UNIL | Université de Lausanne

Does disbelief in Free Will promotes risk-taking decisions ? a pilote study combining belief induction and Iowa Gambling Task

Schrag, Y.[1], Andrey, I.[2], Froidevaux, L.[2], Mercier, Y.[2], Willis, E.[2] & Mohr, C.[1]
[1]Institute of Psychology, University of Lausanne ; [2]University of Lausanne

INTRODUCTION

- Previous studies on free will showed that people tend to behave less responsibly when induced with determinist as compared to free will beliefs [1,2].

-We investigated whether comparable behavioural biases can be observed when individuals can choose between safe and risky choices as assessed in the Iowa Gambling Task (IGT) [3,4].

-Hypothesis: individuals who have been induced with a deterministic belief take more risky decisions than those who have been induced with a free will belief

METHODS AND PROCEDURES

Subjects

46 UNIL students (females=33 ; mean age : 22.58, sd=4.107 ; 18-37 range).

Incentives

To guarantee that individuals are motivated in the IGT [5], we informed them in advance that the three best performing subjects would receive a prize voucher.

Protocol

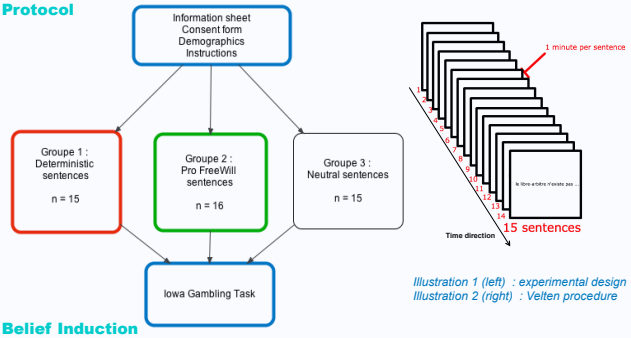


Illustration 1 (left) : experimental design
Illustration 2 (right) : Velten procedure

Belief Induction

The inducing procedure was a Velten like procedure (illustration 2) of 15 sentences appearing on the computer screen for 60 secondes each [2]. This procedure was added to the IGT PEBL code (see next section) to appear before the IGT.
Participants were told that they could be questionned on the sentences at the end of the experiment and should read them carefully.

Deterministic condition sentence exemple :
- *Science has demonstrated that free will is an illusion.*
- *Everything a person does is a direct consequence of their environment and genetic makeup.*

Pro Free Will condition :
- *I demonstrate my free will everyday when I make decisions.*
- *Our actions and thoughts are not simply the result of prior experiences.*

Neutral condition :
- *The Olympics are held every four years.*
- *Sugar cane and sugar beets are grown in 112 countries.*

Iowa Gambling Task

We used the classical IGT [3,4] available in the PEBL freeware [6]. They had to try to get the highest score possible by choosing (100 tries) one of the 4 card deck and that depending on the deck, they will gain and lose different amounts of virtual money.
- Two of the decks are considered as low risk (low gain / very low loss) and two as high risk (high gain / very high loss).
- Non clinical population is supposed to learn to avoid the risky decks over time [3,4].

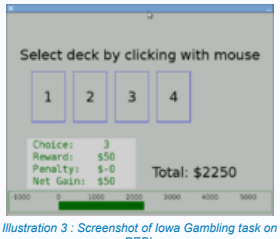


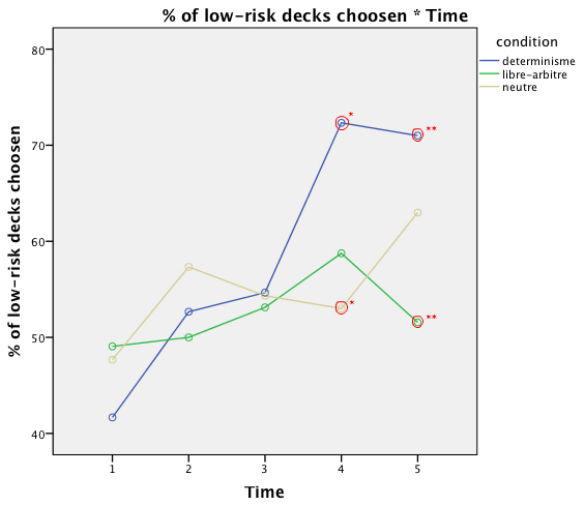
Illustration 3 : Screenshot of Iowa Gambling task on PEBL
(Source: http://pebl.sourceforge.net/battery.html)

RESULTS

Comparable to the previous literature [3,4], we analysed participants choices over 5 consecutive blocks of 20 choices each.

These values were subjected to a repeated measures ANOVA with block as repeated measure and induction condition as between-subject measure.
Results showed a significant interaction between block and induction condition, $F(8,175)=2.442$, $p=0.016$.
To disentangle this 2 way interaction, we ran separate one-factor ANOVAs for each block separately. The main effects were significant for the following blocks:
- Block 4 (*), $F(2, 43) = 4.84$, $p = .013$
- Block 5 (**), $F(2, 43) = 5.19$, $p = .010$

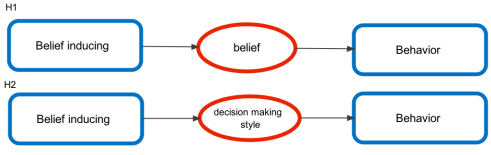
Significant pairwise comparisons (Bonferroni corrected) are shown with an asterix in the figure below.



DISCUSSION

• Contrary to our expectation, individuals in the deterministic condition were more efficient in learning to avoid the risky decks when compared to individuals in the neutral and free will condition.

• We propose that a deterministic perspective might promote emotional decision making rather than rational thinking which could explain the current results.



• A follow-up study should aim to confirm this new hypothesis with other tasks (than the IGT), which also assess the decision-making style.

References

[1] Baumeister, R.F., Masicampo, E.J., & DeWall, C. N. (2009). Prosocial Benefits of Feeling Free : Disbelief in Free Will Increases Aggression and Reduces Helpfulness.*Personality and Social Psychology Bulletin, Vol. 35 No. 2.*
[2] Vohs, K. D., & Schooler, J. (2008). The value of believing in free will : Encouraging a belief in determinism increases cheating. *Psychological Science, 19, 49-54.*
[3] Bechara, A., & Damasio, A. R. (2004). The somatic marker hypothesis : A neural theory of economic decision. *Games and Economic Behavior, 52* (2005), 336-372.
[4] Bechara, A., Damasio, H., & Damasio, A. R. (2000). Emotion, Decision Making and the Orbitofrontal Cortex. *Cerebral Cortex, 10* (3), 295-307.
[5] Fernie, G., Tunney, R. J. (2006). Some decks are better than others: the effect of reinforcer type and task instructions on learning in the Iowa Gambling Task. *Brain and Cognition, 60* (1), 94-102.
[6] Mueller, S. T. (2012). Psychology Experiment Building Language (version 0.12). Retrieved from http://pebl.sourceforge.net/

Acknowledgements & Contact

Thanks to :
Inglina Andrey
Laurine Froidevaux
Yves Mercier
Emma Willis
Christine Mohr
Kathleen Vohs

Yann Schrag
Université de Lausanne (SSP, IP, LERB)
Bâtiment Géopolis
Bureau 4129
1015 Dorigny

Mail : yann.schrag@unil.ch
Phone: +41 79 750 72 88