

# Griffiths (1994) The role of cognitive bias and skill in fruit machine gambling



# EXPLANATIONS FOR GAMBLING

- Gambling as risk-taking behaviour
- What reasons can you give for this?
- Psychoanalytical theory?
- Personality?
- Biological influences?
- As learned behaviour?
- Addiction?

# GAMBLING & COGNITIVE BIAS

- Individual **Cognitive Style**: how we make decisions
- **Heuristics**: simple, efficient rules to explain how people come to decisions, & solve problems (but can be biased/distorted)
- **Attributional Bias**: Fundamental attribution error (see p.347)

# Cognitive Bias in Gambling

- **Normative Decision Theory**: In ideal world – decision should be best decision & based on rational, clear thinking & facts. Problem with gambling – irrational activity.
- **Wagenaar (1988)**: gamblers use range of cognitive distortions. ‘Select heuristics at the wrong occasion’

# Griffiths: most significant distortions used by gamblers:

- Illusion of Control
- Flexible Attributions
- Representative bias
- Availability bias
- Illusionary Correlations
- Hindsight bias
- Fixation on absolute frequency

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**A study of Mind & Behaviour**

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**Cognitive bias**

**If I have more 'go's' I  
have a better chance  
of winning**

**Why is this 'thought' irrational? Is the gambler right?**

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**Rational choice theory predicts that people will NOT gamble!**

**Theory: Gamblers gamble because they make the wrong decisions .... because of cognitive distortions**



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### Cognitive Bias

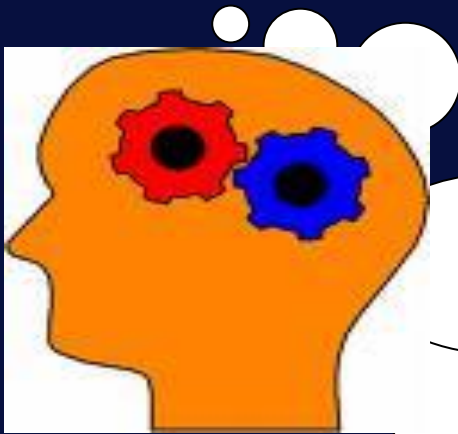
The **ILLUSION** of **CONTROL**

**e.g. If I choose which  
machine to play I am more  
likely to win**

same as buying 2 lottery tickets!

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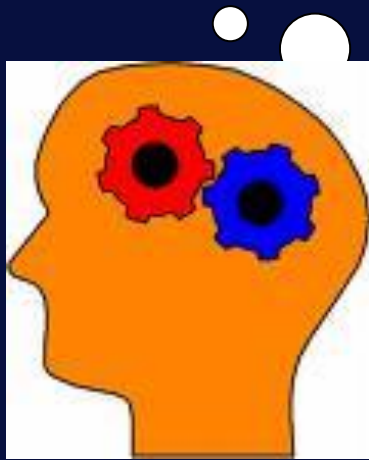
### Cognitive Bias

#### Biased Attribution

**When I win it's because I am skilled but when I lose its just 'bad luck'**

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### Cognitive Bias

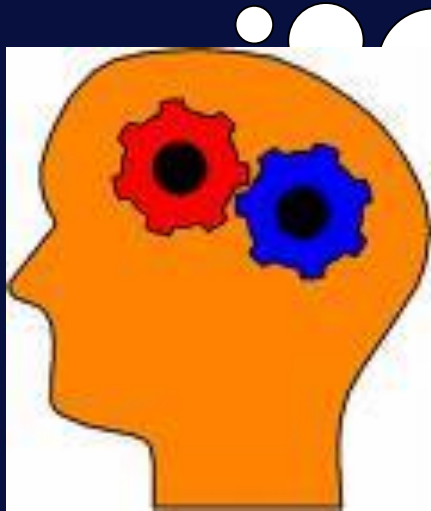
Faulty

'representativeness' !

**The probability of winning increases in relation to the number of 'goes'**

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### Cognitive Bias

Illusory Correlation !

**If I throw the dice hard I am more likely to get a 'six'**



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**Observable behaviour**

**Is this rational?**

**That machine likes me !**

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Research Question:

Do regular gamblers 'think' & 'behave' differently to non-regular gamblers?



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### Hypotheses:

- There would be no difference between the **skill levels** of regular and non-regular gamblers
- Regular gamblers would produce more **irrational verbalisations** than non-regular gamblers
- Regular gamblers would **see themselves as more skilled** than n-r gamblers
- 'Thinking Aloud' Ps would **take longer** to complete task

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### Method

#### A Field Experiment

2 groups of participants  
(independent measures design)

**IV** = regular or non-regular gambler





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### PARTICIPANTS

30 regular gamblers

30 non-regular gamblers

Regular 29m & 1f play at least once week

Non-regular 15m & 15f play once month or

Volunteer Sample, recruited via a poster at uni/college in Plymouth. 44 male, 16 female, mean age 23



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I won  
because  
I was  
quick

### The 'subjective' DVs

(1) **Cognitive activity**

measured by 'thinking aloud'

(2) **Perception of SKILL**

measured by post - experiment semi structured interview



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- **The ‘objective’ (behavioural) DVs**

- Total number of plays in session
- Total minutes of play in session
- Total plays per minute in session
- End stake – total winnings
- Total number of wins in session
- Win rate (time) – time between wins
- Win rate (plays) – number of plays between wins



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- **Procedure**
- In Arcade each participant given £3 to gamble (machine that gave 30 free gambles)
- **Objective:** To stay on machine for 60 gambles
- **To break even & win back the £3**
- *If they achieved 60 gambles they could choose to keep the ££ or carry on gambling*

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### Controls

- ❖ All participants played same machine 'Fruitskill'
- ❖ Randomly assigned to **thinking aloud** / **non-thinking aloud**
- ❖ All recordings transcribed within 24 hours



Say everything that goes through your mind  
Do not censor your thoughts  
Keep talking continuously  
Don't have to speak in complete sentences

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<b>Behavioural FINDINGS: DV</b>	<b>Non Regular NTA</b>	<b>Regular NTA</b>	<b>Non Regular TA</b>	<b>Regular TA</b>
<b>Total Plays</b>	47.8	<b>56.3</b>	55.7	<b>65.6</b>
<b>Total Time</b>	8.4	8.5	11.5	9.9
<b>Play Rate **</b>	6.5	<b>7.5</b>	5.3	<b>8.4</b>
<b>End Stake</b>	4.0	0	7.3	13.9
<b>Win</b>	6.1	8.0	8.3	6.0
<b>Win rate - time</b>	2.0	1.0	1.7	1.8
<b>Win rate plays **</b>	12.5	7.5	8.0	14.6

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<b>Content Analysis</b> Examples of FINDINGS: <b>Verbalisations</b>	Non Regular	Regular
<b>Machine personification **</b>	1.14	<b>7.54</b>
<b>Explaining losses</b>	0.41	<b>3.12</b>
<b>Talk to the machine</b>	0.90	<b>2.64</b>
<b>Swear at machine</b>	0.08	0.06
<b>Reference to skill</b>	1.47	<b>5.34</b>
<b>Verbalising confusion ***</b>	4.81	1.72

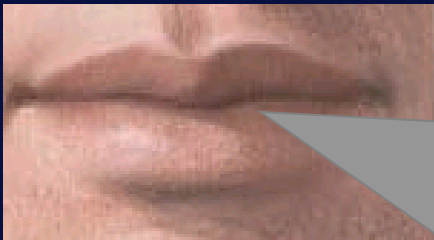
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Is there any skill involved?	regular	Non regular
Mostly Chance	10	19
Equal chance / skill *	18	7
Knowing when machine will pay out	8	0



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### IRRATIONAL VERBALISATION

- This 'fruity' is not in a good mood
  - It wants its money back
- Putting only a quid in 'bluffs the machine'
  - The machine ... hates me
- This machine won't pay out happily



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- More FINDINGS:
- 14 regular gamblers managed to 'break even' (60 gambles) - 10 stayed on machine until they lost all the money
- 7 non-regular gamblers broke even - 2 stayed on until lost all the money

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#### • Conclusions:

- Regular gamblers are more skilful
  - e.g. knowing the reels & when to nudge
- Regular gamblers believe they are more
  - skillful than they are
- Gamblers know they will 'lose' but they play
  - with money not for it (staying on is the objective)
- Regular gamblers make more irrational
  - verbalisations demonstrating cognitive bias

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Is this useful to know?

May help to rehabilitate 'gambling addicts' because Cognitive Behavioural Therapy can be used to help 'problem gamblers' change the way they think (recognise and change their cognitive bias) and behave

e.g. by playing back their irrational thinking



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- **Evaluative points:**
- ++ both **quantitative and qualitative** DV
- ?? **validity** – re: the ‘thinking aloud method’
- ?? **reliability** of content analysis
- ?? **biased sample** (29 male regular gamblers) does this matter - why or why not?
- ?? **ecological validity** (level of realism)
- ?? **generalisability** to other ‘gambling’ e.g horse racing, dice, roulette – why or why not?

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The end !

