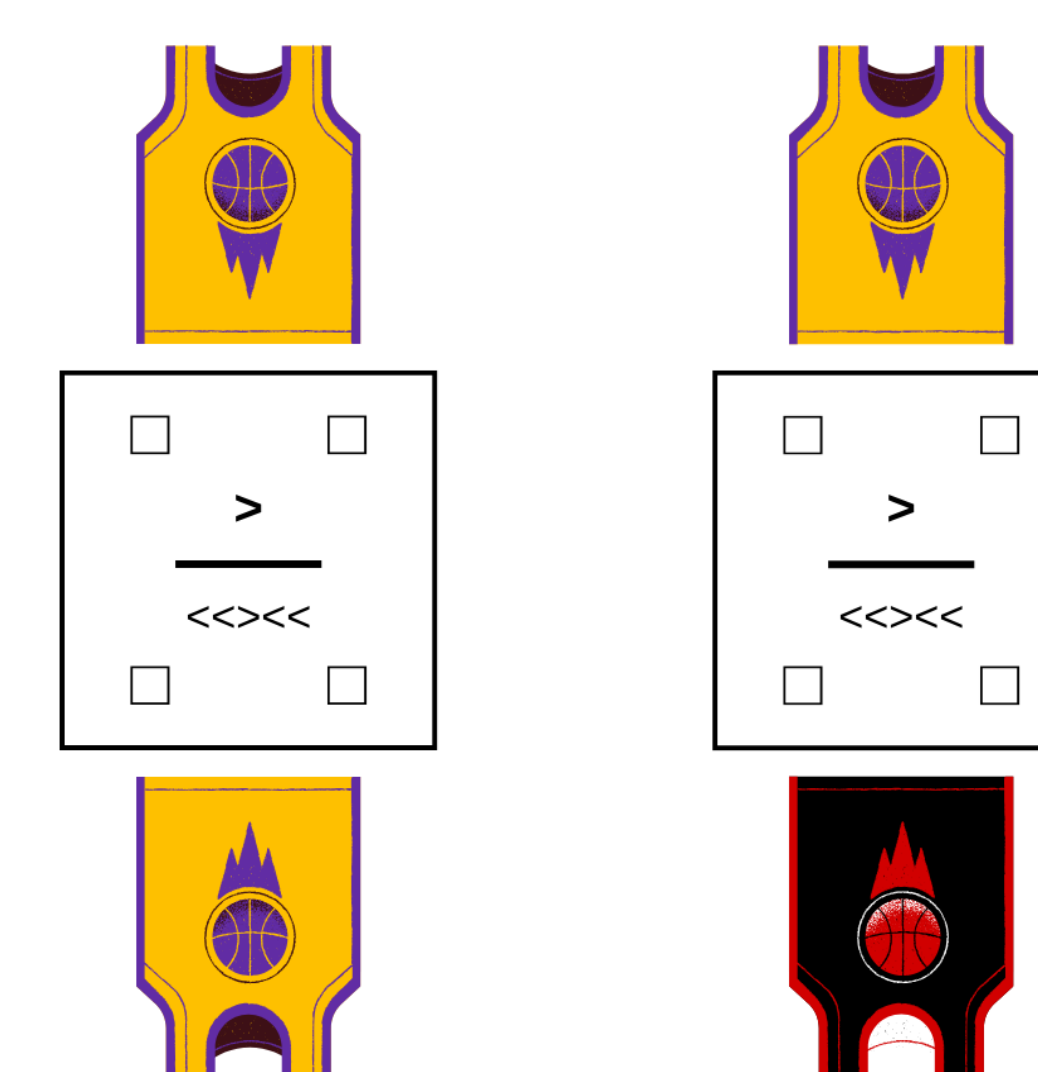
CONCLUSIONS

- **Post-error cautiousness** / slowing in practice
- Effect **social context**: post-error effect largest following one's own, next teammates', and last opponents' shots
- Effect **performance** only in within team context for MP and VORP
- Link to theoretical frameworks on social error monitoring (Musco et al., 2023)
 - ⊗ Direct matching hypothesis: mirror neuron system
 - ⊗ Goal representation hypothesis: relevance to the observer's goals

Musco, M. A., Zazzera, E., Paulesu, E., & Sacheli, L. M. (2023). Error observation as a window on performance monitoring in social contexts? A systematic review. *Neuroscience and biobehavioral reviews*, 147, 105077

OUTLOOK

- Extend analyses
 - 3 additional NBA regular seasons
 - Other team/dyadic sports (e.g. tennis)
- Neurophysiology of social post-error cautiousness (EEG) joint flanker task within vs. between team context
- Controlled field study



LET'S CONNECT



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