A Review of “Counterfactual thinking and the first instinct fallacy” by Kruger, Wirtz, and Miller (2005)

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What is counterfactual thinking?

• A psychological concept (definitions may differ in other fields or among laypersons)
• Thoughts that are “counter to the facts,” specifically thoughts about hypothetical alternatives to past events that often inspire frustration and regret.
• Past-oriented (or possibly present-oriented), NOT future-oriented
What are counterfactual thoughts?

• “Counterfactual thoughts are mental representations of alternatives to past events, actions, or states. They are epitomized by the phrase “what might have been,” which implicates a juxtaposition of an imagined versus factual state of affairs” (Epstude & Roese, 2008).
What are **counterfactual thoughts**?

- People who practice counterfactual thinking often think about “something that did not happen that they *wished* had happened or something that did happen that they *wished* had not happened” (Kruger, Wirtz, & Miller, 2005, p. 732).
What is the **first instinct fallacy**?

- A term that seems to have been coined in 2004 by Justin Kruger
- The **incorrect** idea that “gut feelings” or first instincts are more likely to be right, even though the research, at least with respect to academic settings, says otherwise.
- **Sustained** and **reinforced** by counterfactual thinking
Study 1: Method

- Examined eraser marks on multiple-choice exams from 1561 introductory undergraduate psychology students

- 51 of 1561 students randomly selected to provide their feedback on what they thought the overall outcomes would be
Study 1: Results

• 51 college students predicted, on average that 33% of switches would be wrong–right and 42% would be right–wrong. However, in actuality, 51% were wrong–right switches and only 25% were right–wrong.

• This means that switching answers was the correct move more than twice as often, but students still cling to the belief that it is a bad move!
Study 2: Method and Results

• 23 college students read a scenario about switching answers on a multiple-choice exam
• They are then asked what would make them feel more foolish or regretful
• In all cases more than three times as many students said they would regret right–wrong switches more than sticking with a wrong answer!
Study 3: Method and Results

• 27 college students were given multiple-choice SAT or GRE questions and were asked to indicate **TWO** answers and mark one as their “**first instinct**” if they could not decide between two answers.

• On a **follow-up questionnaire** given 4–6 weeks later (n = 19), students remembered sticking with their first instinct and being right **significantly more often than what really happened**.
IS THAT YOUR FINAL ANSWER?
Study 4: Method

• 68 college students watched a mock video of a modified version of the TV show, *Who Wants to Be a Millionaire?*, imagining they were teammates with the contestant.

• In both conditions, the contestant in the video got 10 of 20 questions right.

• In one condition, the contestant always stuck with their answer, and in the other, always switched.
Study 4: Results

• Overall, participants who watched the contestant constantly switch answers reported being much more **angry** and **frustrated**.

• They were more **critical** of the contestant’s strategies and abilities.

• This occurred even though the contestant got the **same proportion** of questions right in both videos.
IS THAT YOUR FINAL ANSWER?
The authors assert:

• Switching from a right answer to a wrong one is more **memorable** and **regrettable** than sticking with or fixing a wrong answer, even though right–wrong switches are statistically **uncommon**.

• Sticking with your **first instinct** is considered good, “common sense” advice, even among educated people, but in reality it is **very bad** advice.
The authors assert:

• Given the veracity of the data, the authors assert a causal relationship where preferential memory for right–wrong switches, along with feelings of regret, cause people to overestimate the effectiveness of going with their first instincts (p. 729).
“Deal or No Deal” is a popular TV show that exemplifies counterfactual thought and the first instinct fallacy:

Participants are asked to choose a suitcase which may be worth from 1¢ to $1,000,000.

They are then asked to choose suitcases from the field to eliminate, with the hope that they eliminate suitcases with small amounts, improving their overall odds.

[At various times in the game, they may “cash in” with the “banker” for somewhat less than the average value of all remaining (unopened) suitcases.]

Participants who continue to the end have the option of switching suitcases (when there are only two left to choose from).
Technically, the “first instinct fallacy” is present in this example only insofar as there is no statistical benefit from keeping the original suitcase (though our minds may think otherwise). However, unlike in the findings of Kruger et al. and the Monty Hall problem, sticking with our first instinct is not a worse choice in the Deal or No Deal example (the choices are equivalent).

Screenshot is from the Microsoft Windows “Deal or No Deal” game by “Endorsay.”
From the *Deal or No Deal* example, we can see that even with completely random, 50/50 odds, the first instinct fallacy is still present!

Watching the show is torturous—participants display numerous superstitions, logical fallacies (including the gambler’s fallacy), character foibles, and rampant counterfactual thought patterns in a game devoid of skill or content. Fortunately, there is no “phone a friend” option.

Note: The 26 suitcases have a total value of $3,418,416.01 and an average value of $131,477.54.

Screenshot is from the Adobe Flash “Deal or No Deal” game by NBC.
The Monty Hall problem: Based on a scenario from *Let’s Make a Deal* (premiered 1963) and named after the show’s host. Related to the first instinct fallacy.

Scenario:

You choose from 1 of 3 doors. 2 doors have goats behind them and 1 has a **new car**.

Monty then opens 1 of the doors you did **NOT** pick, revealing a goat.

You are then asked if you want to **stick** with your door or **switch** doors.

Are both options equal?

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**Counterintuitively**, because Monty could only open a door that you did **NOT** pick that also did **NOT** have the new car behind it, the door you initially picked now has a **1/3 chance** of having the new car, while the other remaining door has a **2/3 chance**. Therefore, you should **switch** doors.

Discussion: Implications for collaboration

• In academic and workplace group projects, who would be seen as more competent? Someone who sticks with their decision and is right 50% of the time? Or someone who switches and is right 60% of the time?

• (Recall the exceedingly high statistical power Kruger et al. had for many of their results, and particularly, perceptions of the teammate in Study 4.)
Discussion: Relation to other fallacies

- False attribution and self-serving bias
- Gambler’s fallacy, winning streaks, and the human tendency to see illusory patterns
- Fundamental attribution error versus emergent conflicting information about a person
- Monty Hall problem
- Anything else you want to talk about
References


Source URLs for images used are at the bottom of each applicable slide.

They are not included in the above references.