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Making people utilitarian by simply adding options to moral dilemmas

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Abstract

Trolley dilemmas are widely used to elicit moral intuitions. Most people do not think it would be morally right to push a heavy man from a bridge, thereby killing him, in order to avoid the death of several other people. Here we empirically tested a prediction by Unger (1996) who claims that adding more options to this scenario would shift people's intuition from the normally preferred option of doing nothing to the utilitarian option of killing the heavy man. While not finding significant results with Unger's original materials, an experiment with adapted materials confirmed the assumption that pushing one person is more likely to be preferred to not intervening if certain additional options are provided. Moreover, we found that moral intuitions are transferred from several-option cases to two-option cases (and the other way around). We discuss some possible psychological explanations for and normative implications of these findings.

Keywords: moral judgment; trolley dilemmas; utilitarianism; several-option cases; framing effects, transfer effects

Introduction

Moral intuitions play an important role in moral philosophy as well as in moral psychology. When a normative moral theory is evaluated one crucial criterion is whether its application to concrete situations is in accordance with our moral intuitions about these situations. If a normative moral theory is applied to particular cases and tells us to do something that stands in sharp contrast to what we believe would be the right thing to do, this mismatch counts strongly against this theory. Utilitarianism, the ethical view that, roughly spoken, the right act to perform is the one that leads to the best outcome – impartially considered – is often criticized because of its implication when applied to particular cases. It is argued that because utilitarianism can imply that an innocent person ought to be killed if this is the only possibility to save more than one life, it cannot be the right moral theory.

A prominent particular case that is often used to argue against utilitarianism will be called *Push* in the following (Thompson, 1985). In Push an out of control trolley is heading towards five people and will run over them if nothing is done. The only possibility to save them consists in pushing a heavy man from a bridge onto the path of the trolley, thereby killing the heavy man and stopping the trolley before it reaches the five people. Philosophers have claimed, and empirical research in moral psychology has shown (Waldmann, Nagel, & Wiegmann, 2012), that most people consider killing the heavy man as morally wrong. Hence, it does not come as a surprise that supporters of utilitarianism argue against the importance of intuitions on particular cases or try to convince the other side that intuitions on cases like Push are erroneous in some sense. One especially interesting way to argue for the claim that intervening in Push is the morally right thing to do comes from Unger (1996), then arguing for consequentialist ethics. He argues that most people's intuitions on Push-like cases are misled, and that this can be shown by adding more options to Push-like cases. Unger considers a case labeled *HeavySkater* that goes as follows:

> By sheer accident, an empty trolley, nobody aboard, is starting to roll down a certain track. Now, if you *do nothing about* the situation, your *first* option, then, in a couple of minutes, it will run over and kill six innocents who, through no fault of their own, are trapped down the line (just beyond an "elbow" in the track). (So, on your first option, you'll let the six die.) Regarding their plight, you have *one other* option: Further up the track, near where the trolley's starting to move, there's a path crossing the main track and, on it, there's a very heavy man on roller skates. If you turn a remote control dial, you'll start up the skates, you'll send him in front of the trolley, and he'll be a trolley-stopper. But, the man will be crushed to death by the trolley he then stops. (So, on your second option, you'll save six lives and you'll take one.)

Unger thinks that most people consider redirecting the heavy skater as morally wrong and doing nothing as the morally right thing to do. This intuition, however, is not robust, he argues, and changes when further options are added as in the following case:

> By sheer accident, an empty trolley, nobody aboard, is starting to roll down a certain track. Now, if you *do nothing about* the situation, your *first* option, then, in a couple of minutes, it will run over and kill six innocents who, through no fault of their own, are trapped down the line. (So, on your first option, you'll let the six die.) Regarding their plight, you have *three other* options: On your *second option*, if you push a remote control button,

you'll change the position of a switch-track, switch A, and, before it gets to the six, the trolley will go onto another line, on the left-hand side of switch A's fork. On that line, three other innocents are trapped and, if you change switch A, the trolley will roll over them. (So, on your second option, you'll save six lives and you'll take three.) On your *third option*, you'll flip a remote control toggle and change the position of another switch, switch B. Then, a very light trolley that's rolling along another track, the Feed Track, will shift onto B's lower fork. As two pretty heavy people are trapped in this light trolley, after going down this lower fork the vehicle won't only collide with the onrushing empty trolley, but, owing to the combined weight of its unwilling passengers, the collision will derail the first trolley and both trolleys will go into an uninhabited area. Still, the two trapped passengers will die in the collision. On the other hand, if you don't change switch B, the lightweight trolley will go along B's upper fork and, then, it will bypass the empty trolley, and its two passengers won't die soon. (So, on your third option, you'll save six lives and you'll take two.) Finally, you have a *fourth option*: Further up the track, near where the trolley's starting to move, there's a path crossing the main track and, on it, there's a very heavy man on roller skates. If you turn a remote control dial, you'll start up the skates, you'll send him in front of the trolley, and he'll be a trolley-stopper. But, the man will be crushed to death by the trolley he then stops. (So, on your fourth option, you'll save six lives and you'll take one.)
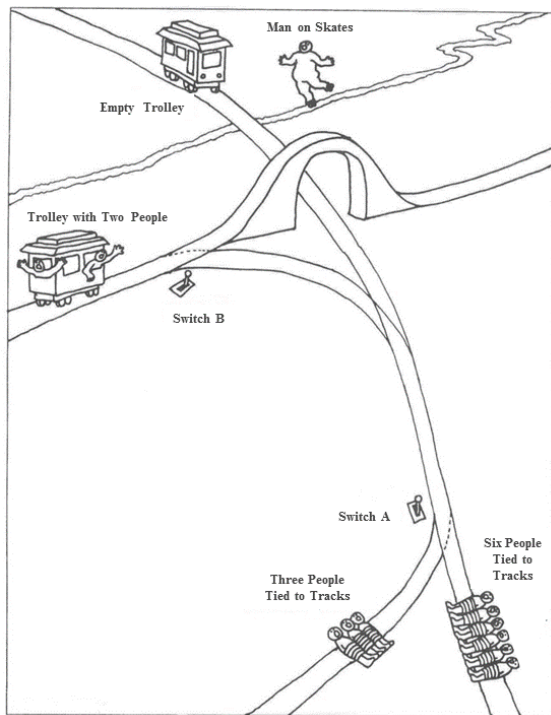

Figure 1: Original illustration of Unger's 4Option case.

In this several-option case, which we will label *4Options*, we are more likely, Unger claims, to consider redirecting the heavy man on skaters as morally superior to doing nothing. People would then respond as they do to a case we will label *HandleSwitch*. In HandleSwitch most people think it is morally right to intervene. In Unger's wording, it goes as follows:

> By sheer accident, an empty trolley, nobody aboard, is starting to roll down a certain track. Now, if you do nothing about the situation, *your first* option, then, very soon, it will run over and kill six innocents who, through no fault of their own, are trapped down the line. (They've been tied down by a mustachioed villain.) So, on your first option, you'll let the six die. Still, you have *precisely one other option*: If you push a remote control button, then you'll change the position of a certain switch-track and, before it gets to the six, the trolley will roll onto another line. Now, on this other line, there's another who's similarly trapped and, if switched, the trolley will roll over her. So, on your second option, you'll save six lives and you'll take one.

The claim that people consider redirecting the heavy man on skaters as morally superior to doing nothing in 4Options and, therefore, favor intervening like they do in HandleSwitch, has not been empirically tested yet.[1] If Unger's claim turns out to be true, this finding would not only be interesting for moral philosophers but also for moral psychology because would reveal a new factor influencing our moral intuitions. We will later discuss the philosophical and psychological implications of our findings.

Experiment 1

In this experiment we aimed to test Unger's claim that people are more likely to prefer redirecting the heavy man on roller skates to doing nothing in 4Options than in HeavySkater. To test this claim we used Unger's original wording and, whenever available, the corresponding figures.

Method

Participants 300 subjects were recruited for a compensation of £ 0.50 via an online database located in the U.K. This way of recruiting subjects was the same in all experiments.

Design, Materials, and Procedure The experiment was conducted on the internet. Upon clicking on a link that subjects received via e-mail they were redirected to a website containing the experiment. Subjects first read general instructions familiarizing them with the rating scale, asking them to read the following scenario carefully, and to take the task seriously. This initial procedure was identical in all experiments. Afterwards, subjects were randomly assigned to one of three conditions: HandleSwitch, HeavySkater or 4Options (see Introduction for the exact wording). In 4Options the description of the scenario was accompanied by Figure 1.

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[1] In the meantime we found out that Weijers and Sytsma (in preparation) also started to test this claim empirically.

After reading about each dilemma, participants were asked which option they should choose. As the options were described in the dilemma text, they were only indicated by the corresponding numbers. While in HandleSwitch and HeavySkater participants could choose between two options (doing nothing or intervening), in 4Options they could either choose to do nothing or vote for one of the three different intervening options. After having indicated their judgments, participants were asked some demographic questions, and given a simple logical question to identify participants who did not pay sufficient attention to the task.

Results 56 subjects dropped out because they did not indicate their judgment, failed to solve the logical question, or went through the whole survey in less than 40 seconds.

For practical purposes we call the option with the best numerical outcome (number of saved lives minus number of people killed) in each condition the utilitarian option, meaning that in HandleSwitch and HeavySkater choosing to intervene constitutes the utilitarian action, while in 4Options only the intervention in form of redirecting the heavy skater is treated as the utilitarian option.

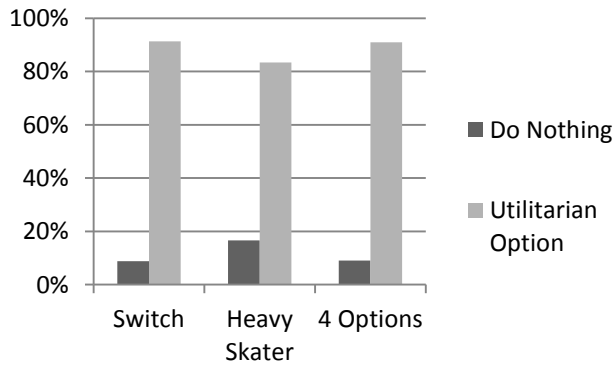The results are summarized in Figure 2 and Table 1.

Figure 2: Percentage of subjects choosing the option to do nothing relative to the utilitarian option in Experiment 1.

In all three conditions the utilitarian option was by far the most chosen. 91% went for the utilitarian option in HandleSwitch, while only 9% chose not to intervene. A similar result pattern arose for HeavySkater in which 83% chose the utilitarian option and only 17% not to intervene.

The difference between the proportion of participants who chose the utilitarian option in HandleSwitch versus HeavySkater did not reach statistical significance, $\chi^2_{1, 164} = 2.30$, $p = 0.13$. In 4Options 75% chose the utilitarian option in form of redirecting the heavy skater and only 7.5% chose to do nothing. Throwing Switch A was chosen by 5% (thereby redirecting the empty trolley; saving six people and killing three) and 12.5% went for throwing Switch B (thereby redirecting a trolley with two people onboard; saving six people and killing the two). If only the utilitarian option and the "do nothing"-option are taken into account, 91% chose the utilitarian option and only 9% preferred the agent to do nothing.

Going back to our initial question, namely whether people are more likely to judge redirecting the heavy man on roller skates to be better than doing nothing in 4Options than in HeavySkater, we can observe that this claim is descriptively true (91% vs. 83%) but that this difference is statistically not significant, $\chi^2_{1, 150} = 1.84$, $p = 0.18$. However, this difference not being significant might be due to a ceiling effect, i. e. the fact that already the vast majority of subjects in HeavySkater (83%) chose the utilitarian option.

Table 1: Distribution of responses on the available options

Condition	Option			
	Do Nothing	Utilitarian Option	Switch A	Switch B
Switch	7	73	NA	NA
Heavy Skater	14	70	NA	NA
4 Options	6	60	4	10

Experiment 2

The potential ceiling effect obtained in our first experiment might be due to Unger's wording that clearly highlights the consequences of each action and, therefore, favors the utilitarian option. In order to set up the necessary preconditions to test Unger's claim we used other, familiar scenarios and corresponding wordings, for which we knew that no ceiling effect occurs (cf. Wiegmann, Okan, & Nagel, 2012).

Design, Materials, and Procedure 300 subjects were randomly assigned to one of three conditions: *Switch*, *Push* or *6Options*.
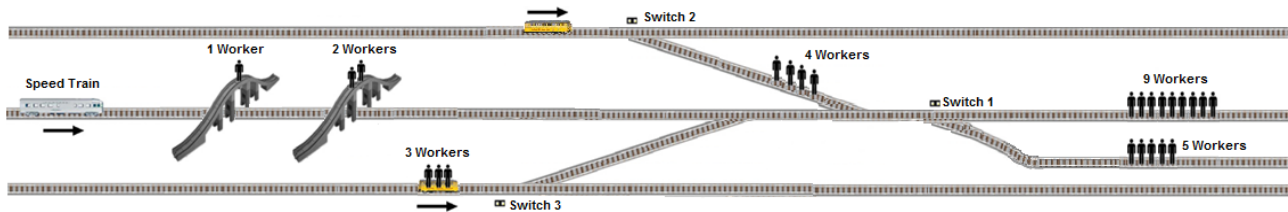

Figure 3: Illustration of the several-option case (6Options).

The scenarios in Switch, Push and 6Options read as follows:

On the test ground of a modern railroad property an unmanned speed-train (that normally can be remote-controlled) is out of control due to a technical defect. This speed-train is heading towards nine railroad workers that are maintaining the tracks. Since these workers are wearing a new type hearing protection, they would not notice the speed-train on time and hence would be run over by it. Carl, an employee of the rail track control center, recognizes the upcoming accident. However, it is not possible to stop the train on time any more.

It was then indicated that Carl could choose between exactly two options (in Switch and Push) or six options (6Options), respectively. The options in Switch were:

Option 1: Carl could throw the Switch and thereby redirect the speed-train from the main track onto a parallel track before it reaches the nine workers. On the parallel track the speed train would run over five workers (wearing the novel hearing protection). The five workers would lose their lives due to the collision.

Option 2: Carl could do nothing. In this case the nine workers will lose their lives in this accident.

The options in Push were:

Option 1: Carl could run to a nearby bridge on which a heavy worker is standing and push this worker from the bridge. Thereby this worker would fall on the tracks and collide with the speed-train. Due to the collision with the heavy worker (Carl would not be heavy enough to stop the train) the speed-train would stop before it reaches the nine workers. The heavy worker would lose his life due to the collision.

Option 2: Carl could do nothing. In this case the nine workers will lose their lives in this accident.

And the options in 6Options go as follows:

Option 1: Carl could run to the nearby, *left bridge* on which a heavy worker is standing and push this worker from the bridge. Thereby this worker would fall on the tracks and collide with the speed-train. Due to the collision with the heavy worker (Carl would not be heavy enough to stop the train) the speed-train would stop before it reaches the nine workers. The heavy worker would lose his life due to the collision.

Option 2: Carl could push a button that would open a trap door and thereby causing two workers on top of the *right bridge* to fall on the tracks. The speed-train would collide with the two workers and be stopped before it reaches the nine workers. The two workers would lose their lives due to the collision.

Option 3: Carl could throw *Switch 3* and thereby redirect a train carrying three workers from the lower parallel track onto the main track. The speed-train would collide with this train and be stopped before it reaches the nine workers. The three workers on the train would lose their lives due to the collision.

Option 4: Carl could throw the *Switch 2* and thereby redirect an empty train from the upper parallel track onto the main track. The speed-train would collide with this train and be stopped before it reaches the nine workers. On its way to the main track the empty train would run over four workers (wearing the novel hearing protection). The four workers would lose their lives due to the collision.

Option 5: Carl could throw *Switch 1* and thereby redirect the speed-train from the main track onto a parallel track before it reaches the nine workers. On the parallel track the speed train would run over five workers (wearing the novel hearing protection). The five workers would lose their lives due to the collision.

Option 6: Carl could do nothing. In this case the nine workers will lose their lives in this accident.

The test question was the same in all scenarios, namely "Which option should Carl choose?", and the description of each scenario was accompanied by a figure (see Figure 3 for the figure in 6Options). Which option was labeled "Option 1" (and was described first) was counterbalanced in Switch and Push. In 6Options there were also two orders of options, one starting with the utilitarian option and ending with the "least utilitarian" option (as described above) and the other one starting with the least utilitarian option and ending with the utilitarian option.

Results 39 subjects dropped out because they did not indicate their judgment, failed to solve the logical question, or went through the whole survey in less than 40 seconds.

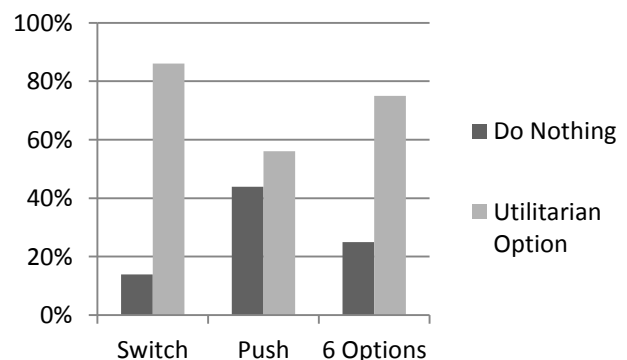The results are summarized in Figure 4 and Table 2.

Figure 4: Percentage of subjects choosing the option to do nothing relative to the utilitarian option in Experiment 2.

Again, the utilitarian option was the most chosen in all three conditions, although in Push not by far as in the first experiment in HeavySkater. In Switch, 86% went for the utilitarian option, while only 14% chose not to intervene. While in the first experiment the vast majority went for the utilitarian option in HeavySkater, participants were this time more skeptical of intervening in Push where 56% chose to intervene. The difference between the

proportions of participants who chose the utilitarian option in Switch versus Push did reach statistical significance, $\chi^2_{1,\ 175} = 2.30$, $p < 0.001$. Moreover, the necessary preconditions for testing Unger's claim were given this time. In 6Options 52% chose the utilitarian option in form of pushing the heavy man from the bridge and 17% chose to do nothing (9% chose option 2, 7% option 3, 8% option 4, and 6% option 5, options labeled as in the case description). If only the utilitarian option and the "do nothing"-option are taken into account in 6Options, 75% chose the utilitarian option and 25% preferred the agent to do nothing. This difference was statistically significant, $\chi^2_{1,\ 142} = 5.38$, $p = 0.02$. Hence, in accordance with Unger's claim people were indeed more likely to prefer the utilitarian option to doing nothing in the many-option scenario (6Options) than in the two-option scenario (Push).

Table 2: Distribution of responses on the available options in each condition (for options 2 to 5 see case description).

	Option					
Condition	Do Nothing	Utilitarian Option	Opt 2	Opt 3	Opt 4	Opt 5
Switch	13	80	NA	NA	NA	NA
Push	36	46	NA	NA	NA	NA
6 Options	15	45	8	6	7	5

Experiment 3

This experiment pursued three aims. First, we wanted to replicate the findings of Experiment 2. Second, we wanted to see whether people's intuition is transferred from the several-option case to the two-option case and the other way around. Third, we used a slightly changed version of Push to see whether the again unusually high percentage of subjects choosing the utilitarian option in Push was due to the test question, which forced subjects to choose between the two available options.[2]

Design, Materials, and Procedure 200 subjects were randomly assigned to one of two conditions: They either saw first Push and then 6Options or first 6Options and then Push. Push differed only slightly from Push in Experiment 2. Instead of explicitly stating the two options subjects were told that there is only one possibility to save the nine workers, namely pushing the heavy worker from the bridge (same wording as Option 1 in Experiment 2). The test question then was "Should Carl do the proposed action?" with "no" and "yes" as possible answers.

Results 31 subjects dropped out because they did not indicate their judgment, failed to solve the logical question, or went through the whole survey in less than 40 seconds. The results are summarized in Figure 5 and Table 3.

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[2] Weijers, D., & Sytsma, J. (in preparation) obtained similarly high ratings for intervening in Push with a similar setup. So our results do not seem to be artificial.
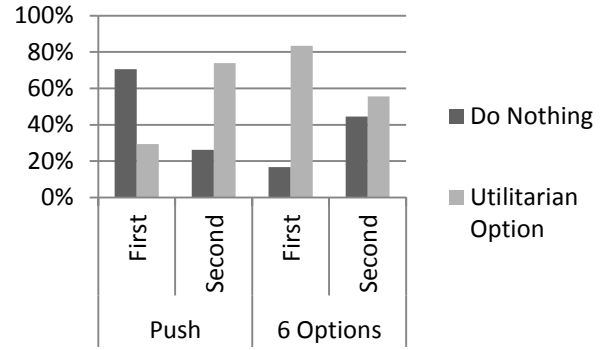

Figure 5: Percentage of subjects choosing the option to do nothing relative to the utilitarian option in Experiment 3.

The effect of subjects being more likely to choose the utilitarian option in 6Option, as compared to Push, could not only be replicated but also be strengthened which is likely to be a consequence of the slightly different test question compared to Experiment 2. When Push was shown first, the vast majority (71%) indicated that the agent should not intervene. In contrast to this, the vast majority did endorse the utilitarian option in 6Options (82%) when it was shown first (taken only these two options into account), $\chi^2_{1,\ 157} = 45.65$, $p < 0.001$.

In both conditions we found a strong influence of the first dilemma onto the second dilemma. When Push was presented after 6Options significantly more subjects chose the utilitarian option (74%), as compared to Push shown first (29%), $\chi^2_{1,\ 169} = 33.34$, $p < 0.001$. When 6Options was presented after Push significantly less subjects preferred the utilitarian option (56%) to doing nothing, as compared to 6Options shown first (83%), $\chi^2_{1,\ 144} = 13.09$, $p < 0.001$. There was an asymmetry regarding the strength of transfer between the first and the second dilemma with a stronger influence of 6Options on Push than the other way around. While the percentage of subjects preferring the utilitarian option to doing nothing in 6Options (83%) and Push (74%) did not differ when 6Options was presented first, there was a significant difference (29% in Push vs. 56% in 6Options) when Push was shown first, $\chi^2_{1,\ 157} = 10.98$, $p < 0.001$. In other words, intuitions for 6Options were more robust than for Push.

Table 3: Distribution of responses on the available options in each condition (for options 2 to 5 see case description).

	Option					
Condition	Do Nothing	Utilitarian Option	Opt 2	Opt 3	Opt 4	Opt 5
Push first	60	25	NA	NA	NA	NA
Push second	22	62	NA	NA	NA	NA
6 Options first	12	60	3	5	3	1
6 Options second	32	40	5	5	3	0

Discussion

The Push case is considered an important objection to utilitarian moral theories because most people strongly disagree with the utilitarian option of pushing (and thereby killing) a heavy man from a bridge in front of a train, even if this is the only possibility to stop the train from running over and killing several other people. Inspired by work of Unger (1996) we investigated the effects of adding further options to the Push case. We found that the vast majority actually preferred the utilitarian option to doing nothing in this several-option version of Push (6Options). Recent studies about two-option cases and several-option cases conducted by Weijers and Sytsma (in preparation) led to similar results, indicating that our findings are not mere experimental artefacts. Moreover, we observed transfer effects between the two-option case and the several-option case. When presented with Push first, the percentage of subjects not endorsing the utilitarian option in 6Options increased significantly. Transfer effects in the other direction, from the several-option case to the two-option case, were even stronger: The vast majority of subjects chose the utilitarian option in Push when they considered 6Options first.

Since most, if not all, existing descriptive moral theories investigate the psychological mechanism underlying our moral judgment by using two-option cases (dilemmas) it seems unlikely that they can account for the exceptionally strong effects we found. In the following we sketch some potential explanations.

One reason for the dominance of utilitarian responses in several-option cases could be that the varying number of lives involved in each option highlights the different consequences of each option. Of course, the provided options did not only differ in the number of lives involved but also in other features as, for example, the causal structure of the provided option. However, such differences are subtle and difficult to compare, requiring a higher cognitive effort than comparing the numerical outcomes.

Another possible explanation is derived from the association of utilitarianism with rational, deliberate decision making (Greene, 2013). Understanding a several-option case and comparing its options requires more cognitive effort than two-option cases in which it often comes to a fast and automatic reaction regarding the only option to intervene. This mode of thinking might in turn promote utilitarian consideration.

A third way of understanding our findings could be based on the need of justification that participants felt when deciding which option to choose. The mere numerical superiority of intervention options, as compared to the one option of not intervening, might make it seem likely that the right option to choose should be among them. Then, once having decided to focus on the intervention options, it will probably seem difficult to justify not choosing the option where the least people are sacrificed.

Philosophical Implications

What do our findings imply for the discussion of normative moral theories? Since the vast majority of subjects chose the utilitarian option in the several-option version of Push, it might seem obvious at first sight that our findings support a utilitarian moral theory. However, things are not so clear cut. Even if we neglect the is-ought gap for a moment and assume for the sake of the argument that being in accordance with the application of a moral theory to particular cases speaks directly in favor a moral theory, it all depends on the question of which setting (two-option case vs. several-option case) is suited to reveal valid moral intuitions. And the answer to this question might in turn depend on which normative moral theory is preferred. Utilitarians might want to argue that the several-option case is rather suited for eliciting valid moral intuitions, as compared to the, in their view, limited two-option case. Non-consequentialists might argue that the two-option case is the right setting and that the several-option case corrupts our moral compass. Therefore, even though Unger's claim is supported by empirical evidence this fact does not speak directly in favor of utilitarianism. Anyway, supporters of utilitarianism will probably like the finding that people's non-utilitarian intuition in Push does not seem to be as robust as the psychological literature suggests.

Acknowledgments

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