‘If only’ counterfactuals about exceptional actions

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Abstract

People create counterfactual ‘if only’ alternatives that change exceptional actions to be normal (e.g., ‘if only he had placed his usual small bet he would have lost less money’). Two experiments show that this effect is reversed when an exceptional alternative leads to a better outcome. Experiment 1 demonstrated the standard effect: an exceptional action that leads to a bad outcome is changed to a usual one when an exceptional alternative does not lead to a better outcome. Experiment 2 reversed the effect: an exceptional action that leads to a good outcome is changed to an exceptional alternative when the alternative might have led to an even better outcome. Both experiments also show that participants construct different counterfactual thoughts when they think not only about the outcome but also about the decision the actor makes. The implications for theories of the counterfactual imagination are discussed.

Keywords: Counterfactual thinking, the exceptionality effect, decision-making, reasons for actions.

Introduction

Counterfactual ‘if only’ thoughts are a pervasive part of everyday life. They tend to be created after bad outcomes. Individuals can learn from mistakes when they think about how things could be better (e.g., Byrne, 2002; Roese, 1997; Roese & Olson, 1995). For example, when an actor loses money in a gamble, individuals can create counterfactual alternatives such as, ‘if only he had placed a different bet he would have won’, or ‘if only he had been luckier’. Individuals also feel better about bad outcomes when they imagine how things could have been worse, e.g., ‘if he had placed a higher bet he would have lost more money’ (e.g., Mandel, Hilton, & Catellani, 2005; Markman, Klein, & Suhr, 2009). Counterfactual thinking may be goal directed, designed to help people to achieve a better performance in the future (Roese, Sanna, & Galinsky, 2005).

Participants in experiments display consistent regularities in their construction of counterfactual thoughts (Byrne, 2005; Kahneman & Tversky, 1982). They tend to change actions more than inactions (Byrne & McEleney, 2000; Kahneman & Tversky, 1982; Landman & Petty, 2000); and controllable events more than uncontrollable ones (Girotto, Legrenzi, & Rizzo, 1991; Markman, Gavanski, Sherman, & McMullen, 1995; McCloy & Byrne, 2000). Participants tend to focus on exceptional events more so than on normal events (Kahneman & Miller, 1986; Kahneman & Tversky, 1982). For example, when they read a story about an individual who is killed in a car accident that occurred on a route home from work that he rarely takes, participants tend to think ‘if only he had taken his regular route’ (Kahneman & Tversky, 1982). However, they tend to focus on the exceptional action less often when they have been given a good reason for it, for example, the individual took an unusual route home in order to collect medicine for his sick wife (Bonnefon, Zhang, & Deng, 2007; Walsh & Byrne, 2007).

In the two experiments we report in this paper, we examined the tendency to change exceptional actions to be normal in ‘if only’ thoughts. The aim of the experiments was to test whether individuals change an exceptional action to be normal even when an alternative exceptional action would lead to a better outcome. We conjectured that people are guided by the goal of creating a counterfactual alternative that has a better outcome than the real one (for details see Dixon & Byrne, 2009). Hence we predicted that people would change an exceptional action to be an alternative exceptional action when the alternative could lead to a better outcome.

The experiments availed of a story about an actor placing a bet in a card game (see Dixon & Byrne, 2009). The actor is faced with three betting options: to place a small, medium or large bet. Participants were told that the actor’s *usual* behavior was to place a small bet (€10), and so the alternative medium (€20) and large (€30) bets were exceptional actions (see the Appendix for the full scenario). In the versions of the story used in the two experiments, the actor placed an exceptional large bet; in the version in the first experiment he lost; in the version in the second experiment he won.

They were also told that Peter only wins money if the other players in the game decide to match the bet he makes. Three opposition players were described who each use distinct techniques: The small-bet player only plays small bets, the medium-bet player plays small and medium bets, and the large-bet player plays small, medium and large bets. Participants were told that (a) if Peter places a small €10 bet, probably all three opposition players will match his bet (Peter’s €10 matched by the small-bet player’s €10 + the medium-bet player’s €10 + the large-bet player’s €10); (b) if Peter places a medium €20 bet, probably only the medium-bet player and the large-bet player will match his bet (Peter’s €20 matched by the medium-bet player’s €20 + the large-bet player’s €20); and (c) if Peter places a large €30

bet, probably only the large-bet player will match his bet (Peter's €30 matched by the large-bet player's €30). As the scenario was based on a card game with the aim of winning money, participants were able to make judgments about the best and worst actions that the actor could take.

Participants were told the outcome of the game and their task was to imagine Peter's thoughts that 'things could have been different if….' The aim of the two experiments was to test the hypothesis that participants create 'if only' thoughts that change an exceptional action (e.g., Peter placed a large bet) to be like the usual action (if only he had placed his usual small bet), only when an exceptional alternative (the medium bet) would *not* lead to a better outcome; when the exceptional alternative might lead to a better outcome, we predicted they would change the exceptional action to be like the exceptional alternative (if only he had placed the medium bet).

Experiment 1

The experiment tested the hypothesis that participants create 'if only' thoughts that change an exceptional action (the large bet) to be like the usual action (if only he had placed his usual small bet), only when an exceptional alternative (the medium bet) would not lead to a better outcome. The version of the scenario used in the experiment described the decision to place a large bet as follows:

> *Peter thought about his choices carefully. He considered betting small, a bet of €10, as he usually does. He then considered a medium bet of €20. Then Peter considered the large bet - he decided to go with the large bet of €30. Peter's large bet meant that the small-bet player and the medium-bet player decided not to play with him, so neither the small-bet player nor the medium-bet player placed a bet. So the large-bet player decided to play with Peter by matching Peter's bet of €30.*

The outcome was described as follows:

> *The large-bet player had better cards than Peter, so the large-bet player wins the game and receives €60 (The large-bet player's €30 + Peter's €30 = €60).*

In the scenario, the actor chooses an exceptional action which, as we will see shortly, participants judge to be unjustified (he places a large bet). There is an alternative exceptional action, which participants judge is justified (the medium bet) but it does not lead to a better outcome. We predicted that the tendency to change the exceptional action (the large bet) to be like the usual action (the small bet) would occur even in the situation in which the exceptional alternative (the medium bet) is considered to be the best, justified action, given that the exceptional alternative would not lead to a better outcome.

In this experiment the action and outcome can be represented in the following diagram:

Action:	*Actor places exceptional large bet*
Outcome:	*Large bet player plays: Large bet player has better cards than actor*

The counterfactual alternative created by changing the actor's exceptional action to be like the usual action is as follows:

> *Counterfactual Action:*
> *Actor places usual small bet*
> *Counterfactual Outcome:*
> *Large, Medium and Small bet players play:*
> *Large bet player has better cards than actor*

The counterfactual alternative created by changing the actor's exceptional action to be like the other exceptional action (placing the medium bet) is as follows:

> *Counterfactual Action:*
> *Actor places exceptional medium bet*
> *Counterfactual Outcome:*
> *Large and Medium bet players play:*
> *Large bet player has better cards than Actor*

We predicted that participants *would* exhibit the exceptionality effect, that is, they would create counterfactual alternatives that focused on the usual action (e.g., 'if only he had placed his usual small bet he would have lost considerably less'). The outcome of the game identified that the large-bet player had better cards than the actor. Therefore counterfactual thoughts that focus on the other exceptional bet cannot result in a winning outcome (if he had placed a medium bet he still would have lost, albeit lost somewhat less, because the large bet player would still have played). We predict that the tendency to say 'if only he had carried out his usual action' will be observed in this situation, because even though the alternative exceptional action is justified (it is judged to be the best bet), it will not lead to a better outcome.

We asked all participants to complete the sentence: '*Peter thinks to himself after the game, "Things could have been different if...*" after they learned of the outcome of the game. Half of the participants were also required to think strategically by being given the question '*Explain what you think is the best decision for Peter'* prior to being told about the outcome. The control group of participants was not given this question (and there were no other differences in the two groups). In this way we examined whether participants constructed different 'if only' thoughts when they were required to think about the actor's decision-making as well as the outcome (in the strategy group), compared to when they were required to think about the outcome only (in the control group) (Markman & Tetlock, 2000). All participants also answered the question: '*What size bet do you think Peter places?*' prior to being told about the outcome.

Participants, design and procedure

Participants were assigned at random to two groups, the control group and the strategy group (n = 30 in each group). The 60 participants were undergraduates and postgraduates from Trinity College Dublin who took part voluntarily. They were given the scenario and the questions in a booklet and they completed the questions at their own pace.

Results and discussion

The responses to the questions about what was the best decision for Peter to make confirm that participants judged the medium bet to be the best bet (80%) rather than the small or large bet (20% and 0% respectively), as did their judgments of what bet Peter would make (see Dixon & Byrne, 2009 for further details).

As expected, the exceptional action was changed to be like the usual action in 'if only' thoughts: participants 'if only' thoughts focused more often on the usual, small bet than on the exceptional medium bet, in the control group (50% vs. 20%, $\chi^2 = 3.86$, df = 1, $p = .050$), as Table 1 shows.

Table 1 *The percentages of counterfactuals that focus on the small, medium or large bet in the strategy and control groups in experiment 1*

	'If Only' Focus		
	Usual Small Bet	Exceptional Medium Bet	Non-Bet Factors
Condition			
Control	50	20	30
Strategy	20	17	63

In the strategy group, participants 'if only' thoughts did not tend to focus frequently on either the small or the medium bets (20% vs. 17%, $\chi^2 = .091$, df = 1, $p = .760$), as Table 1 also shows. Participants in the control group said '*if only he'd placed his usual small bet*' more than those in the strategy group (50% vs. 20%, $\chi^2 = 3.86$, df = 1, $p = .050$). In contrast, participants in the strategy group focused on factors other than the bets, such as 'if only he hadn't played', 'if only he'd been luckier' or 'if only he had better cards' more than those in the control group (63% vs. 30%, $\chi^2 = 3.57$, df = 1, $p = .059$).

The experiment demonstrates the standard tendency for 'if only' thoughts to focus on a usual action (the small bet), in the card game scenario for the control group. It shows the effect occurs when participants chose an exceptional action (the large bet), and an exceptional alternative (the medium bet) would not lead to a better outcome, even though the exceptional alternative was judged to be the best, justified action.

An alternative explanation is that participants focus on the small bet not because it is the usual action but because it will lead to the least amount of money lost. However, this explanation can be ruled out by participants' judgments about the best bets: very few participants judged that the small bet was the best bet, even though they could calculate that it would lead to the least amount of money lost.

The experiment also shows that prior thoughts about the decision prompted by the question 'Explain what you think is the best decision for Peter' asked of participants in the strategy group resulted in their construction of different counterfactual thoughts compared to the participants in the control group. The differences are consistent with the idea that people tend to focus on the outcome – the actor lost (in the control group), but when they think about the actor's decision (in the strategy group), they think not only about the outcome but also about the decision making process that led to it (Markman & Tetlock, 2000).

Experiment 2

The aim of the second experiment was to test the hypothesis that participants tend to create 'if only' thoughts that change an exceptional action (the large bet) to be like an exceptional alternative (the medium bet) when the exceptional alternative might have led to a better outcome than the usual action.

Participants were given the same scenario as in the previous experiment in which the actor placed a large bet. However, in this version the outcome was described as follows:

> *Peter had better cards than the large-bet player, so Peter wins the game and receives €60 (The large-bet player's €30 + Peter's €30 = €60).*

In this experiment the action and outcome can be represented as follows:

Action: *Actor places exceptional large bet*
Outcome: *Large bet player plays:*
Actor has better cards than Large bet player

The counterfactual alternative created by changing the actor's exceptional action to be like the usual action is as follows:

Counterfactual Action:
Actor places usual small bet
Counterfactual Outcome:
Large, Medium and Small bet players play;
Actor has better cards than Large bet player
Unknown whether Actor has better cards than Medium or Small bet players

The counterfactual alternative created by changing the actor's exceptional action to be like the other exceptional action (placing the medium bet) is as follows:

Counterfactual Action:
Actor places exceptional medium bet
Counterfactual Outcome:
Large and Medium bet players play;
Actor has better cards than Large bet player
Unknown whether Actor has better cards than Medium bet player

The counterfactual outcome from the exceptional alternative is less uncertain (it is unknown whether the actor has better cards than just one other player, the medium bet player) than that from the usual action (it is unknown whether the actor has better cards than two other players, both the medium bet player and the small bet player). Accordingly, the actor could have won even more money, €40 rather than €30 profit - if he had placed a medium bet and won. The good outcome allows us to compare counterfactual outcomes of differing degrees of uncertainty.

Participants, design and procedure

Participants were assigned at random to the control group and the strategy group (n = 36 in each). The 72 participants were undergraduates and postgraduates from Trinity College Dublin who took part voluntarily. The design and procedure were the same as the previous experiment.

Results and discussion

As expected, participants 'if only' thoughts focused more often on the exceptional alternative, 'if only he placed the medium bet'. Most of these participants imagined that the medium bet would bring about a better outcome. Participants focused on the exceptional medium bet more than the usual small bet in the control group (53% vs. 19%, χ^2= 5.54, df = 1, p = .019), as Table 2 shows.

Table 2 *The percentages of counterfactuals that focus on the small, medium or large bet in the strategy and control groups in experiment 2*

	'If only' focus			
	Usual Small	Exceptional Medium	'Other' Bets	Non-Bet Factors
Condition				
Control	19	53	6	22
Strategy	17	33	14	36

Participants focused equally on the exceptional medium bet and the usual small bet in the strategy group (33% vs. 17%, χ^2= 2.00, df = 1, p = .157). There were no differences in their focus on the medium bet in the strategy group and the control group (33% vs. 53%, χ^2= 1.58, df = 1, p = .209).

Participants in both groups focused on the bets more than non-bet factors (control: 78% vs. 22%, χ^2= 11.11, df = 1, p < .001; strategy: 64% vs. 36%, χ^2= 2.78, df = 1, p = .096).

Both betting alternatives lead to uncertain counterfactual outcomes, but the exceptional alternative (the medium bet) leads to less uncertainty than the usual action and so participants tend to create 'if only' thoughts that change the exceptional action to be like the exceptional alternative.

General Discussion

In the two experiments reported in this paper the actor chose an exceptional unjustified action (the large bet). In Experiment 1 the unjustified exceptional action led to a bad outcome. Participants focused on the usual action (the small bet) when the exceptional justified alternative (the medium bet) would not have led to a better outcome. The result shows that the goal of creating counterfactual alternatives with a better outcome takes precedence over the influence of the justification for the action (cf Bonnefon et al, 2007). In Experiment 2, the unjustified exceptional action led to a good outcome. Participants focused on the exceptional alternative rather than the usual action when they could create a counterfactual alternative in which the outcome might have been even better. Further research shows that the results extend also to situations in which the actor chooses an exceptional justified action (the medium bet) (see Dixon & Byrne, 2009 for details).

The experiments also revealed differences between the strategy group, who were asked to think about the best bet prior to knowing the outcome, and the control group, who were not. Experiment 1 showed that participants in the strategy group focused their 'if only' thoughts on factors unrelated to the bet placed, such as 'if only he had been luckier', or 'if only he had better cards', unlike the control group who focused on the usual small bet. Prior thinking about the best decision led participants in the strategy group to shift their focus from the alternative bets. Experiment 2 showed that participants in the strategy group did not focus on the medium bet to the same extent as participants in the control group did.

In summary the experiments provide evidence that people think about the counterfactual outcome (the potential for the outcome to have been different) and calibrate the focus of their counterfactual 'if only' thoughts to change only those antecedents that could have led to a different outcome. They do not change an exceptional action to be like the usual action if the usual action would not have led to a better outcome (see Kahneman & Tversky, 1982; Kahneman & Miller, 1986). They do not change an exceptional action to be like a justified action, if the justified action would not have led to a better outcome (see Bonnefon et al, 2007). The results provide support for the idea that the different possibilities people think about when they create counterfactual alternatives are guided by a small set of principles (Byrne, 2005; 2007). For example, people tend to think about true possibilities and they tend to think about few possibilities (Byrne & Johnson-Laird, 2009; Johnson-Laird & Byrne, 2002). The results also support the idea that the counterfactual alternatives that people create are goal directed (Roese et al, 2000; Byrne, 1997; 2005).

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Appendix

The card game story

Peter is faced with a dilemma when playing a game of cards. The cards given to him give him a great chance of winning the game, and with that, a great chance of winning money. Peter alone knows the values of the cards he holds. However Peter can only win money if the other players in the game decide to play with Peter by matching the bet he makes. If none of the other players decide to play with Peter by betting, all the players will surrender their cards and receive new cards. Peter knows new cards will probably not give him such a great chance of winning.

Peter has good cards. Peter usually places a small bet. However there are actually three choices available to Peter. Peter can bet small, medium, or large. These three values are related to how much money Peter is willing to bet in the game.

Peter is playing with three other players who each use three separate and distinct techniques for playing the

game. These techniques have earned them the names of The Mouse, The Lion, and The Jackal. The Mouse only plays small bets, the Lion plays small and medium bets, and the Jackal plays small, medium and large bets. Each of the players' individual techniques means that they will each respond differently to Peter's betting actions.

Peter's cards are very good. However how much Peter bets has consequences. Betting small, medium or large will affect the reactions of the three opposition players in different manners, as follows:
If Peter bets small, his bet will be €10. This will result in probably all three opposition players matching his bet.
(Peter's €10 matched by Mouse's €10 + Lion's €10 + Jackal's €10)
If Peter bets medium, his bet will be €20. This will result in probably only the Lion and the Jackal matching his bet.
(Peter's €20 matched by Lion's €20 + Jackal's €20)
If Peter bets large, his bet will be €30. This will result in probably only the Jackal matching his bet.
(Peter's €30 matched by + Jackal's €30).