



Practical Guidelines for ethics in iGEM

University of Copenhagen iGEM team 2020

in collaboration with SynthEthics

Written by Endre Lindhardt Garberg



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Introduction

Thinking about the ethical implications of your iGEM project can be a daunting task. To make it easier, the 2020 iGEM team at the University of Copenhagen has made this step by step guide to help future iGEM teams in creating a better ethical framework for their project.

The guide will proceed by first sketching out a method for moral reasoning called “casuistry”, and then showing how this method can be applied to iGEM projects. The teams used as case studies will be the iGEM 2020 University of Copenhagen project, and the iGEM 2020 University of Lund project. First, it is necessary to make clear what the purpose of a method like casuistry is.

Tools for moral reasoning

This guide will not get into the specifics of different abstract moral theories, like *deontology* and *consequentialism*. There are two reasons for this. Firstly, the Technion 2017 iGEM team has made an excellent introductory guide to a range of ethical theories, and have shown how they can be applied to specific iGEM projects. Secondly, this guide is aimed towards tackling a slightly different issue. Namely, how do we draw clear ethical conclusions from cases which are ambiguous and muddled? It is useful to keep in mind what makes an action morally permissible, but such knowledge is surprisingly inadequate for determining how we should act morally. There is a difference between knowing what makes an action *moral* (its accordance with a rule, its consequences, and so on), and what *actions* are moral. An illustrative analogy might be in order. One might know what esthetic characteristics make Leonardo Da Vinci’s Mona Lisa a great painting, but this knowledge is probably useless when trying to determine whether a Cezanne painting is better than one by Van Gogh. When determining whether one action is more moral than another moral principles are often useless. Instead some practical reasoning is required. To see how we now turn to casuistry.

Casuistic reasoning about morals

The first question to answer is: What is casuistry? Casuistry (derived from Latin meaning: case or occurrence) was for a long time used as a derogatory term for someone who is intellectually dishonest or deceitful. The term has been reappropriated to mean a type of moral reasoning that

takes a bottom-up approach. That is, moral knowledge of a particular case is not found in some moral principle (e.g. consequentialist or deontological philosophy), but in weighing and analysing the particular facts of the situation under investigation. Applying abstract moral principles to concrete cases is notoriously difficult. Starting deductively with an ethical theory requires an *a priori* formulation of moral principles that usually do not apply neatly to the complexities of real world scenarios. As a method for moral reasoning, casuistry tries to incorporate the messiness of the world in our moral deliberations.

Casuistry has had a modern revival, but as a practice it has roots all the way back to Roman jurisprudence, rabbinic teaching and Greek philosophy (Bleyer, 2020, p. 212). As mentioned the casuist holds that one should forgo the formulation of abstract moral theories (or at least one should not pay too much attention to them), and instead draw moral conclusions from the particulars of the case one is investigating. Moral questions are always embedded and partly determined by the context they appear in. As such Attention to the particulars of that context is crucial for gaining moral insight.

Casuistic moral reasoning has its most thorough modern examination in the works of Stephen Toulmin and Albert Jonsen. They define casuistic moral reasoning as:

“The interpretation of moral issues, using procedures of reasoning based on paradigms and analogies, leading to the formulation of expert opinion about the existence and stringency of particular moral obligations, framed in terms of rules or maxims that are general but not universal or invariable, since they hold good with certainty only in the typical conditions of the agent and circumstances of actions” (Jonsen, 1991, p. 297)

There is a lot in the passage above that needs unpacking. Such as the meaning of *paradigm*, *maxim*, and *reasoning by analogy*. We will get back to this later. For now, it is important to note that there are three guiding considerations for casuistic reasoning:

- 1) morphology
- 2) taxonomy
- 3) kinetics

Morphology

Borrowing the term from traditional biology, Toulmin and Jonsen sees *Morphology* as encompassing two key features of moral reasoning¹. The first is analysing the circumstances in the case under evaluation. The second is formulating moral maxims (or moral identities) that appropriately apply to the case under evaluation.

How do we analyse the circumstances that make up our case? There are several components to this. First, it includes describing all the circumstances or facts of the case. That is, one should answer all the “who, what, when, where, why, and how” questions. For an iGEM team this might include answering questions such as “who are the end consumers of our product (conversely, who are we as providers)? What is it, in great detail, that we are providing? Where are we expected to make an impact (have you mapped out the relevant socio-economic and cultural factors of your target community?) There is, of course, many more, but I will leave it at that. Not all of the details will feature in your final moral analysis, but given that the moral conclusions you can make are partly determined by these details, it is important to properly analyse them.

The second part of the morphology step is identifying what you think might be relevant moral maxims for the case you're evaluating. The moral maxims are at the center of your case. Moral maxims are *not* moral rules or principles that determine what is *right* or *wrong*. Rather, moral maxims are brief rule-like sayings that give moral identity to your case. It can be viewed as an important moral proposition that informs what kind of research you should be doing. If mapping out the relevant circumstances of your case is telling a story, the maxims are the moral of that story. These can be ethical considerations that show themselves to be relevant as one starts investigating the details of the case. A case can have several moral maxims. If a case is worth moral deliberation in the first place, then it is usually because there are several conflicting moral maxims that are associated with it.

There is no specific method for determining what moral maxims apply to your case. As mentioned, moral maxims give moral identity to your case, but they do not make a moral argument, or allow one to make any moral judgments. After you have mapped out the relevant

¹ Morphology literally means the study of the form of things. *morphē* roughly translates to “form” or “shape” and *logia* roughly translates to “study of”.

facts of your case, you hopefully have an intuition or a gut-feeling regarding what moral maxims applies to it. Moral maxims are not supposed to be anything more than such intuitions.

After the morphology step, we should have two component parts: The relevant circumstances of the case, and the moral maxims of the case. Of course, these component parts interact. The process of determining the relevant moral maxims should be influenced by the circumstances of the case, and the identification of the relevant moral maxims should guide further research into the circumstances. The identification of relevant moral maxims will also reveal what descriptive facts of the case are morally relevant and should be used in our final analysis.

Morphology in an euthanasia case

We will later get into specific iGEM cases, but for now, it might be useful to set up a standard case of euthanasia for illustrative purposes.

A resident in obstetrics is called late at night to see a young woman whom he does not know. On reviewing her chart he sees that she is in the terminal stages of ovarian cancer. Entering her room, he notes her emaciated state and obviously great pain. She pleads, "let's get this over". The resident administers a heavy dosage of morphine (Jonsen, 1991, p. 298)

If we want to determine the moral value of the action performed by the resident, we would need to figure out the morphology of the case. As the philosopher Jonsen points out this includes facts about the expected roles of the physician and the patient, the terminal nature of the patient's illness, the patient's mental and physical distress, the import of the request, previous commitments taken by the physician (like the hippocratic oath) and more (Jonsen, 1991, p. 298). What might seem like less important facts should also feature, like the lateness of the hour or the dosage administered by the physician. These are descriptive elements of the case.

As mentioned, the descriptive facts of the case should give rise to some moral maxims. In this case they might be propositions like "physicians should respect the wishes of patients", "physicians should strive to relieve pain", "thou shalt not kill" and "physicians should not administer deadly poisons". These are moral guidelines that seem to be relevant to the

described case. As we can see these moral maxims are contradictory, so we have our work cut out for us. We now turn to the taxonomy step.

Taxonomy

It is in the taxonomy step that the brunt of the ethical work is done. The morphology step is concerned with mapping out, and applying maxims to, the case that we need to reason morally about. When we have thoroughly sketched out our case, it should become obvious that it is of a certain *type*. That is, it is one case among many that raise a specific kind of moral issue. It is one case among many that share a specific moral maxim.

All cases of the same type are alike in some aspects and different in others. That is, the morphology of cases belonging to the same type is different, but sufficiently similar to be grouped together under one type. All cases that belong to the same type as our euthanasia case presumably deal with physicians in some way bringing about the death of their patients. The relevant questions for cases belonging to this type will be whether the doctor has the right (or possibly duty) to act as he does, whether the patient has a right to make this request of the doctor, whether the patient or doctor is the responsible agent, what conditions of competence, pain, terminality should obtain to make the act permissible, and so on (Jonsen, 1991, p. 301).

Once we have done the morphology of our case and identified which type it belongs to, it is possible to make a taxonomic ordering belonging to it. Given that our case type raises the questions mentioned above, its taxonomic category is presumably one that deals with killing. Most likely all euthanasia cases will have the maxim “thou shalt not kill” as a moral identifier. This is of course not the only taxonomic ordering you could fit euthanasia cases into. Most likely euthanasia cases could be fitted into a taxonomic ordering dealing with patient autonomy, or something similar. However, given that the most pressing moral issue pertaining to euthanasia cases is usually whether the action performed by the doctor constitutes killing, it makes sense to use a taxonomic ordering that deals with killing.

Highest in the ordering of cases that deal with killing are the ones that exhibit a clear moral judgment beyond any reasonable discussion. This is called a paradigm case. The biblical story of Cain killing Abel might serve as a clear case illustrating the moral wrong-doing of

unprovoked killing, and as such can be considered a paradigm case. Next in the taxonomic line might be cases that illustrate provoked killings, such as self-defense or preemptive defense. Such cases do not exhibit as clear a moral judgment. The taxonomic ordering is done entirely by an analogous way of reasoning. That is, we check for similarities and differences in morphology and conclude that the cases exhibiting most similarities with the paradigm case are most likely to be morally equivalent, or closer in moral status, to the paradigm case.

Somewhere on the spectrum, the euthanasia type will be located. Given that our euthanasia case is taken up for deliberation in the first place, we can assume that it is located among cases on the spectrum that we are unsure whether violates or fulfills the paradigm case. We can now investigate the similarities between euthanasia cases as a type and the paradigm case of Cain and Abel. By doing so we can determine whether “thou shalt not kill” is a moral maxim that gives identity to a euthanasia case.

First, let’s look at the differences. If a case is of the euthanasia type, the patient needs to *ask* (while in a clear state of mind) the doctor to administer a lethal dose of morphine (or another lethal drug), while Abel does not wish for his own killing. Furthermore, the patient is already terminally ill, while Abel could potentially have lived a long and painless life. Another relevant factor is that the doctor is acting with the intention to reduce the suffering of the patient, while Cain killed Abel out of jealousy.

The most relevant similarity to the paradigm case of killing is that in both cases one person intentionally brings about the death of another person. However, the context of the euthanasia case makes the moral proposition expressed by the paradigm less applicable, as it allows other moral maxims to be used as rebuttals. The fact that the patient *asks* (while perfectly lucid) the physician to end her life is compatible with the moral maxim of respecting a person's autonomy. Furthermore, the fact that the physician acts based on the knowledge of the patient’s terminality and suffering, is compatible with the moral maxim of reducing suffering when possible.

These moral maxims conflict with the moral proposition expressed by the paradigm case of Cain and Abel. Of course, this does not mean that we can say with certainty that euthanasia is morally permissible, but the moral maxims that arises in the differences exhibited by the euthanasia case indicates that these differences needs to be in place in euthanasia is to be permissible at all.

Notice however, that such a partial argument in favor of euthanasia is entirely contextual. The force of the argument lies in the difference in morphology between the standard euthanasia case and the Cain and Abel case. If the context changes, the argument will also change. For example, if we assume that the patient asked for a lethal dose, but was not in a lucid state while doing so (or the doctor was not competent enough to evaluate her mental state properly), then the moral maxim of respecting a person's autonomy would not apply. For example, in our case the physician does not know the patient before entering the room. For that reason one could argue that he was not competent enough to evaluate the import of the request (or her state of mind), meaning that the consent aspect is on shaky grounds. Given such a contextual change, it would be harder to argue that our euthanasia case is sufficiently different from the Cain and Abel case to not constitute murder.

Kinetics

When the circumstances are right, we have a somewhat forceful moral argument. If the circumstances in an euthanasia case are such that the patient, being in a lucid mental state, ask a physician she knows to relieve her of the suffering caused by a terminal illness, we have good reason to hold that the morally relevant factors in the paradigm case, do not apply to our case.

Borrowing a term from classical physics, the term "kinetics" refers to the changes in judgment that can be made when the circumstances are sufficiently different (Strong, 1999, p. 398)². As mentioned before, moral knowledge is found in the facts of the case. Changing those facts will naturally also change the moral conclusions we can draw from it. Kinetics is an attempt to loosely quantify or weigh the importance of the circumstances that together make up a case.

We have identified what differentiates our case from the paradigm case of Cain and Abel. The facts of our euthanasia are such that the moral conclusion we can draw from it are not as clear cut as the one we can draw from the paradigm case. These differences in facts thus carry some moral force. We go from a moral wrong beyond any reasonable discussion in the paradigm case, to a euthanasia case with the same maxim (moral identity), but where the moral conclusions we can draw are less obvious. One should note that our euthanasia case might still

² Kinetics comes from greek "kinein" which means "to move"

be morally wrong (maybe for other reason than illustrated by the paradigm case), but we now have an idea of what circumstances must serve as necessary conditions for euthanasia being morally permissible. Now one can weigh how important these necessary conditions are for differentiating the moral status of the euthanasia case from the paradigm case. This includes facts about how lucid the patient needs to be when making the request, how well the doctors should know the patient, how painful her disease is, and what the likelihood of survival, or living a satisfactory life until the end, is.

There is no precise method for how the differences in context should be weighed. It requires what Aristotle called *practical wisdom*. The different facts are weighed not by some deductive argument or mathematical formula, but by relying on previous experience, contextual information and situational awareness. Unfortunately this type of ethical work is not a science, and some common sense is required. Exactly how much one should weigh patient autonomy, or how lucid patients should be in euthanasia cases is hard to determine. However, we know that such circumstances needs to be weighed heavily if euthanasia is to be permitted at all. If these factors are missing from our case, then our case would look more like the paradigm case of Cain and Abel.

The iGEM context

Let's return to the world of iGEM. We will now try to show how the method of casuistry can be applied to the work done in iGEM. The application of casuistry to your work will hopefully not only give you some clarity about the relevant moral landscape your project inhabits, but will also give some weight to the moral conclusion you make by making explicit the train of thought leading to them. We will illustrate casuistry in practice by taking two iGEM teams as case studies. The first will be ourselves, the team for University of Copenhagen (Denmark). The second case will be concerned with the team from University of Lund (Sweden).

iGEM Copenhagen - CIDosis

This year's iGEM team at the University of Copenhagen is focusing on helping people with chronic inflammatory diseases (CID). We are producing a yeast-based biosensor that will be placed in a patch and will detect inflammation levels in sweat. We hope to replace invasive

tests, and reduce the need for CID patients to visit hospitals. The product is designed to make tailoring medication dosage and type to the patient easier, and to be used at home without direct supervision of a physician. Hopefully, this will make for more effective treatment of CID patients given that the ability to discover inflammation spikes quickly and react accordingly should be a great medical tool. We won't get into the science behind the project since it is not relevant for the moral issue under review here.

A moral grey area that became apparent to us in the process of developing this project was the potential dangers of taking parts of patient care out of the direct control of physicians. Our product will not pose any physical danger to the patient (assuming it is used properly - which of course raises another ethical concern), but there is a possibility that the information provided by our product will cause some mental distress for the patient. It is conceivable that patients being more or less alone in interpreting the result of our home monitoring device will cause mental distress due to wrongful interpretation of results, or due to not knowing how to act on the results given.

When tests are administered on-site such problems are minimized. When test results are mediated to the patient through a healthcare professional it is less likely that the patient will walk away not knowing the seriousness of their condition. Furthermore, the healthcare professional can give immediate expert advice on how the patient should alter their behaviour based on the test results. Lastly, the healthcare professional is in a perfect position to mitigate and minimize the personal distress a patient might experience upon receiving bad news.

Given these concerns, how do we evaluate whether a realization of our product would be morally permissible? First we set up a hypothetical case in the morphology step

Morphology of a CIDosis case

Debbie has Rheumatoid arthritis. She has been given the option to self-monitor her inflammation levels by using a CIDosis patch. She wears the patch in the manner instructed by her physician, and notices that the results indicate a markable inflammation spike. Being worried about her own physical well-being, Debbie overestimates the seriousness of the results and gets anxious, depressed and a feeling of general distress.

Are we at CIDosis responsible for the mental distress felt by Debbie? First what is the relevant morphology of the case? The mental distress felt by Debbie is certainly relevant. The seriousness of the mental distress should also feature. Furthermore, other important factors are whether she wore the patch voluntarily, whether the patch is important or otherwise beneficial for her treatment plan, whether she has received proper instruction and more.

We have mapped out the facts of the case. However, as mentioned this is only the first part of the morphology step. The second part is formulating moral maxims that give identity to your case. Some of these count in favor of CIDosis. A plausible moral maxim is that one should respect the autonomy and the expressed wishes of the patient. However, a problematic moral maxim also applies. Namely, that one should not cause undue mental distress to already vulnerable people.

Taxonomy of a CIDosis case

Given that we are seeking to resolve a moral ambiguity, we should base our taxonomic ordering around the problematic moral maxim in our case. First we should formulate an appropriate paradigm case that shares the same moral identity illustrated by our problematic moral maxim. The moral identity of our case is partly made up of the morality of inflicting mental distress on people. Our paradigm case should reflect that. We can take some instance of psychological torture as our paradigm case. Our paradigm case can be an instance of the psychological torture technique often called “mock execution”. We can use a historical instance as an example.

In 1849 the Russian author Fyodor Dostoevsky, along with other members of the Petrashevsky circle, were arrested for high treason against the tsarist regime. Dostoevsky, along with 21 other members, were sentenced to death by firing squad. The group was taken to a remote location, tied to pillars and blindfolded as preparation for the execution. In reality, the Tsar had pardoned the group the day before, and had set up this theatrical show to engender terror in his subjects.

I think we can all agree that intending to inflict mental distress in this way is morally wrong, and unambiguously so (you can formulate your own example if you think the intuition is too weak). Our case will be far removed from this paradigm case, but we can now sort out the differences in morphology in order to see what factors carry moral weight. If we start out by assuming that the paradigm case exhibits a moral wrong-doing beyond discussion, and that the

moral conclusions we can draw from our case is at best ambiguous, then we know that the difference in morphology carries some positive moral weight.

So what are the differences? Firstly, in the paradigm case the mental distress caused is most likely more severe than in our case. Secondly, in the paradigm case coercion is involved, while our case makes explicit that the patch is worn voluntarily. There are undoubtedly more relevant differences, but the last one I will mention is that in the paradigm case the mental distress is the intended consequence of the action, while in our case it is an unintended side effect.

Kinetics of a CIDosis case

We are now in a position to draw some moral conclusions about our case. As mentioned before *kinetics* is where practical reasoning comes in and we need to rely on previous experience and our knowledge of the circumstances. However, given that the circumstances featured in our case makes it morally ambiguous compared to the paradigm case, we can be certain that these circumstances serve as a necessary condition for our case to be morally permissible. Our case might exhibit a moral wrong for reasons not discussed, but if it is to be considered permissible to inflict this kind of mental distress on Debbie, then the circumstances that make the case different from the paradigm case needs to be in place.

How much one should weigh these differences is difficult to answer. For example, what is the acceptable amount of mental distress inflicted unto Debbie? This will depend on the other circumstances of the case, like how essential the patch is for her treatment plan, whether she has been instructed properly and consented to using it etc. There is no formula for weighing these things, but at least we now know the morally relevant factors. This means that any attempt to bring a project like CIDosis into the world needs to make sure that some conditions are in place. For example, we would need to make sure that patient autonomy is respected, that the mental distress inflicted is of a negligible nature, that explicit and informed consent is made by the patient, and so on. All of these conditions might be in place, and the CIDosis project might still be morally problematic for other reasons, but if one of the conditions is missing, we can be certain that the project has some problematic aspects. That is, after making our analysis we know that we should incorporate some framework that allows for informed patient consent, and so on.

iGEM Lund - Protecto

The 2020 iGEM team from Lund focuses on helping out potato farmers. A big problem for farmers is potato crops getting late blight (also called *Phytophthora infestans*). Late blight causes infection in potato tubers and causes problems with putrefaction of potato crops. There is no known cure for ongoing infections of late blight, and prevention emphasizes heavy use of pesticides. For example, in Sweden potatoes account for 2% of Swedish crops, but 21% of pesticide usage is used on potato crops. Pesticides have been linked to premature deaths, chronic disease, as well as the destruction of plants and animal habitats. Another issue with pesticide usage to prevent late blight, is that it develops resistance. This means that preventive treatment requires interchangeable alternatives in case resistance to one compound is developed. The impact of pesticide use is large, and the need for more efficient environmentally friendly and non-hazardous pesticides is clear.

Morphology of Protecto

Protecto is working towards such a goal. Plants have been exposed to fungicides for millions of years, some have developed different ways of fighting them through certain antimicrobial peptides. By combining different antimicrobial peptides and forming them into a cocktail, the end result would provide a more durable structure over time. A two-plasmid system allows for use of a fusion partner without needing to add separate protease to cleave the fusion protein. This, in turn, allows for an efficient and sustainable system. Our main goal is to be able to release this product into the environment and help put an end to *Phytophthora*. Hence, an optically regulated (optogenetic) kill switch was incorporated to our project design to make the future of GMOs possible. Not only that, but our project also lays ground for the development of sustainable pesticide alternatives. This is the relevant facts of the Protecto case.

An ethical issue facing Protecto, along with a lot of other iGEM teams, is the potential of releasing genetically modified organisms into places where they are not supposed to be. There is a danger that releasing GMOs into nature could lead them to proliferate and have unintended consequences. In some cases the danger is that genetic contamination occurs, or that the introduced GMO organisms have a competitive advantage over natural organisms, which might allow them to become invasive, spread into new habitats and cause ecological damage. Furthermore, there is a danger that we have no course of corrective action once GMOs have been released into nature. The danger of introducing a GMO organism into an environment

might not be greater than the danger of introducing a non-GMO organism, but this fact does not exempt it from scrutiny. The moral maxims that applies to such GMO cases might be something like “action should be limited if there is sufficient uncertainty regarding what the consequences might be, and the risk of those consequences occurring”³. That is, the most relevant moral maxim that applies to the case is one that emphasizes a precautionary approach to releasing GMO into nature.

Taxonomy

We have mapped out the case, and identified a moral maxim that applies to it. We can now set up a paradigm case that shares the moral maxim. A non-scientific historical paradigm case can be found in the actions of the American ornithologist Eugen Schieffelin. Schieffelin was a member of the American Acclimatization Society, a society focusing on introducing new plant and animal species from one part to another. In the years 1890 and 1891 Schieffelin released 100 European Starlings into New York city, because he believed the US should have all the birds mentioned in the plays of William Shakespeare (The European Starling being such a bird). Today the European Starling is considered an invasive species in the US due to their destruction of crops, and the fact that they carry with them parasites and diseases, making them a potential risk for livestock industries.

The consequences of Schieffelin’s actions were undoubtedly negative and unintended. Furthermore, The “precautionary approach” principle, which he clearly did not act in accordance with, applies to this case. Arguably, the case represents a clear wrong-doing not just because the consequences happened to be negative, but because Schieffelin failed to evaluate that such an action might have unintended negative consequences at all.

It is possible to make some comparison to the Protecto case. Firstly, the motivations behind the Protecto project are arguably more noble than the motivations of Schieffelin. Avoiding infected potato crops arguably offers a greater benefit than whatever the poetic goals Schieffelin wanted to achieve was. Furthermore, the alternatives to the Protecto product are already harmful for the environment, and it is reasonable to believe that Protecto offers a more environmentally friendly solution. Lastly, Protecto has taken active steps towards minimizing the possibility of

³ One could also argue that a moral maxim that applies to GMO cases is “one should not disturb the integrity or intrinsic value of the organisms involved in GMO technologies”.

negative unintended consequences occurring. By incorporating a kill-switch into their project, Protecto has minimized the possibility that GMO could spill over into places they do not belong.

Kinetics in Protecto

After being done with the taxonomy step, we can now move over to kinetics. As in the CIDosis case it is hard to evaluate how heavy one should weigh what differentiates the Protecto case from the Schieffelin case. However, we do know that the difference takes us from a case which is unarguably wrong, to a case where it is much more reasonable to assume that the case exhibits a morally righteous action. Taken together these differences in fact constitute necessary conditions that need to be in place for the Protecto project to be morally permissible.

A step by step summary

This is intended to be a condensed step by step guide for how to proceed with casuistic reasoning about your project.

1. Mapping out your case

One should always start with describing your case in detail. Your description should be so detailed that it becomes apparent where the moral ambiguities lie, and where your moral work should be focused.

2. Identifying relevant moral maxims

After successfully mapping out your case, you should identify the relevant moral maxims that apply to it. These are short, rule-like sayings that give moral identity to your case (see page 5).

Moral maxims do not allow us to make any moral judgement relating to the case, but it makes clear what the potential moral problem is. There are often several moral maxims that apply to a case, which is usually why our moral intuitions about it are muddled or confused.

3. Formulating a paradigm case

We should now formulate a paradigm case that exemplifies a clear moral judgment (see page 8). This paradigm case should to some degree share a moral identity with the case you wish to investigate. That means that at least one of the moral maxims that applies to your case, should apply to the paradigm case.

4. Compare your case with the paradigm case

The moral judgments one can draw from the paradigm case are, just like in the case you are investigating, drawn from the facts of the case. Using the paradigm as an analogous case, you can investigate what similarities it shares with your case, and what differentiates them. The paradigm case exemplifies a clear moral judgment, while your case does not. This means that the facts that differentiates the cases carry with them some moral force which makes the conclusions one can draw from the cases different.

5. Practical reasoning and weighing the facts

At this stage you should try to evaluate the importance of the facts that differentiates your case from the paradigm case. You have established that your case contains some facts that make the moral conclusions drawn from it different than the one in the paradigm case. You should now try to evaluate which of these facts are most important for making the moral conclusions different. There is no straightforward way to do this. It requires reliance on previous experience, contextual information and common sense.

6. Sketching out the necessary conditions for you case

In this step you should try to make some concrete conclusions about your case. Most likely you cannot know with certainty that your case is morally permissible, because it is always possible that it is wrong for other reasons than the ones illustrated by the paradigm case. However, you can with certainty say that what differentiates your case from the paradigm needs to be in place if your case is to be morally permissible at all. As an example, If euthanasia is to be morally permissible then some mechanism that respect patient autonomy needs to be in place. This does

not mean that euthanasia is permissible if that mechanism is in place, but it needs to be there if it is to be permissible at all.

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