Does red enhance human performance in contests? A meta-analysis

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Introduction

- Colour effects argued to exert effects on psychology[1] and behaviour.[2]
- Hill & Barton found a 'winning red' effect at the Athens (2004) Olympics.
- Effect more pronounced when competition was 'close'.
- **Objective: Does red affect the likelihood of winning in a large sample of Olympic combat sports / World Boxing Championships?**

Methods

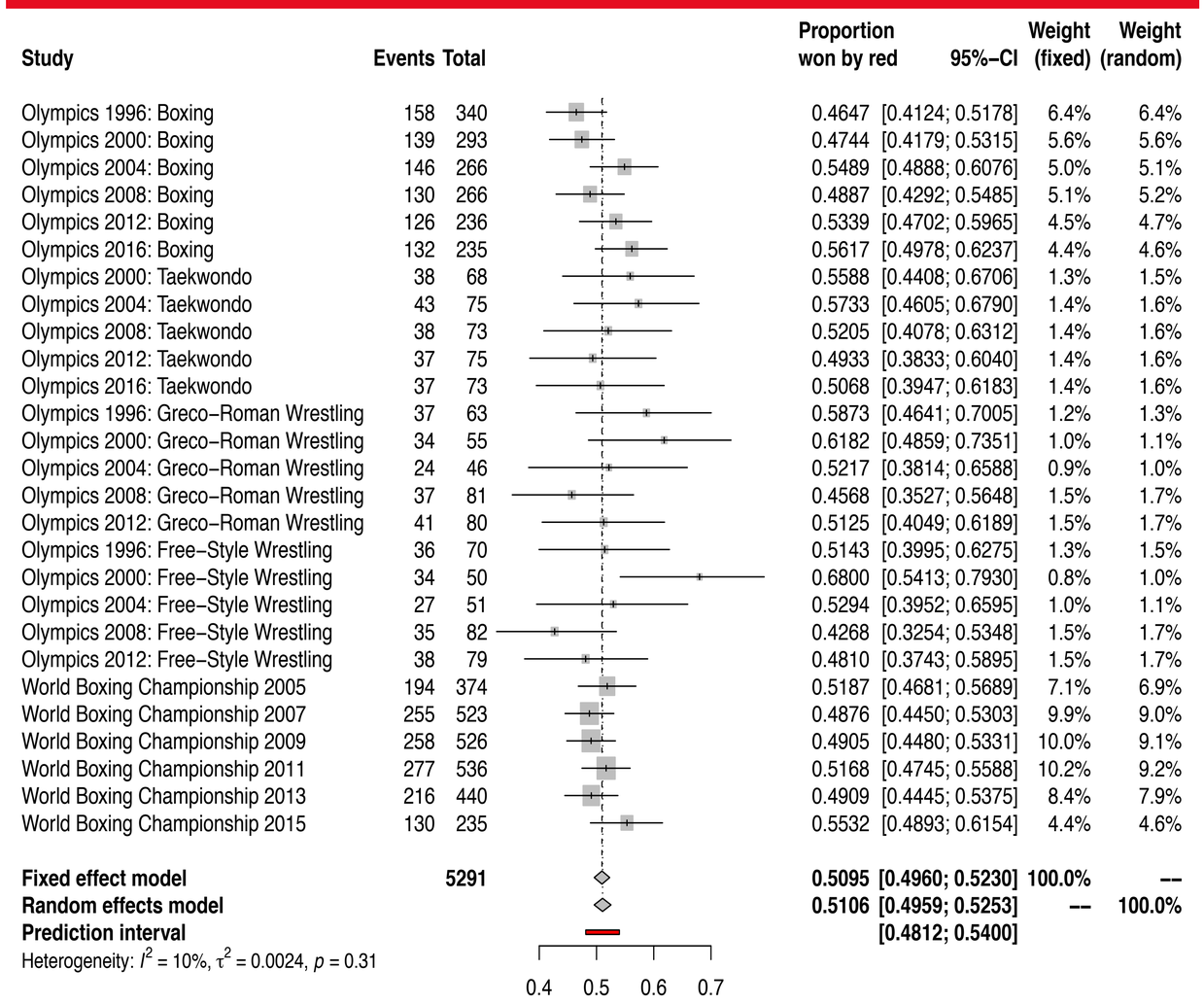
- We included data from 6 Olympic events (1996-2016) and 6 World Boxing Championships.
- For Olympic events, we coded Taekwondo, Greco-Roman Wrestling, Freestyle Wrestling, and Boxing.
- Following Hill & Barton, we agreed upon a pre-specified protocol for close contests, and selected the first quartile of closest matches.
- We used the 'meta' package[4] to synthesise our findings (note that other analyses including Bayes Factors have also been used but are not reported here).

(Key) Results

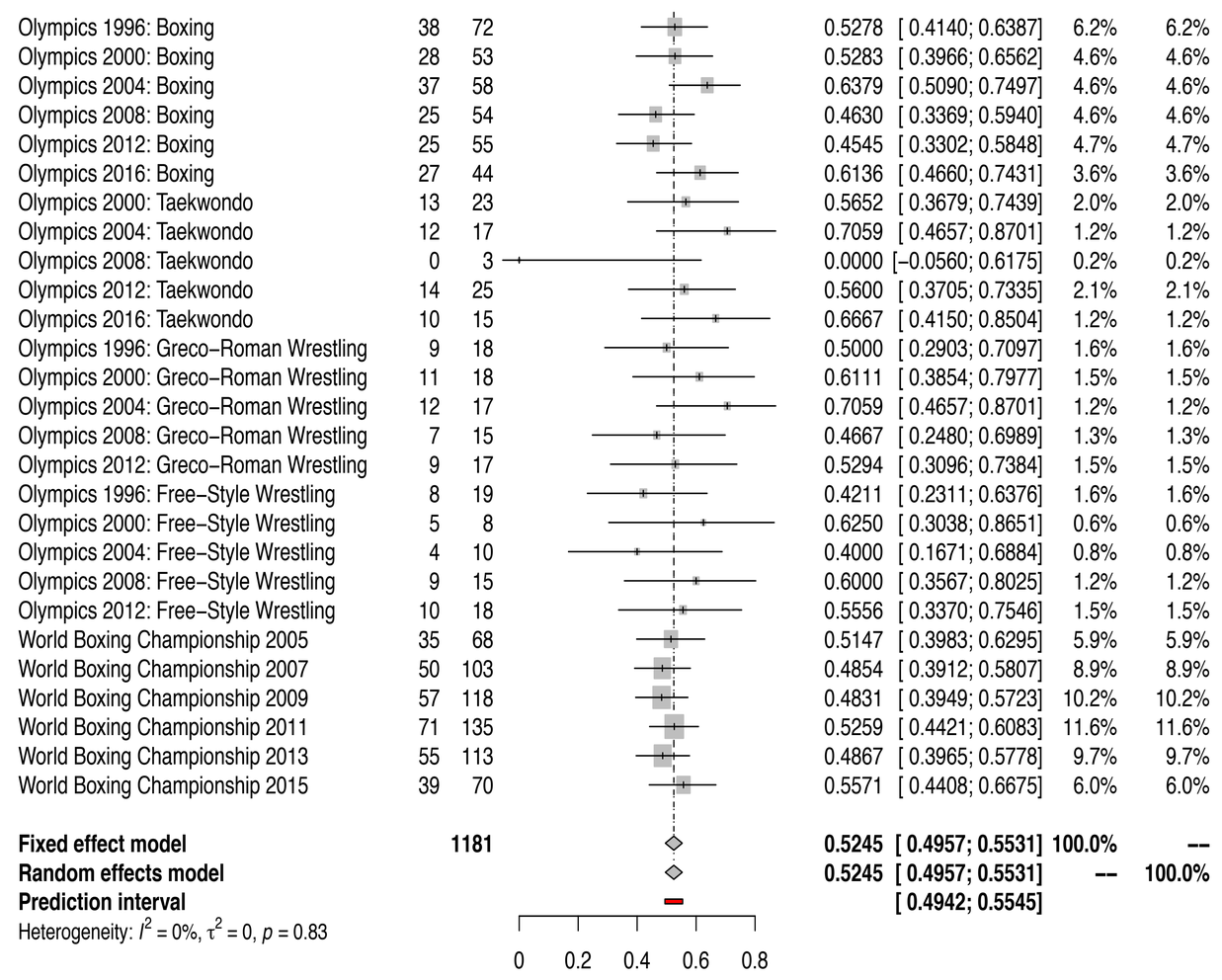
- See Figures.

Discussion

- No statistically significant effects of colour (but suggestion of small effect when competition is close).
- Alternative explanations? (Time?, Small but noisy effect?, statistical outlier(s)?)



Forest plot for *all* contests



Forest plot for *close* contests (quartiles)

Picture by Boxing AIBA, https://commons.wikimedia.org/wiki/File:Rio_2016_Olympic_Games_-_Day_3_(29779003951).jpg

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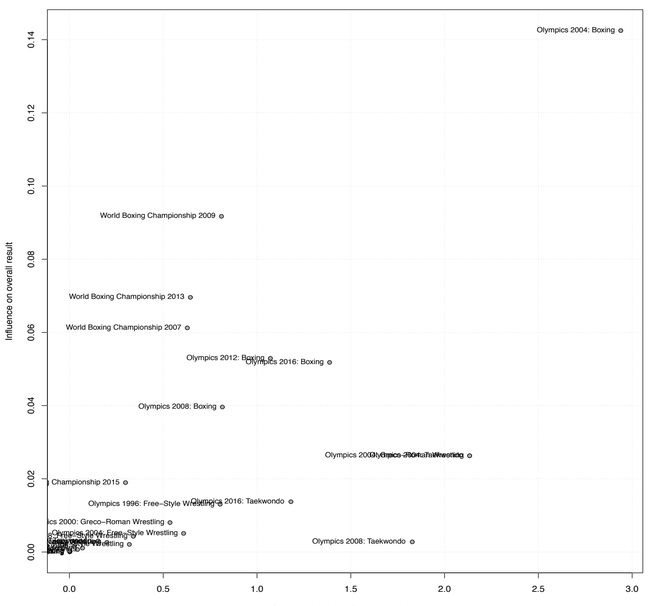
BONUS

- As expected, no suggestion of publication bias.
- No evidence for (strong) heterogeneity.
- We also conducted analyses with tertiles.
- These show an effect for close competitions *but* likely driven by outlier (see graph below).

Alternative explanations / Questions / moving forward.

- Was Athens (2004), a statistical outlier? (Perhaps for close contests but not for overall effect)
- Potential non-independence issues?
- What is the effect of rule changes?
- Are we underpowered to detect a 'noisy' effect?
- Should we move toward more studies which experimentally manipulate colour? For example [5]



Baujat plot for close contests (quartiles)

Take a picture to download the **poster**

References

[1] Elliot, A.J. & Maier, M.A. (2012) "Color-in-Context Theory". In: Advances in Experimental Social Psychology. Ed. by A Devine and P Plant. Vol. 45. Academic Press, pp. 61–125. doi: 10.1016/B978-0-12-394286-9.00002-0.

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