

Stealing Diamonds – an eye-tracking study of (dis)honesty

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1

Research question

By using eye-tracking can we map the temporal processes of decisions to cheat?

Does the visual decision process differ between (immediate and hesitant) cheaters and honest people?



Background literature

Dishonesty

- Dishonest behavior is an everyday phenomenon done by most people [1].
- People balance desires to be self-serving and uphold moral standards creating moral dissonance and decision conflict [2, 3].

Eye-tracking

- Eye-tracking has been used to predict decisions and understand choice processes [4].
- People focus their gaze on the option they are also most likely to choose [5, 6].
- People ignore or pay little attention to information that conflicts with the decision to cheat [7].

4

Conclusion

- Extreme cheaters** seems more **conflicted** or **uncertain**. They take longer, switch gaze more and spend more effort on the honest option.
- Immediate honest people** and **cheaters** focus on the option they want and they are **not conflicted** with the choice.
- Hesitant cheaters** seem **highly conflicted** and have **ambiguous gaze patterns**.
- Hesitant honest people** seem **tempted to cheating a little** throughout the entire decision.
- Ambiguity and conflict may make hesitant decision makers more susceptible to decision interventions.

References

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- [2] R. Barkan, S. Ayal, F. Gino, and D. Ariely, "The Pot Calling the Kettle Black: Distancing Response to Ethical Dissonance," *J. Exp. Psychol. Gen.*, 2012.
- [3] L. L. Shu, F. Gino, and M. H. Bazerman, "Dishonest deed, clear conscience: when cheating leads to moral disengagement and motivated forgetting," *Personal. Soc. Psychol. Bull.*, vol. 37, no. 3, pp. 330–349, 2011.
- [4] M. G. Glaholt, M. Wu, and E. M. Reingold, "Predicting preference from fixations," *Psychology J.*, vol. 7, no. 2, pp. 141–158, 2009.
- [5] S. Shimojo, C. Simion, E. Shimojo, and C. Scheier, "Gaze bias both reflects and influences preference," *Nat. Neurosci.*, vol. 6, no. 12, pp. 1317–1322, 2003.
- [6] J. L. Orquin and S. Mueller Loose, "Attention and choice: A review on eye movements in decision making," *Acta Psychol. (Amst.)*, vol. 144, no. 1, pp. 190–206, Sep. 2013.
- [7] A. Pittarello, D. Motro, E. Rubaltelli, and P. Pluchino, "The relationship between attention allocation and cheating," *Psychon. Bull. Rev.*, pp. 1–8, 2015.

2

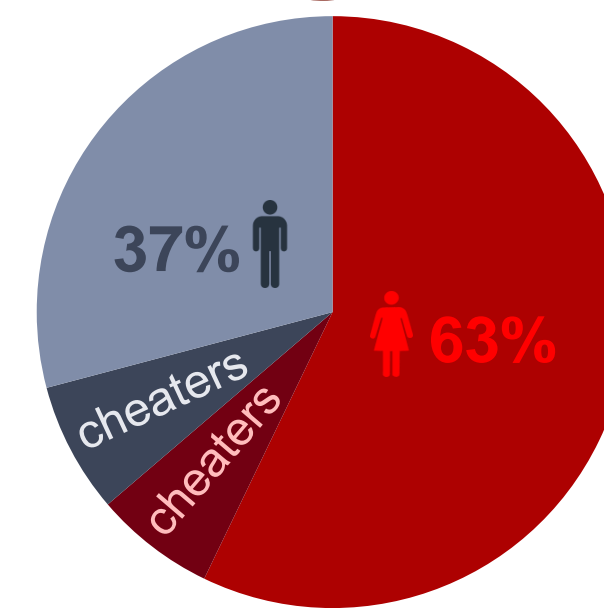
Experimental design

N=182

63% female

Age mean 24 (3.5 SD)

14% cheated maximum (n=25)



Experimental set-up

- We used payment method of a non-essential survey task to study decisions to cheat using eye-tracking.
- When recruited participants were informed that they would win gift-cards of either \$8, \$16, or \$80 value for participating.
- Participants could choose to cheat by reporting the wrong card.

Step 1

Privately drawing a playing card

Unknown to the participants the deck consisted of 1 spade and 1 diamond card. The rest was clubs.



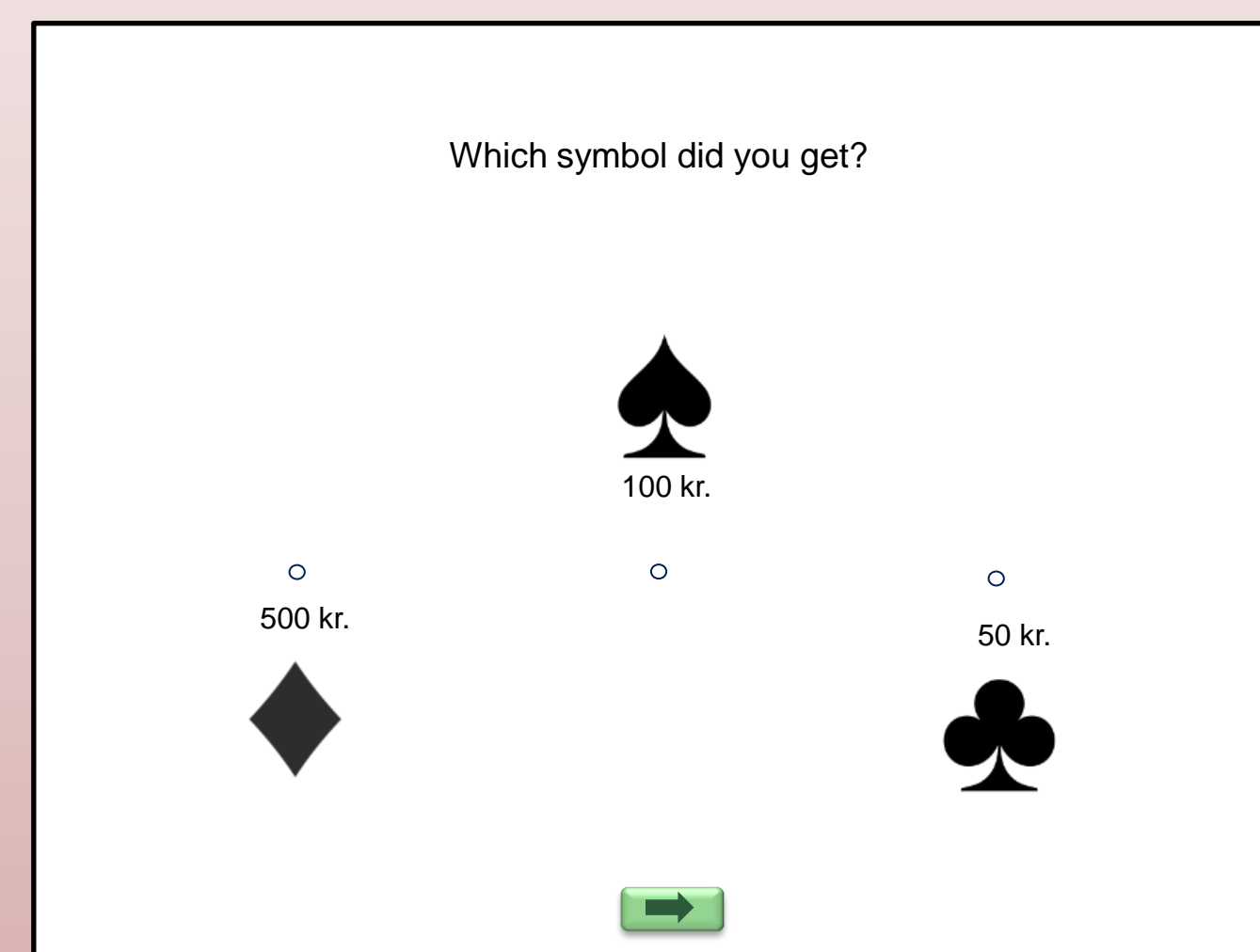
Eye-tracking part

Step 2

Unrelated survey participation

Step 3

Report symbol of playing card on screen

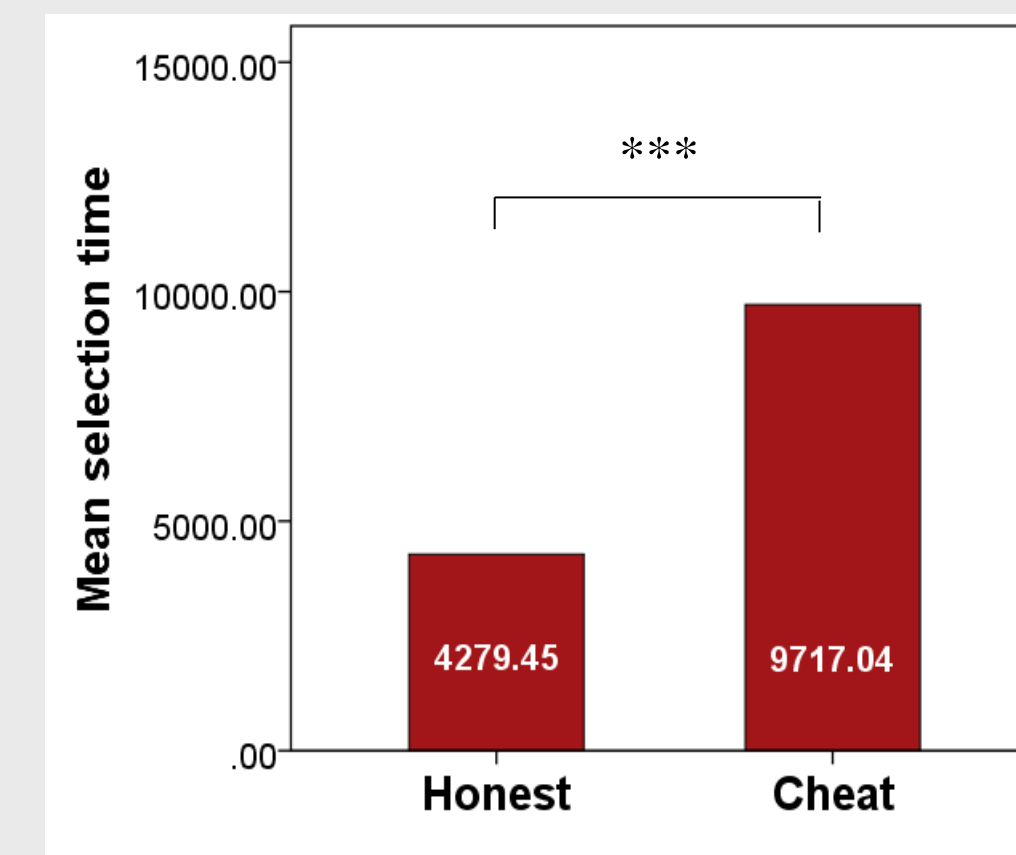


3

Results

Results 1: Extreme cheaters vs. honest people

1a: Extreme cheaters take longer to make their decision



Decision time cheaters: $M=9.72$ s (SD=11,84)

Decision time honest people: $M=4.28$ s (SD=3.17). $t(27.09) = -3.00, p = .006$.

Inferential test performed on \log_{10} converted selection times because decision times have an ex-Gaussian distribution.

1c: Extreme cheaters show more decision conflict by switching gaze between options

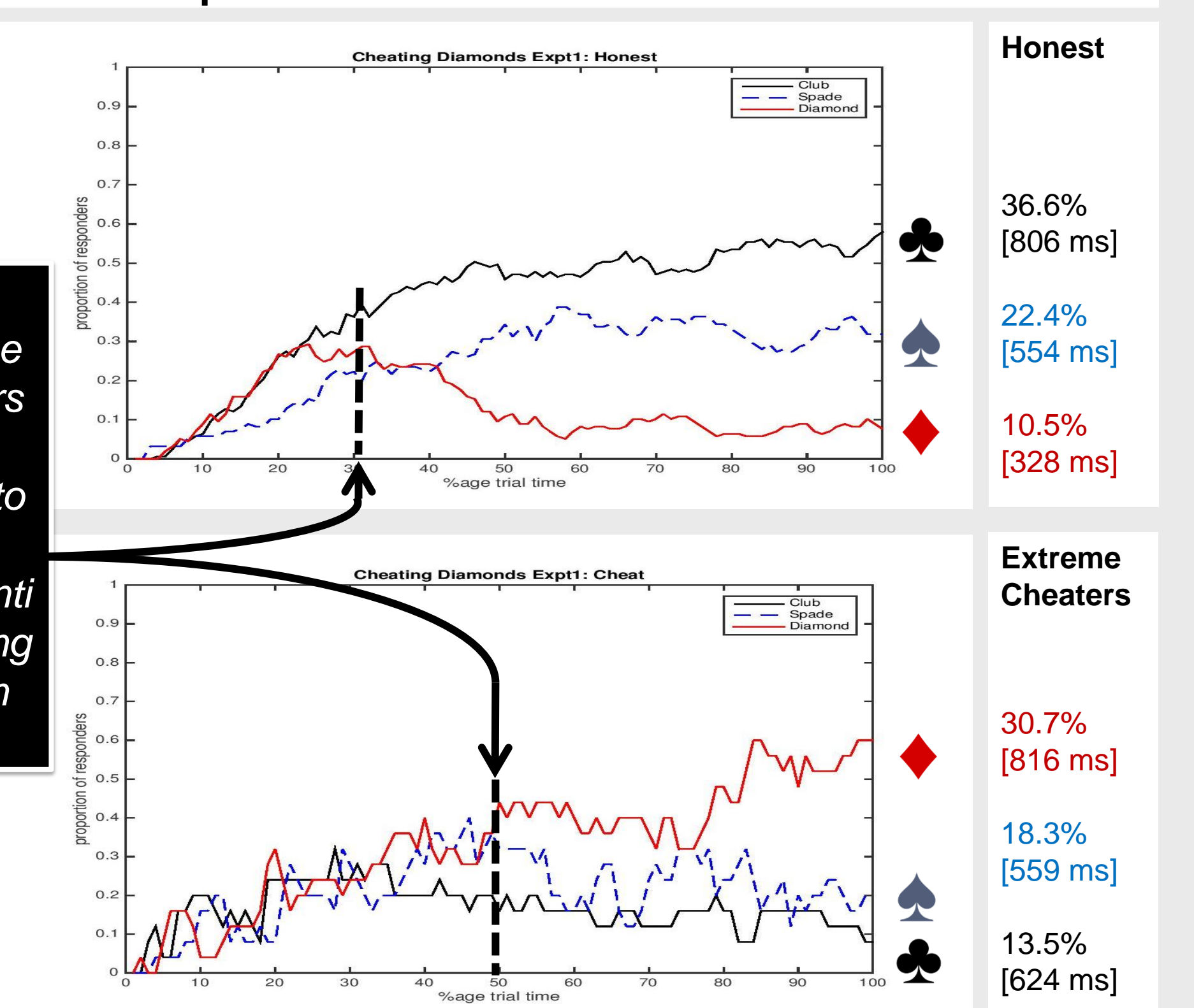
$F(1;179)=7.2, p=0.008, MSE=5.622, \eta^2 = 0.039$ (controlling for decision time).

Gaze switching cheaters: $M=5.96, SD=9.66$

Gaze switching honest people: $M=3.36, SD=3.11$

1b: Honest people focus on the honest option or cheating a little. Cheaters focus on the two cheating options

Proportional attention allocation and effort

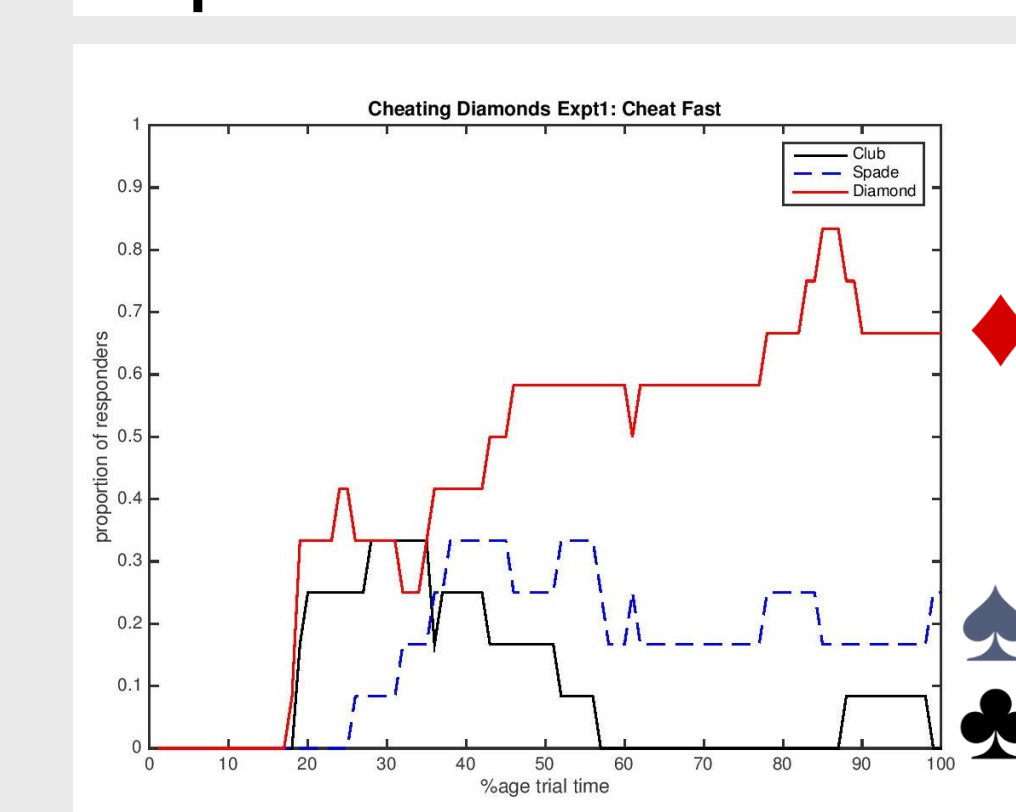


Proportional attention allocation in percentage. Average fixation duration of a single fixation (processing effort) in square brackets. For comparison purposes time has been normalized to sum to 100

Result 2: Immediate vs. hesitant decisions

2a: Immediate cheaters and honest people show similar clear gaze patterns and exhibit little decision conflict

Proportional attention allocation and effort



Immediate Cheaters (IC)

42.1% [1078 ms]

15.0% [651 ms]

8.8% [487 ms]

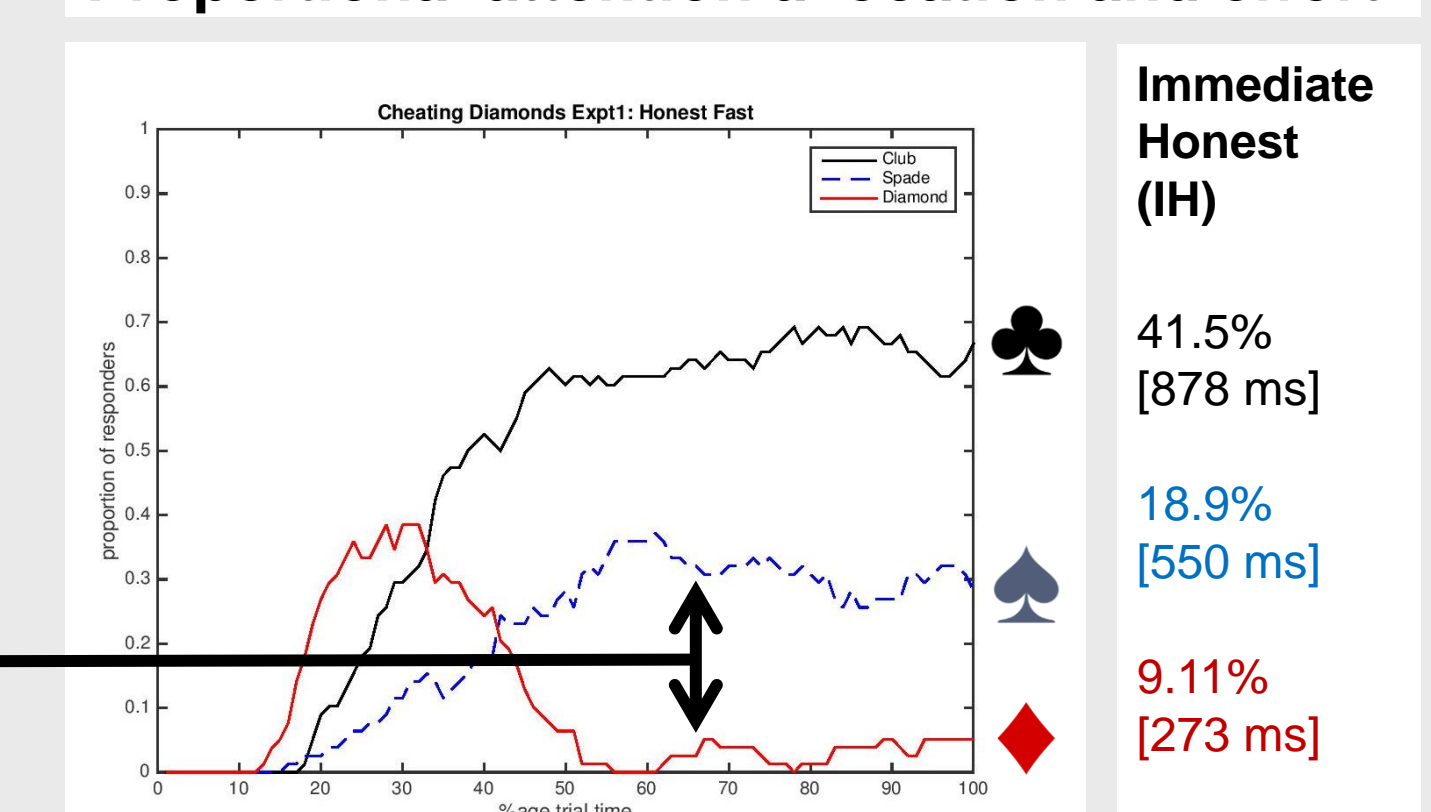
Equally low levels of conflict by gaze switching $F(1; 89)=0.57, p=0.45, MSE=1.3, \eta^2=0.006$

IC: $M=1.4, SD=0.9$

IH: $M=1.7, SD=1.2$

Focus equally little on the moderate cheating and honest option

Proportional attention allocation and effort



Immediate Honest (IH)

41.5% [878 ms]

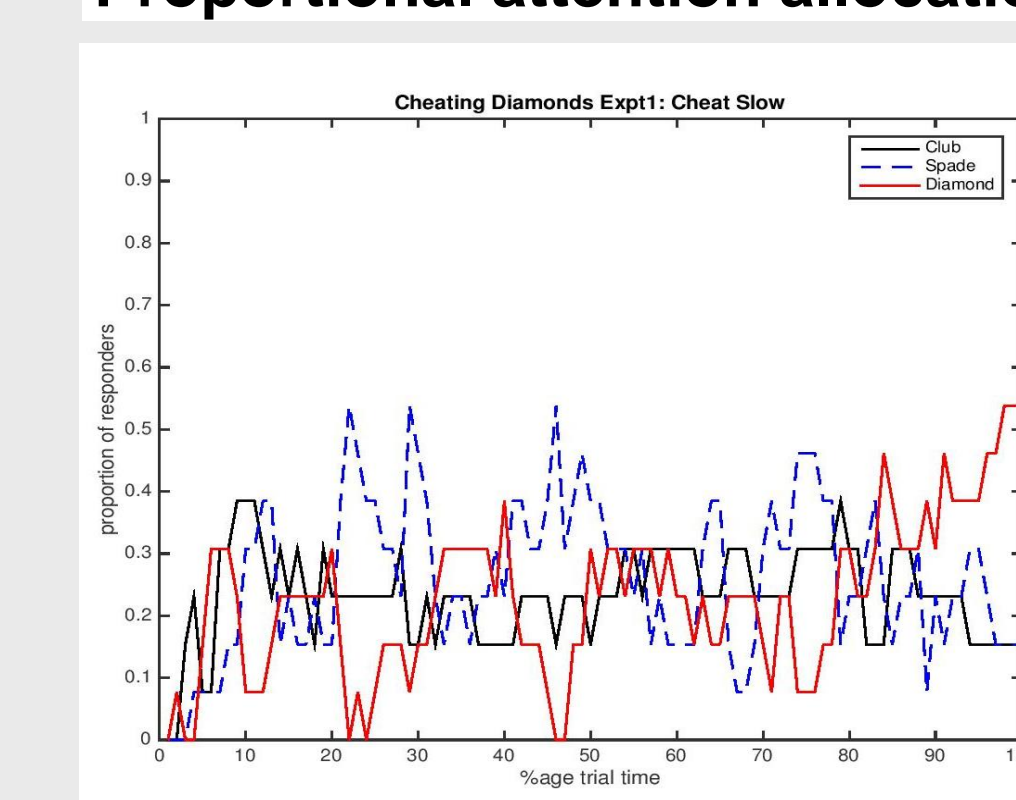
18.9% [550 ms]

9.11% [273 ms]

Focus significantly more at moderate than maximum cheating option

2b: Hesitant honest people consider moderate cheating up until the time of choice. Hesitant cheaters consider all options equally and spend most effort evaluating honesty.

Proportional attention allocation and effort



Hesitant Cheaters (HC)

20.2% [575 ms]

21.3% [498 ms]

17.9% [703 ms]

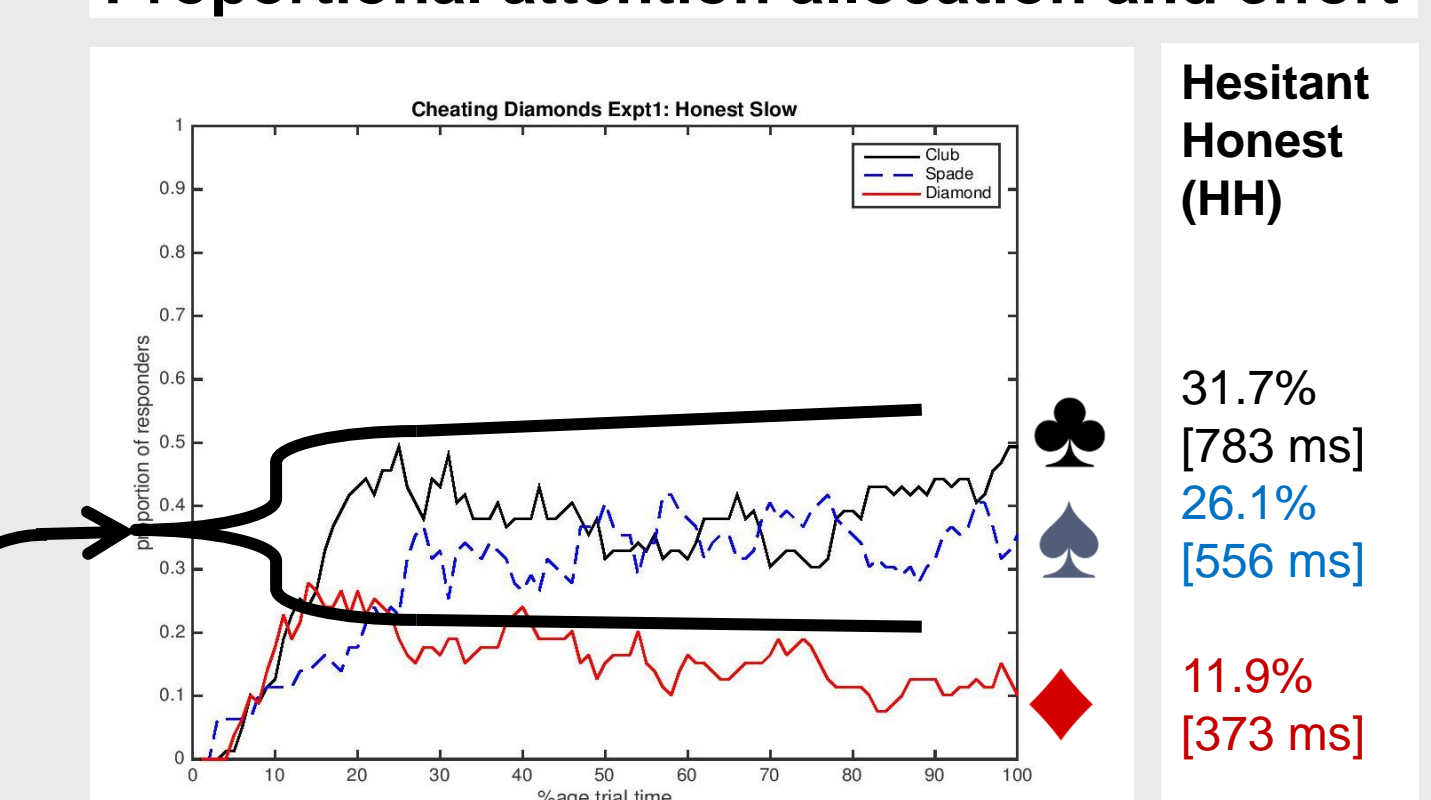
HC express more conflict by gaze switching $F(1;89)=9.5, p=0.003, MSE=30.4, \eta^2 = 0.1$

HC: $M=10.2, SD=12.1$

HH: $M=5, SD=3.5$

Attention allocation does not sig differ. Most effort spent on honest option

Proportional attention allocation and effort



Hesitant Honest (HH)

31.7% [783 ms]

26.1% [556 ms]

11.9% [373 ms]

Focus equally much on honesty and moderate cheating