

The Doctrine of Double Effect and Medical Ethics: A New Formulation



Rahman Sharifzadeh

(Iranian Research Institute for Information Science and Technology IRANDOC,
Tehran; rahman_sharifzadeh@yahoo.com)

Abstract: The standard version of the doctrine of double effect, a significant doctrine in applied ethics particularly medical ethics, not only fails to capture some morally significant components of Aquinas' view, but it does not resort to proper complementary features in order to accommodate the doctrine to our moral intuitions. We attempt to offer a new formulation of the doctrine incorporating the main components of Aquinas' view and also to extend the view using some complementary features. We will examine the strength of the formulation applying it into some ethically controversial situations, mainly in medical ethics.

Keywords: Doctrine of Double Effect; medical ethics; intention; foresight; Thomas Aquinas.

Introduction

Is it morally permissible to take an action to achieve a good result if we know (foresee) that the action will also lead to a bad result? The Doctrine of Double Effect [DDE] answers this question in the affirmative under certain conditions. Thomas Aquinas is cited as the first thinker who originally indicated to the main elements of the doctrine. In his *Summa Theologiae*, Aquinas permits the act of 'self-defense' under certain conditions, even if it leads to the killing of the attacker:

The act of self-defense may have two effects, one is the saving of one's life, the other is the slaying of the aggressor. Therefore this act, since one's intention is to save one's own life, is not unlawful, seeing that it is natural to everything to keep itself in "being," as far as possible. And yet, though proceeding from a good intention, an act may be rendered unlawful, if it be out of proportion to the end (Thomas Aquinas, *Summa Theologiae*, IIa-IIae Q. 64, art. 7).

But he goes on to say:

But as it is unlawful to take a man's life, except for the public authority acting for the common good, as stated above (Article 3), it is not lawful for a man to intend killing a man in self-defense, except for such as have public authority, who while intending to kill a man in self-defense, refer this to the public good, as in the case of a soldier fighting against the foe, and in the minister of the judge struggling with robbers, although even these sin if they be moved by private animosity (ibid).

In the first quote, Aquinas says that if the attacker is killed as a result of the act of self-defense, the action of the defender is not illegitimate. In the second quote, he says that the defender should not intend to kill the attacker. The only consistent interpretation of these two quotations is that the defender should not directly intend to kill the attacker, but if he/she does something with the intention of self-defense his/her action is not illegitimate even though he/she foresees that his/her action could lead to the attacker being killed.

Aquinas' argument here is specifically about 'killing' in self-defense. But extracting the necessary and sufficient conditions for action in cases where our action has two effects of good and bad, the proponents of this doctrine have applied it to other cases, including, at least, cases of 'letting die', as Foot (2003) and Quinn (1989) have pointed out. That is the cases in which someone dies not due to the action of an agent but due to the inaction of that agent. It can even be argued, as Boyle (1991 a) says that the doctrine can be applied to any action one effect of which is harmful and the other effect is a good one provided that the harm is considered as a bad effect if done intentionally.

Different formulations of DDE have been proposed (Marquis 1991). Most of these formulations consider four conditions for taking actions with two good and bad effects. One of the most popular and endorsed formulations, which can be called the standard version, proposes the following four conditions (Mangan 1949; Foot 2003; Theron 1984):

1) The condition of the nature of the action itself: The action itself must be morally good (or at least not immoral).

2) The condition of good intentions: The agent must intend the good effect (although it may foresee bad effect).

3) The goal-means condition: the good effect should not be brought about by the means of the bad effect.

4) The Proportion condition: the good effect should outweigh the bad effect.

Let us consider the case of hysterectomy in medical ethics, as a paradigm example of the application of DDE:

- A woman is pregnant while she has uterine cancer. Doctors have to remove the uterus to save the mother, but this leads to the death of the fetus.

Removing the uterus has two effects: saving the mother's life and destroying the fetus. The action of the doctors is to remove the uterus which is not immoral in itself (so the first condition is met). The doctor does this with the intention of saving the mother's life, although he foresees that this will abort the fetus (the second condition is met). Third, the bad effect is not the means of achieving the good effect; the means here is removing the uterus, not aborting the fetus, so abortion is merely the side effect of hysterectomy (the third condition is met). Finally, it can be argued that in such a situation, saving the mother's life outweighs the fetus abortion. Firstly, the mother's life is in great danger due to her cancerous uterus. Secondly, there is no doubt that the mother is a human being and has certain rights, but there is much controversy that the fetus (at least up to a

certain stage of development) has the same rights as a born human being (Foot 2003, 19). Accordingly, DDE regards the hysterectomy as a morally permissible action.

I. The Distinction between Intention and Foresight

The distinction between intention and foresight is central to DDE. In fact, it is the main presupposition of the second and third conditions of DDE. The second condition says the good effect should be *intended*. However, it implies that it is fine if the bad effect is *foreseen*. The third condition says that the bad effect should not be put intentionally in the set of causes that brings about the good effect, but it also implies that if the bad effect be in the set 'accidentally' and 'non-intentionally' it is no problem even though the agent *foresees* that the bad effect would be part of the causal chain if he/she takes the action. In fact, this presupposition is a necessary factor in the doctrine which allows harm to be brought about consciously, rather than intentionally, for achieving proportionate good effects under some conditions.

The distinction, however, which seems intuitive in the first place, has in some cases led to ambiguities and problems. To see how problematic this distinction is, compare the case of hysterectomy to the case of craniotomy, which has the same structure as the former but considered impermissible by some advocates of the doctrine:

- The life of a pregnant woman is endangered due to the fetus getting stuck in her canal birth and the only way to save the mother is to crush the skull of the fetus (because of its large size). This, of course, leads to the death of the fetus, but the mother would be saved.

The reason why this case is not allowed by some defenders of DDE is that the second condition has not been met: killing the fetus, through crushing its skull, is intended by the doctor. So, they think that the hysterectomy and craniotomy are asymmetric; even though in both cases the fetus dies, just the former is permissible (Theron 1984). Opponents of DDE 'have challenged this alleged asymmetry and claimed that if it is permissible to take action to save a pregnant woman's life by performing a hysterectomy, then it is permissible to take action to save a woman's life by performing a craniotomy upon the fetus' (Davis 1984, 110). In fact, opponents say that in both cases either the death of the fetus is intended or merely foreseen; there is no asymmetry between them.

Anscombe, through a similar example, considers the claim of asymmetry between the two cases to be a meaningless position (Anscombe 2006, 211). Suppose a fat man and a group of cave explorers are moving towards the mouth of a cave. Due to an accident, the fat man who moves ahead of the rest slips his foot and blocks the whole way out of the cave. There is no way out but two ways: 1) they move a stone to open another way; but moving this stone will lead to killing the fat man (this is similar to hysterectomy); 2) they blow up the fat man through a significant amount of explosives and open the way (and this is similar to craniotomy). Given that everyone knows that moving the stone and using

the explosives lead to the death of the fat man immediately, Anscombe does not find a significant difference between the two options. People inside the cave cannot say that we don't want to kill the fat man, we just 'want' or 'intend' to move the stone. This, Anscombe says, is the same thing as saying 'I don't want to kill anyone, I am just pulling the trigger' (Anscombe 1967) without noticing that the gun is aimed at someone's head.

One important question arises: Is the intention/foresight distinction a morally significant factor in the doctrine of double effect? This question has been answered in the affirmative and the negative.

Anscombe, Boyle, and Quinn answer this question in the affirmative. However, their answers have significant differences. Anscombe (1982) analyzes 'intention' in its everyday sense but Boyle interprets it in a strict logical sense. And Quinn while endorses Boyle's interpretation add a complimentary component. Anscombe argues that if by taking an action the bad effect occurs immediately (closely enough) and with very high probability (such as moving stone and killing the fat man, or pulling the trigger and hitting a person, or crushing the skull of the fetus and its death), then we are justified to say that the bad effect is intended. But the less probable and foreseeable the association between an action and the bad effect, the more unintended it becomes. If people in the cave do not foresee by a high probability that the fat man will be killed by moving the stone, then it can be said that they don't intend the fat man to be killed. So Anscombe thinks the closeness and high probability are the natural aspects of intention.

However, this analysis is not very compelling because it is too restrictive (Quinn 1989). It not only makes craniotomy impermissible, but hysterectomy, and all cases of euthanasia and abortion would be unauthorized since in all these actions the bad effect occurs immediately and with high probability by the relevant actions.

Boyle uses 'intention' in a strict sense (Boyle 1997; 1991a). According to him, in the case of craniotomy, although the doctor crushes the skull of the fetus, his/her intention, literally, is not to kill the fetus but to move the fetus in the birth canal. In other words, killing the fetus was not a part of the doctor's plan, or what the doctor wanted. So, there is no difference between hysterectomy and craniotomy, and his interpretation of DDE justifies both. In both cases, the death of the fetus is only the side effect of the physician's operation. The doctor's actions in both cases pass Donagan's counterfactual test (Donagan 1991); that the bad effect is not intended and so is not the means of achieving the good effect if not-occurrence of the former doesn't prevent the latter from happening. The death of the fetus in both cases is not related to the main plan of the doctor; if the fetus is survived miraculously from the operations, the good effect would still be brought about.

But the problem with Boyle's approach is that it allows too much. Boyle's interpretation allows actions that seem very non-intuitive. As Marquis points out, according to his analysis, pushing a fat man in front of a trolley to save five people is morally permissible, because the 'death of the fat man' is neither intended nor literally is the means of saving the people (Marquis 1991). If the fat man miraculously survives, the

good effect would still be achieved.

Boyle (1997) points out that the problem with the above example is that the fat man was pushed in front of the trolley against his will. Marquis does not consider this argument compelling because in the case of craniotomy, which Boyle's analysis allows, crushing the skull is against the consent of the fetus. "If Boyle should protest that the child cannot consent, we can alter the trolley example so that the fat man is either not competent or asleep or temporarily unconscious" (Marquis 1991, 534).

Marquis is right that the concept of consent here cannot distinguish fat man case from craniotomy. But he is wrong in concluding that Boyle cannot make any morally significant difference between them. In the same article, Boyle (and also Quinn) considers craniotomy as an instance of self-defense. In the above case, the fat man has no 'role' in endangering the lives of people on the track, but in the case of craniotomy, the fetus has played a major role in endangering the mother's life. If A has a role in endangering B's life, then B (or representative of B) has the right to take action against A under certain conditions to stop the threat, but A has no right to take action against an irrelevant agent of C to stop the threat of B. This point will be more clarified in our formulation.

Warren Quinn argues that something is missing in the intention/foresight distinction and so in the attempts to differentiate craniotomy and hysterectomy and other similar cases in which DDE has been applied (Quinn 1989). Distinguishing the intentional and non-intentional objects of harm (or direct and indirect harms), he provides a complementary criterion. In the hysterectomy case, the object of intentional harm is the uterus and the destruction of the fetus is merely the unintentional object of harm. But in the craniotomy case, the fetus is the intentional object of harm: "The doctor in CC [craniotomy case] strictly intends to produce an effect on the fetus so that the mother can be saved by that effect. But the doctor in HC [hysterectomy case] has, as we have seen, no such intention" (Queen 1989). Queen claims, rightly I think, that in the permissible cases not only the bad effect should not be strictly intended but the victim should be the intentional object of harm in the *process* of reaching the good effect.

Quinn's complementary criterion, however, as Marquis points out, is too restrictive again (Marquis 1991); For example, this criterion does not distinguish between permissible and impermissible cases of euthanasia in which DDE is applicable. In a permissible case of euthanasia in which a physician seeks to relieve the pain of a terminally ill patient by injecting large doses of morphine (even though he/she foresees that this may accelerate the death of the patient), the patient is the intentional object of harm.

Philippa Foot answers the question in the negative. She believes that the intention/foresight distinction has not very morally significant weight. She suggests that the distinction between negative and positive duties (corresponded to our duties to avoiding harms and bringing aids respectively) plays a more important role in the relevant moral dilemmas: 'my conclusion is that the distinction between direct and oblique intention¹

¹ Foot, following Bentham's terminology, considers 'oblique intention' as tantamount to 'foreseen

plays only a quite subsidiary role in determining what we say in these cases, while the distinction between avoiding injury and bringing aid is very important indeed' (Foot 2003). She argues that our negative duties are stricter than positive duties. So, one may claim, in the case of craniotomy, it doesn't matter that the doctor intends or just foresees the death of the fetus. His or her duty to not bring injury to the fetus is stricter than helping the mother.

This kind of approach is as restrictive as Anscombe's analysis. Because in many cases, including hysterectomy, it seems that bringing injuries is intuitively permissible. Foot immediately adds that 'I have not been arguing for any general conclusion such as that we may never, whatever the balance of good and bad, bring injury to one for the sake of aid to others, even when this injury amounts to death' (Foot 2003). But this adjustment leaves us with no criterion to distinguish permissible and impermissible cases of bringing injuries. Thus, one can argue that the positive/negative distinction, per se, is not preferable to the intention/foresight distinction.

II. A New Formulation

In this section, we will first pay attention to components that are morally relevant in the problematic situations in which DDE is applicable, negligence of which can lead to non-intuitive results. Then, we will incorporate these components into a new formulation of the doctrine and apply it to a variety of cases. We, like Boyle, use 'intention' in a strict sense but prevent its potential challenges by incorporating some features in our third conditions missing in the standard version and Boyle's interpretation. We also, like Quinn, consider the process of bringing about the good effect as a morally significant aspect and embed it in our formulation but at the same time prevent the potential challenges such as the Marquis' criticism.

1) *The rights of the agents*: it seems that in addition to intention, effect, and means, the rights of moral agents also significant in the application of DDE, otherwise it is feared that the doctrine turns into a version of consequentialism. Consider the following situation:

- Suppose a patient can be saved from death by injecting the only remaining amount of a specific drug available in a hospital. He goes to the hospital and his doctor decides to inject the medicine. While the doctor is preparing for the injection, two other patients with the same condition visit the same doctor. For some reason, each of the patients can be saved by injecting only half of the drug. The doctor changes his mind and injects it into the two patients. As a result, two people are saved, but the first person dies.

What is striking in this example is that it seems that the patient's right has been somehow violated. The first patient had visited the doctor earlier, so he seems to be

entitled to get the medicine. However, the standard version of DDE allows the doctor to inject the drug into other patients: the doctor's action is to inject medicine to save lives (the first condition is met). The doctor intends saving the lives of two people not to kill or let someone die (the second condition is met). The death of the first patient is not the means of saving the other two patients (the third condition is met). It seems that saving two people from death outweighs the death of one (the fourth condition is met).

2) *The distinction between good and right*: in his *Good and Right*, Sir David Ross distinguishes between good and right actions (Ross 1930). Right action is one that is done *according to duty*, but good action is one that is done *for the sake of duty*. Thus, the right actions are only formally corresponded to duties. In Ross' view, although right actions should be done, they, unlike good actions, have no moral value; because their intentions are things other than doing duties. For example, suppose a child is drowning in a pool. Someone rescues him/her, but not for the sake of doing his duty, but for ostentation. Here his action is the right action; this is what a person with goodwill would do. However, his action is not considered a good action and has no moral value in Ross' view.

What does the distinction have to do with DDE? The relevance is that the standard version, with its emphasis on intending the good effect, can lead to non-intuitive results. Consider the following case:

- Suppose a terrorist wants to blow himself up in the middle of a large crowd in a market. Jones notices his movements and can stop him, given his skills. Jones gets into a fight with him and the terrorist is accidentally killed in the fight before he can explode himself. However, Jones did not intend to save the lives of the people in the market, but to get a significant reward government pays in such cases.

According to the standard version, Jones' action is not allowed. Because his action was not based on the intention of achieving the good effect (i.e., saving the people). But such a thing seems non-intuitive and does not have very good social consequences. Jones' action, though not morally good, is the right one; this is an action that must be done in such a situation.

So perhaps the second condition can be changed from 'the good effect must not be intended' to 'the bad effect must not be intended' to make Jones' action morally permissible in this situation. In the above example, it is true that Jones did not intend the good effect, but he did not intend the bad effect either.

3) *The professional status of agents*: expressing his view, Thomas Aquinas points out something that almost has been neglected. Consider the text of Aquinas once again:

(...) But as it is unlawful to take a man's life, *except for* the public authority acting for the common good, as stated above (Article 3), it is not lawful for a man to intend killing a man in self-defense, *except for* such as have public authority, who while intending to kill a man in self-defense, refer this to the public good, as in the case of a soldier fighting against the foe, and in the minister of the judge struggling with robbers, although even these sin if they be moved by private

animosity (Thomas Aquinas, *Summa Theologiae*, IIa-IIae Q. 64, art. 7).²

Aquinas does not say that ‘intending’ to kill someone is *absolutely* impermissible. He says that those who have public authority can in some cases intend to kill as long as their actions are for the public good. This claim of Aquinas contains two important points: First, people’s professions or occupations affect their moral agencies. He cites judges and soldiers involved in the war. A soldier in a battle ‘intends’ to kill an enemy soldier. Or a judge intends to sentence a child murderer to death. The second point is that he apparently distinguishes between two levels of intention. A soldier as intends to kill an enemy soldier (proximate intention), intends to achieve public good, such as saving the people of his country (ultimate intention). What is important here for Aquinas is the second-level intention. Because it is this kind of intention that morally authorizes soldiers’ or judges’ actions.

Well, how this point is relevant to our discussion? Those who are in public authority occupy professional roles so one can argue that the Aquinas’ point may be applicable to other professions as well. One can ask why a person in public authority can do something that a private citizen is not allowed to do. The answer, apparently, is that because the person in public authority occupies (or authorized to occupy) a *special role with special knowledge and skills to serve people at the first place*. This is the definition of profession. In a profession, as many have pointed out, the *main* or *prior* aim of a professional is to serve the people not to satisfy his/her personal interests (Jennings et al. 1987; Wolpe & Sake 1996; Schultz 2005). So, in the conflict between public/non-personal and personal interests, he/she, as a professional, should prioritize the first category. It seems to us that Aquinas’ point is generalizable; even though he cited judging and soldiering (or ones who execute law), but his dictum, based on the definition of ‘profession’, is applicable to other professions including medicine. Physicians are *authorized to occupy a special role with special knowledge and skills to serve people*. No need to say that this doesn’t mean that physicians are authorized to kill people like soldiers. A profession defines the roles, rights, and duties of the professionals and the stakeholders. Two more points we should make to clear our claim. First, we should note that ‘public authority’ is not the defining feature of ‘profession’. Public authority is the characteristic of those professions that derive their executive power from the law or the public. But such a thing is not the case in the professions like medicine, engineering, and firefighting. The physicians derive their practical power not from public authority but from scientific community and related organizations such as the ministry of science; here we are facing with a kind of scientific authority rather than public authority. What is important for a profession is the ‘legitimate authority’ not *the kind of* authority. The second point is that ‘serving people’ has two public and individual aspects which are present in almost every profession, and there is no distinction, in this regard, between medicine and other professions. Health

² The italics are mine.

as a public/individual good is the main focus of medical practices. To vaccinate someone against Covid-19 is to serve public and individual interests at same time. And it is clear that in some medical practices the public aspect is more vigorous than individual aspect (for example, introducing a new vaccine) and vice versa (for example, relieving the pain of a terminally ill patient).

To include professions like medicine under the main dictum of Aquinas can be very important because it has been one of the classic areas in which DDE has been applied. We come back to this later.

By distinguishing two levels of intentions in professions, some morally intuitive actions that are impermissible in the standard version will be allowed. Consider the following case:

- A terrorist group puts an explosive vest on an innocent young man and pressures him to blow himself up in a crowded market otherwise his whole family would be killed. An armed policeman monitors his movements. There is no way but to kill him to prevent the explosion. The policeman kills him, regretfully, to save several hundred people in the bazaar.

The standard version considers the policeman's action impermissible due to the violation of the second and third conditions. Here, however, we should, following Aquinas, distinguish between two levels of policeman's intentions. Although the policeman intends to kill an innocent person, killing him is not his ultimate intention; the ultimate intention is to save the lives of the people. Outside such a situation, the policeman never attempts to kill him. Hence, since policing is a profession that serves the public interests, and since the policeman's ultimate intention is to save the lives of individuals and there is no other way but to kill the young man to prevent hundreds of people from being killed, the policeman's action seems morally permissible. However, this allowance can be morally problematic in some situations. A point to which we come back soon.

Now let us reconstruct DDE based on what we have said. The first condition of the standard version is removed in our formulation because it, as we will see, is covered by our third condition. The second condition can actually be analyzed in two separate conditions because Aquinas speaks of two levels of intention:

- 1) The ultimate intention must not be the bad effect (although one may foresee it).
- 2) The proximate intention must not be the bad effect unless the agent occupies a professional role and his/her ultimate intention is to meet public interests/good.

The first condition emphasizes that people should not be vicious; that is, their ultimate or main intention should not be the increase of evil in the world. Note that this condition does not say that one's ultimate intention must be the good effect, because, as we saw, based on the distinction between good and right, such a claim can be problematic. The second condition states that one's proximate intention can be the bad effect only if he/she has a professional role and his/her ultimate intention is to achieve public good. As we have seen, Aquinas refers directly to this, and the existence of such a condition is

necessary to avoid the non-intuitive consequences we mentioned earlier. But the second condition, *per se*, can lead to a lot of bad results; People who have professional roles may unjustly create evil in order to achieve public good. Therefore, based on the 'rights of the agents', we indicated earlier, the third condition is necessary:

3) Violation of people's rights (including the rights a profession defines for its stakeholders) should not be the means of achieving the good effect; unless the violation is inevitable or the violation of the right of person x is necessary to prevent or stop the violation of the same (or more important) right of person y which x is intentionally or unintentionally violating.

This condition is necessary in order to prevent the sacrifice of some people's rights to help others or to achieve the common good in general. As Ross (1930) points out 'we should not in general consider it justifiable to kill one person in order to keep another alive, or to steal from one in order to give alms to another'. Distinguishing between negative and positive duties, Philippa Foot makes the same point (Foot 2003). However, this condition allows the violation of people's rights in cases in which the violation is either inevitable or necessary to prevent or stop the same or more important violation. The later clause can be justified in terms of self-defense arguments.

This condition is stronger than the goal-means condition of the standard version. It states that the *violation of rights* should not be the means of achieving the good effect. The advantage of such a condition over the standard version's third condition is that it captures the main feature that makes an action with both good and bad effects unauthorized. The point is not that the bad effect should not be the means of achieving the good effect; in many immoral actions, the bad effect is not literally the means of achieving the good effect, under any interpretation of means³. As we saw, in the case of shoving a fat man in front of the trolley, killing him is not the means of saving other people. If the fat man luckily survives, the good effect (stopping the trolley and saving the people on the track) would be still achieved. Rather, the point is that in order to achieve the good effect, moral agents should not be used as a means, and this means that we should not violate people's rights as a means to achieve our ends.

This condition covers also the first condition of the standard version of DDE. Since, one can argue, naturally bad actions, listed by natural theorists, are indeed the impermissible violations of people's rights.

4) The good effect should preponderate over the bad effect.

Our fourth condition states two points: first, the evil must not be excessive, that is, it must not be more than necessary (Aquinas refers to this point directly). Second, the set of reasons for it outweighs the set of reasons against it. The second point is added because the good quantitative balance between good and bad is not always sufficient reason to

³ Davis discusses three meanings of the relation between means and end: logical (conceptual), causal, and counterfactual. The means either logically entails the end, or is the cause of the end, or is such that if the means did not exist, the end would not happen (Davis 1984).

take an action. To clarify this point, consider the following example from Judith Jarvis Thomson (1976):

- City A has been built on the avalanche country despite avalanche dangers. The inhabitants of the city are aware of this danger and have risked living there because of the beautiful scenery and the money they make there. A few kilometers away from A, there is a smaller city B, with half of the population of A. B is located in a flat place and is not threatened by avalanches; the scenery is less beautiful and they have a lower income. The inhabitants of B have *preferred* living there to city A, to be immune to the avalanche dangers. Now, imagine a huge avalanche starts to descend and will destroy city A in a few seconds. You have a transcendental force that can direct the avalanche to place x which is accidentally occupied by city B. Assuming that there is no other way to save city A but to do this, are you morally allowed to direct the avalanche to the heads of the residents of city B?

According to the standard version of DDE, your action is allowed, because 1) shifting the direction of the avalanche is not immoral in itself; 2) your intention is to save the people of city A; 3) the bad effect is not the means of achieving the good effect; and 4) it seems that the balance of good and bad is proportionate; B has only half of the population of A.

However, such an action does not seem intuitively moral. Thomson says you are not allowed to do this even if the avalanche kills twice the population of city B; because the inhabitants of city B have morally justified reasons against such an action. To avoid such a danger, they have preferred living in city B. It is not fair that city A enjoys the benefits of living in the avalanche country but city B suffers from the dangers of it. So, in this case, although, in terms of quantity, the amount of good is greater than the amount of bad, such an action is not justified.

Now let us examine the proposed version by applying it to some morally significant situations.

1. Hysterectomy: This case is morally permissible because (i) the proximate and (ii) ultimate intentions of the doctor are not the bad effect; (iii) although the fetus' right to 'not to be harmed' is violated (given that the fetus has such a right), this violation is not the means of saving the mother's life. And (iv) the bad effect is not excessive and there are good reasons for doing so: the woman's life is in great danger due to her cancerous uterus.

2. Craniotomy: This case is also morally permissible because (i) the proximate and (ii) ultimate intentions of the doctor, *in a strict sense*, are not the bad effect; the Doctor's ultimate intention is to save the mother's life and his/her proximate intention, as Boyle said, is to move the fetus in the canal birth (but compare this with the following case); (iii) although the violation of the fetus' right to 'no to be harmed' is the means of achieving the good effect, the fetus is violating the same or more important right of another person (i.e., the mother); (iv) the bad effect is not excessive and there are

justified reasons based on self-defense to take such action.

3. Abortion: imagine a mother gets pregnant unintentionally and her life is in great danger due to the fetal growth. Since the only way to save the mother's life is to abort the fetus, the doctor takes such an action. This is morally permissible according to our version; (i) killing the fetus is not the ultimate intention of the doctor; (ii) although the doctor's proximate intention is to kill the fetus, he/she occupies a professional role and does so in the interest of the patient (not for personal motives); (iii) although the violation of the fetus' right to life is the means of achieving the good effect, the fetus is violating the same right of another person (i.e., the mother); (iv) the bad effect is not excessive and there are reasons based on self-defense that justifies such an action.

4. The trolley: a trolley is out of control and is rapidly approaching a junction. Five people are closed on one of the tracks and one on the other. If the trolley continues on its straight path, the five people will be killed. You are a bystander and can change the course of the trolley by pulling a lever. These five people will be saved if you pull the lever and this means that one person on the other track will be killed. You pull the lever. The five people are saved and the one is killed. This action seems permissible, because (i) your ultimate and (ii) proximate intentions are not to kill the one on the other track; (iii) although the person's right to life has been violated, this violation is not the means of achieving the good effect; in other words, if there was no one on the other track, the good effect would be still achieved; (iv) first, the quantitative balance of good and bad is proportionate. Second, there are no morally justified reasons against such an action. As Thomson (1976) has pointed out, the one on the other track has no more claim against pulling the lever than the other five people.

5. The trolley and fat man: are we morally permissible to push a fat man in front of the trolley to save people on the track? No, we aren't. Because the third condition has been violated; the violation of the fat man's right to freedom or autonomy is the means of achieving the good effect and the fat man is not involved in the violation of the people's right to life (compare this with the following case).

6. Trolley and the vicious fat man: imagine that the fat man is the one who tied the people on the track and shoving him in front of the trolley is *the only way* to save the people. Such an act, despite seeming disgusting, is permissible and meets the third condition; the fat man's right to freedom or autonomy is violated, but this violation is *necessary to prevent* the violation of the people's right to life in which he has played the major role.⁴

7. Euthanasia 1: a terminally ill patient is suffering from unbearable pain; to relieve the patient's pain, the doctor has to inject a certain amount of morphine, but

⁴ Note that each thought experiment has its own limitations (Ramirez 2017). Here we assume that the fat man's act of tying people to the rails was legally and morally unjustified. Furthermore, this case merely states that shoving a vicious fat man in front of a trolley to save five people who he has unjustifiably tied to the rails is *morally* permissible under the condition 3. This rule does not say that this action is *legally* permissible too. Such an action may be prohibited by law, meaning that only authorized agents are allowed to do so after a legal process.

he/she knows that this amount of morphine increases the risk of dying due to slowing heart rate. The doctor injects this amount of morphine *with the patient's consent*, and as a result, the patient dies.

This case meets all four conditions: (i) the ultimate and (ii) proximate intentions of the doctor is not to kill the patient; (iii) the patient has consented to be injected with morphine, so his/her right to autonomy has not been violated; (iv) there are also ethically good reasons for the doctor to act: the patient is incurable, and he is in great pain.

Euthanasia 2: A terminally ill patient is suffering from unbearable pain. The Medical Commission firmly believes that he is incurable. The patient asks the doctor to end his/her life by injecting some lethal substances. The doctor injects the poison and, as a result, the patient dies.

Our formulation of DDE allows this as well: (i) the ultimate intention of the doctor is to save the patient from pain; (ii) although the doctor's proximate intention is to kill the patient by lethal injection, he occupies a professional role (he belongs to the medical profession) and does so in the interest of the patient, not for his/her own personal motives; (iii) The patient's right to autonomy and right to get enough information about the medicine have not been violated; the patient has consciously and with full consent decided to give up his/her right to life; (iv) the fourth condition is the same as the previous one.

8. A group of embryonic stem cell researchers has cultured large numbers of embryos to extract stem cells from them. This greatly aids the development of stem cell studies but also leads to the loss of many embryos.

9. This case is a little more complicated than previous cases. Some thinkers (including Murphy, 2013), based on the standard version of DDE, consider stem cell extraction to be morally impermissible because it leads to the deliberate killing of embryos. In an article, Di Nucci (2014) argues against Murphy that if the doctrine allows the natural fertilization (which it should do) it should also allow the extraction of stem cells from the embryos. Because in none of them the killing of embryos is intended, and in none of them the killing of embryos is the means of achieving the good effect. Di Nucci's argument, which is based on Boyle's version, is correct; neither those who want to reproduce through sexual intercourse nor researchers working on stem cells intend to kill embryos.⁵ However, Di Nucci must also face the problems with Boyle's version. If according to Di Nucci's analysis the action of the stem cell researchers is allowed, then it is also permissible to shove the fat man in front of the trolley to save several others. Because in this case, too, the 'death of the fat man' is not the intention of the shover, nor is

⁵ However, one might dispute this claim either; the researchers did not intend killing the embryos, because they know that the embryos will be killed anyway by stem cell extraction. If the embryos survived miraculously, then since their growth is not in their interests at all, they were more likely to use cell extraction methods that would result in embryos to be killed. Thus, it can be said that the researchers' intention is a kind of *conditional intention*, and one can ask how different is 'conditionally not intending bad effect' from 'intending bad effect'?!

it literally the means of saving people.

This case, in the framework of our version, passes the first and the second conditions. But in order to pass the third and fourth conditions, this question must be answered first: does the 2–5 day old fetus have the rights of a human being? If the 2–5 day old fetuses have personality and the rights of a human being, then, in contrary to Di Nucci, the action of the researchers is impermissible; because the violation of the fetus' right to life (or the right to 'not to be harmed') has been the means of achieving the good effect. But if we do not recognize personality and human rights for 2–5 day old embryos, then the third and fourth conditions will be met. So, this case does not get a definite answer here unless we determine our position in personality theories.

III. Conclusion

The standard version of the doctrine of double effect is not a precise reconstruction of Aquinas' point of view. First, Aquinas distinguishes between two levels of intentions, which is missing in the second condition of the standard version. Second, we argued that Aquinas' discussion of agents who have public authority can be interpreted in a way that is related to the professional status of individuals. These two points together can help us to reconstruct a more Thomistic version of DDE which we think is more effective in dealing with moral issues in medicine as a profession. Moreover, the standard version did not appeal to the right features to avoid non-intuitive consequences. The second condition of the version says 'the good effect must be intended'. Distinguishing between right and good actions, we saw that it can lead to problematic results. Hence, we changed it to 'the bad effect must not be the ultimate intention'. We, like Boyle, have used 'intention' in a strict sense but avoided the problems of his interpretation with the help of our third condition in which the concept of right is connected to the goal-means relationship. We also modified the fourth condition, with the help of Thomson's ideas, in order to accommodate the doctrine to our moral intuitions as far as possible. Therefore, based on the new formulation we have offered in this paper, we think that this version of DDE is more applicable in dealing with significant moral issues in medical ethics.

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