

Trolley Problems and Other Difficult Moral Questions

1 Introduction

Philippa Foot introduced the *trolley problem* in “The Problem of Abortion and the Doctrine of the Double Effect” (Foot, Philippa, 1967).

Suppose that a judge or magistrate is faced with rioters demanding that a culprit be found for a certain crime and threatening otherwise to take their own bloody revenge on a particular section of the community. The real culprit being unknown, the judge sees himself as able to prevent the bloodshed only by framing some innocent person and having him executed.

Beside this example is placed another in which a pilot whose aeroplane is about to crash is deciding whether to steer from a more to a less inhabited area.

To make the parallel as close as possible it may rather be supposed that he is the driver of a runaway tram which he can only steer from one narrow track on to another; five men are working on one track and one man on the other; anyone on the track he enters is bound to be killed. In the case of the riots the mob has five hostages, so that in both the exchange is supposed to be one man’s life for the lives of five. The question is why we should say, without hesitation, that the driver should steer for the less occupied track, while most of us would be appalled at the idea that the innocent man could be framed.

Judith Jarvis Thomson (Thomson, Judith Jarvis, 1976) built upon this problem and added cases involving a surgeon.

- 1.1 Edward is the driver of a trolley, whose brakes have just failed. On the track ahead of him are five people; the banks are so steep that they will not be able to get off the track in time. The track has a spur leading off to the right, and Edward can turn the trolley onto it. Unfortunately there is one person on the right-hand track. Edward can turn the trolley, killing the one; or he can refrain from turning the trolley, killing the five. If what people who say “Killing is worse than letting die” mean by it is true, how is it that Edward may choose to turn that trolley?
- 1.2 Charles is a great transplant surgeon. One of his patients needs a new heart, but is of a relatively rare blood-type. By chance, Charles learns of a healthy specimen with that very blood-type. Charles can take the healthy specimen’s heart, killing him, and install it in his patient, saving him. Or he can refrain from taking the healthy specimen’s heart, letting his patient die.
- 1.3 David is a great transplant surgeon. Five of his patients need new parts. One needs a heart, the others need, respectively, liver, stomach, spleen, and spinal cord. But all are of the same, relatively rare, blood-type. By chance, David learns of a healthy specimen with that very blood-type. David can take the healthy specimen’s parts, killing him, and install them in his patients, saving them. Or he can refrain from taking the healthy specimen’s parts, letting his patients die.
- 1.4 Harry is President, and has just been told that the Russians have launched an atom bomb towards New York. The only way in which the bomb can be prevented from reaching New York is by deflecting it; but the only deflection-path available will take the bomb onto Worcester. Harry can do nothing, letting all of New York die; or he can press a button, deflecting the bomb, killing all of Worcester.

- 1.5 Irving is President, and has just been told that the Russians have launched an atom bomb towards New York. The only way in which the bomb can be prevented from reaching New York is by dropping one of our own atom bombs on Worcester: the blast of the American bomb will pulverize the Russian bomb. Irving can do nothing, letting all of New York die; or he can press a button, which launches an American bomb onto Worcester, killing all of Worcester.

Peter Unger (Unger, Peter, 1992) considers some more complicated problems.

- 1.6 **The Foot.** In the park outside your office window, there sits a nice man peacefully reading the sports pages. Living in homes bordering the park there are twelve innocent neighbors who, just because they were bitten by certain rats, and through no fault of their own, have contracted a fatal disease. Now, if you do nothing about the situation, your first option, then, in a couple of days, the twelve neighbors will die from their disease. So, on this first option, you will let the twelve die. Regarding their plight, you have precisely one other option: Because he has a certain very rare body chemistry, a life-saving antidote can be made out of only a foot's worth of the reader in the park. (Now, you may first ask this man to give up a foot for the neighbors. But, saying that he is no hero, he will sadly and politely decline.) So, on this other option, you push a button and, with your trusty laser knife, you slice off one of this man's feet, say, his left foot, doing so in a manner that will ensure the man's safely healing. Then, after liquefying this free foot, you inject a twelfth of the resulting antidote into each of the neighbors. So, on your second option, you will save twelve people's lives, but, as well, you'll make the sports fan have only one foot for the rest of his own long life. Quickly enough thinking the whole matter over, you choose the more active option, you behave accordingly, and the twelve are prevented from dying.
- 1.7 **The Yard.** Having started by sheer accident, an empty trolley, nobody aboard, is barreling 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 will let these six die. Regarding their plight, you have one other option: If you flip a remote control toggle, then you will change the position of a certain switch. In that case, a slowly moving very heavy second empty trolley on another track a feed track, will go onto the switch's lower fork, and then, at the main track, instead of bypassing the first, "dangerous" empty trolley, this heavy trolley will collide with it, and both of trolleys will be derailed. Now, if there is this derailment, the second trolley will merely go into a "safe area" and will harm no one. But, the first trolley will then roll down a hill into someone's backyard, wreaking fatal havoc both with the yard's owner and also with a couple of his bushes. For, lying asleep in his hammock, that man, even if nobody else, will be killed by this trolley. So, on your second option, although you will save the six, you will kill the one in the yard. Thinking the matter over, you choose the more active option, you behave accordingly, and the six are prevented from dying.

2 Summary of some of the initial trolley problems

- 2.1 **Trolley.** Charlie is driving a train when the brakes fail. Ahead five people are working on the track, with their backs turned. Fortunately, Charlie can switch to a side track, if he acts at once. Unfortunately, there is also someone on that track with his back turned. If Charles switches his train to the side track, he will

kill one person. If Charlie does not switch his train, he will kill five people. Is it morally permissible for Charlie to switch his train to the side track?

- 2.2 **Passenger.** Denise is a passenger on a train whose driver has just shouted that the train's brakes have failed, and who then fainted from the shock. On the track ahead are five people; the banks are so steep that they will not be able to get off the track in time. The track has a side track leading off to the right, and Denise can turn the train onto it. Unfortunately there is one person on the right-hand track. Denise can turn the train, killing the one; or she can refrain from turning the train, letting the five die. Is it morally permissible for Denise to switch the train to the side track?
- 2.3 **Bystander.** Edward is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Edward sees what has happened: the train driver saw five workmen men ahead on the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the five men; the banks are so steep that they will not be able to get off the track in time. Fortunately Edward is standing next to a switch, which he can throw, that will turn the train onto a side track. Unfortunately, there is one person standing on the side track, with his back turned. Edward can throw the switch, killing the one; or he can refrain from doing this, letting the five die. Is it morally permissible for Edward to throw the switch?
- 2.4 **Footbridge.** Frank is on a footbridge over the train tracks. He knows trains and can see that the one approaching the bridge is out of control. On the track under the bridge there are five people; the banks are so steep that they will not be able to get off the track in time. Frank knows that the only way to stop an out-of-control train is to drop a very heavy weight into its path. But the only available, sufficiently heavy weight is a large man wearing a backpack, also watching the train from the footbridge. Frank can shove the man with the backpack onto the track in the path of the train, killing him, or he can refrain from doing this, letting the five die. Is it morally permissible for Frank to shove the man?
- 2.5 **Scarce Resources.** Alice is a doctor in a hospital's emergency room when six accident victims are brought in. All six are in danger of dying but one is much worse off than the others. Alice can just barely save that person if she devotes all of her resources to him and lets the others die. Alternatively, Alice can save the other five if she is willing to ignore the patient who is most seriously injured. Is it morally permissible for Alice to save the most seriously injured patient?
- 2.6 **Transplant.** Bob is a transplant surgeon. He has five patients in the hospital who are dying, each in need of a separate organ. One needs a kidney, another a lung, a third a heart, and so forth. Bob can save all five if he takes a single healthy person and removes her heart, lungs, kidneys and so forth, to distribute to these five patients. Just such a health person is in Room 306. She is in the hospital for routine tests. Having seen her test results, Bob knows that she is perfectly healthy and of the right tissue compatibility. If Bob does nothing, she will survive without incident; the other patients will die, however. The other patients can be saved only if the person in Room 306 is cut up and her organs distributed. In that case there would be one dead but five saved. Is it morally permissible for Bob to cut up the person in Room 306?

3 Twelve trolley problems

John Mikhail in a series of papers (Mikhail, John (2002), Mikhail, John (2007), Hauser, Marc (2007)) and his recent book (Mikhail, John, 2011, 319–360) describes twelve different trolley problems used in the search for a universal moral grammar.

- 3.1 **Bystander.** Hank is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Hank sees what has happened: the driver of the train saw five men walking across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the five men. It is moving so fast that they will not be able to get off the track in time. Hank is standing next to a switch, which he can throw, that will turn the train onto a side track, thereby preventing it from killing the men. There is a man standing on the side track with his back turned. Hank can throw the switch, killing him; or he can refrain from doing this, letting the five die. Is it morally permissible for Hank to throw the switch?
- 3.2 **Footbridge.** Ian is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Ian sees what has happened: the driver of the train saw five men walking across the tracks and slammed on the brakes, but brakes failed and the driver fainted. The train is now rushing toward the five men. It is moving so fast they will not be able to get off the track in time. Ian is standing next to a heavy object, which he can throw onto the track in the path of the train, thereby preventing it from killing the men. The heavy object is a man, standing next to Ian with his back turned. Ian can throw the man, killing him; or he can refrain from doing this, letting the five die. Is it morally permissible for Ian to throw the man?
- 3.3 **Expensive Equipment.** Karl is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Karl sees what has happened: the driver of the train saw five million dollars of new railroad equipment lying across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the equipment. It is moving so fast that the equipment will be destroyed. Karl is standing next to a switch, which he can throw, that will turn the train onto a side track, thereby preventing it from destroying the equipment. There is a man standing on the side track with his back turned. Karl can throw the switch, killing him; or he can refrain from doing this, letting the equipment be destroyed. Is it morally permissible for Karl to throw the switch?
- 3.4 **Implied Consent.** Luke is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Luke sees what has happened: the driver of the train saw a man walking across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the man. It is moving so fast that he will not be able to get off the track in time. Luke is standing next to the man, whom he can throw off the track out of the path of the train, thereby preventing it from killing the man. The man is frail and standing with his back turned. Luke can throw the man, injuring him, or he can refrain from doing this, letting the man die. Is it morally permissible for Luke to throw the man?
- 3.5 **Intentional Homicide.** Mark is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Mark sees what has happened: the driver of the train saw five men walking across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the five men. It is moving so fast that they will not be able to get off the track in time. Mark is standing next to a switch, which he can throw, that will turn the train onto a side track, thereby preventing it from killing the men. There is a man on the side track. Mark can throw the switch, killing him; or he can refrain from doing this, letting the men die. Mark then recognizes that the man on the side track is someone who he hates with a passion. "I don't give a damn about saving those five men," Mark thinks to himself, "but this is my chance to kill that bastard." Is it morally permissible for Mark to throw the switch?
- 3.6 **Loop Track.** Ned is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Ned sees what has happened: the driver of the train saw five men walking

across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the five men. It is moving so fast that they will not be able to get off the track in time. Ned is standing next to a switch, which he can throw, that will temporarily turn the train onto a side track. There is a heavy object on the side track. If the train hits the object, the object will slow the train down, giving the men time to escape. The heavy object is a man, standing on the side track with his back turned. Ned can throw the switch, preventing the train from killing the men, but killing the man. Or he can refrain from doing this, letting the five die. Is it morally permissible for Ned to throw the switch?

- 3.7 **Man-in-front.** Oscar is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Oscar sees what has happened: the driver of the train saw five men walking across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the five men. It is moving so fast that they will not be able to get off the track in time. Oscar is standing next to a switch, which he can throw, that will temporarily turn the train onto a side track. There is a heavy object on the side track. If the train hits the object, the object will slow the train down, giving the men time to escape. There is a man standing on the side track in front of the heavy object with his back turned. Oscar can throw the switch, preventing the train from killing the men, but killing the man; or he can refrain from doing this, letting the five die. Is it morally permissible for Oscar to throw the switch?
- 3.8 **Costless Rescue.** Paul is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Paul sees what has happened: the driver of the train saw five men walking across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the five men. It is moving so fast that they will not be able to get off the track in time. Paul is standing next to a switch, which he can throw, that will turn the train onto a side track, thereby preventing it from killing the men. Paul can throw the switch, saving the five men; or he can refrain from doing this, letting the five die. Is it morally obligatory for Paul to throw the switch?
- 3.9 **Better Alternative.** Richard is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Richard sees what has happened: the driver of the train saw five men walking across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the five men. It is moving so fast that they will not be able to get off the track in time. Richard is standing next to a switch, which he can throw, that will turn the train onto a side track, thereby preventing it from killing the men. There is a man standing on the side track with his back turned. Richard can throw the switch, killing him; or he can refrain from doing this, letting the men die. By pulling an emergency cord, Richard can also redirect the train to a third track, where no one is at risk. If Richard pulls the cord, no one will be killed. If Richard throws the switch, one person will be killed. If Richard does nothing, five people will be killed. Is it morally permissible for Richard to throw the switch?
- 3.10 **Disproportional Death.** Steve is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Steve sees what has happened: the driver of the train saw a man walking across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the man. It is moving so fast that he will not be able to get off the track in time. Steve is standing next to a switch, which he can throw, that will turn the train onto a side track, thereby preventing it from killing the man. There are five men standing on the side track with their backs turned. Steve can throw the switch, killing the five men; or he can refrain from doing this, letting the one man die. Is it morally permissible for Steve to throw the switch?

- 3.11 **Drop Man.** Victor is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Victor sees what has happened: the driver of the train saw five men walking across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the five men. It is moving so fast that they will not be able to get off the track in time. Victor is standing next to a switch, which he can throw, that will drop a heavy object into the path of the train, thereby preventing it from killing the men. The heavy object is a man, who is standing on a footbridge over-looking the tracks. Victor can throw the switch, killing him; or he can refrain from doing this, letting the five die. Is it morally permissible for Victor to throw the switch?
- 3.12 **Collapse Bridge.** Walter is taking his daily walk near the train tracks when he notices that the train that is approaching is out of control. Walter sees what has happened: the driver of the train saw five men walking across the tracks and slammed on the brakes, but the brakes failed and the driver fainted. The train is now rushing toward the five men. It is moving so fast that they will not be able to get off the track in time. Walter is standing next to a switch, which he can throw, that will collapse a footbridge overlooking the tracks into the path of the train, thereby preventing it from killing the men. There is a man standing on the footbridge. Walter can throw the switch, killing him; or he can refrain from doing this, letting the five die. Is it morally permissible for Walter to throw the switch?
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References

- Foot, Philippa. "The Problem of Abortion and the Doctrine of the Double Effect." *Oxford Review* 5(1967): 5–15
- Hauser, Marc, Fiery Cushman, Liane Young, Kang-Xing Jin, and John Mikhail. "A Dissociation Between Moral Judgments and Justifications." *Mind & Language* 22(February 2007):1–21.
- Mikhail, John. "Aspects of the Theory of Moral Cognition: Investigating Intuitive Knowledge of the Prohibition of Intentional Battery and the Principle of Double Effect." *Georgetown University Law Center Public Law & Legal Theory Working No. 762385*. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=762385
- Mikhail, John. "Universal Moral Grammar: Theory, Evidence, and the Future." *Trends in Cognitive Sciences* 11(2007):143–152
- Mikhail, John. *Elements of Moral Cognition*, Cambridge: Cambridge University Press, 2011
- Thomson, Judith Jarvis. "Killing, Letting Die, and the Trolley Problem." *The Monist* 59(1976):204–17
- Unger, Peter. "Causing and Preventing Serious Harm." *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition* 65(1992):227–255