SPE APOGCE

Luncheon Address
Brisbane, 19th October 2010

Pushing the Boundaries

John Boardman; Founder & Special Advisor
Philippe Croizon – quarduple amputee English Channel Swimmer
Quality of Corporate Decision Making

- Good quality strategic decisions – 28%
- Bad decisions as frequent as good ones - 60%
- Good decisions altogether infrequent - 12%
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Memory Biases - 8

- Suggestibility
- Reminiscence bump
- Cryptomnesia / False memory
- Consistency bias
- Rosy retrospection
- Self-serving bias
- Egocentric bias
- Hindsight bias
Social Biases - 19

- Forer effect / Barnum effect
- Ingroup bias
- Self-fulfilling prophecy
- Halo effect
- Ultimate attribution error
- False consensus effect
- Self-serving bias / Behavioral confirmation effect
- Notational bias
- Egocentric bias
- Just-world phenomenon
- Dunning-Kruger / Superiority Bias
- System justification effect / Status Quo Bias

- Illusion of asymmetric insight
- Illusion of transparency
- Herd instinct
- Fundamental attribution error / Actor-observer bias
- Projection bias
- Outgroup homogeneity bias
- Trait ascription bias
<table>
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<tr>
<th>Positive outcome bias</th>
<th>Gambler's fallacy</th>
<th>Subjective validation</th>
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<tr>
<td>• Telescoping effect</td>
<td>• Clustering illusion</td>
<td>• Subadditivity effect</td>
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<td>• Survivorship bias</td>
<td>• Illusory correlation</td>
<td>• Well travelled road effect</td>
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<td>• Selection bias</td>
<td>• Last illusion</td>
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<td>• Texas sharpshooter fallacy</td>
<td>• Availability heuristic</td>
<td>• Recency effect / Peak-end rule</td>
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<td>• Pareidolia</td>
<td>• Belief bias</td>
<td>• Primacy effect</td>
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<td>• Outcome bias</td>
<td>• Ostrich effect</td>
<td>• Neglect of prior base rates effect</td>
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<td>• Disregard of regression</td>
<td>• Attentional bias</td>
<td>• Optimism bias</td>
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<td>• Disposition effect</td>
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<td>• Overconfidence effect</td>
<td>• Availability cascade</td>
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<td>• Hindsight bias</td>
<td>• Conjunction fallacy</td>
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<td>• Observer expectancy effect</td>
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<td>• Hawthorne effect</td>
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<td>• Stereotyping</td>
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</tbody>
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- Hyperbolic discounting
- Irrational escalation
- Omission bias
- Mere exposure effect
- Negativity bias
- Interloper effect / Consultation paradox
- Normalcy bias
- Neglect of probability
- Planning fallacy
- Déformation professionnelle
- Impact bias
- Bias blind spot
- Semmelweis reflex
- Not Invented Here

- Moral credential effect
- Base rate fallacy
- Focusing effect
- Illusion of control
- Outcome bias
- Post-purchase rationalization
- Framing
- Experimenter’s or Expectation bias
- Information bias
- Extraordinarity bias
- Confirmation bias
- Choice supportive bias
- Endowment effect / Loss aversion

- Congruence bias
- Distinction bias
- Contrast effect
- Bandwagon effect
- Denomination effect
- Selective perception
- Restraint bias
- Von Restorff effect
- Pseudocertainty effect
- Money illusion
- Wishful thinking
- Zero-risk bias
- Reactance
- Status quo bias
- Need for Closure
Decision 1

Option A:  
80% Chance of winning $4,000 and  
20% Chance of nothing

or

Option B:  
100% chance of winning $3,000
Decision 2:

Option A:
80% Chance of losing $4,000 and
20% Chance of breaking even

or

Option B:
100% chance of losing $3,000
Pushing the Boundaries

John Boardman; Founder & Special Advisor
Communication:
You don’t want to know what you’re missing: When information about forgone rewards impedes dynamic decision making

The model maintains an estimate of the rewards associated with each action \( i \), which we denote \( Q(ai) \). To generate responses, the model utilizes the “softmax” rule (Sutton & Barto, 1998) that transforms the rewards associated with each action into probabilities for executing each action (e.g., choosing the Short- or Long-term option). According to the softmax rule, the probability of selecting option \( i \) at trial \( t \) is given by the difference between the estimated rewards of the two options:

\[
Pr(ai) = \frac{e^{o \cdot Q(ai,t)}}{\sum_{i=1}^{P2} e^{o \cdot Q(ai,t)}}
\]

where \( o \) is an exploitation parameter controlling the steepness of the rule’s sensitivity to the difference in rewards, and \( Q(ai,t) \) is a current estimate of the reward associated with option \( ai \) at trial \( t \).

As a result of choosing action \textit{achosen} on trial \( t \), the model directly experiences reward \textit{obtained}(t). Similarly, the model has foregone reward \textit{rforegone}(t) on trial \( t \) by not choosing the alternate action \textit{aunchosen}. These two reward sources provide the basis for updating the model’s estimates of rewards associated for each action, \( Q(achosen) \) and \( Q(aunchosen) \). To do so, the temporal-difference (TD) errors for both chosen and unchosen actions are calculated.

^ Reference: A. Ross Otto and Bradley C. Love
Department of Psychology, University of Texas at Austin
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