Title: Moral Reasoning Beyond Professional Codes

Length: 2 Days (80 minutes each)

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Problem Statement: Professional codes of ethics have to be revised as new challenges (often from new technologies) arise or internal inconsistencies within the code are discovered. To revise such codes well, professional engineers require moral literacy skills.

Keywords: Ambiguity, Moral Literacy, Ethical Vocabulary, Codes of Ethics

Learning Objectives:

Students will be familiar with fundamental Ethics terminology.

Students will be able to reason about cases where professional ethics guidelines are ambiguous.

Students will practice their **moral sensitivity**, **moral imagination**, and **moral reasoning skills**.

Description: This module is designed to follow Dr. Champney's "Ethics Project" (included along with this module) in which students are split into groups and each group is given a different case study. The students are tasked with organizing a meeting, delegating responsibilities, and producing a report on the case study. The report consists of an analysis of the case study by way of applying the National Society of Professional Engineer's Code of Ethics, thereby coming to a judgment on the case.

Following that assignment, students are more formally introduced to the Ethics topics in this module. This module provides a primer on ethical vocabulary to familiarize students with how to discuss these topics, an introduction to the moral literacy approach, an activity in which students must respond to a case wherein the code of ethics offers ambiguous guidance, and a policy creation role-play scenario.

Topic 1: Ethical Vocabulary

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In applying the Code of Ethics to the given case studies, you had to navigate several important concepts in ethics. There are many different ways to approach Ethics as a discipline. Ethics courses, for instance, traditionally look at fundamental principles, ethical frameworks, and great books in the history of the topic. We will take a different approach here that focuses on instead on the ability to talk and think about the ethical aspects of a situation well. The first part of this is having terminology that allows us the topic (here we follow the approach laid out in von Kriegstein 2022).

Norms are conventions, beliefs, or facts about how people ought to act. In other words, norms are ideas or rules that we live by. The NSPE Code of Ethics you used for the previous assignment is a collection of norms that state how an engineer ought to act in their professional life. It defines what is and is not acceptable behavior for engineers. Whenever we decide how to act, we are making use of norms even if we do not realize it. Often, we make decisions based on implicit norms that we have learned or acquired without realizing that is what we are doing. In reflecting on ethical reasoning, we try to make those norms *explicit* so that we can ask questions like: are these appropriate norms for *this* situation? In what situations should they guide my action? In what situations might they fail or cause harm in? In applied ethics, we are mostly concerned with figuring out what the right norms are for a given situation.

Normative reasoning is fundamentally important to our lives because we are **moral agents**. Being a moral agent means that we make decisions that affect others (and ourselves) in ways that might benefit or harm them (or us). We are then responsible for those decisions, and, in particular, any harms that these decisions cause. (Moral) agency and (legal) liability are clearly linked. Both rely on the intuition that the agent could have done otherwise.

Norms essentially say what should or should not be done. In other words, they are guides to how we should act. There are four broad ways we can categorize actions according to norms. An action may be **obligatory**, meaning that given a certain circumstance, an action must be done. An action may be **permissible** if it may be done, or it is acceptable do but not required (all obligatory actions are permissible, but not vice versa). An **impermissible** action is one that it is never okay to do. Finally, some actions go above and beyond the call of duty. These actions are called **supererogatory.** Such actions are permissible and most people agree would be good to do, but it would be unreasonable to make it obligatory because of the burden it would place on or the sacrifice it may require from someone. For example, donating a kidney to someone in need falls in this category. When reflecting on our normative beliefs or writing codes of conduct, it is important to ask not just what is allowed or disallowed, but also what it is reasonable to demand of people. Making a rule that people must do supererogatory actions would fail this because while it would be nice if everyone always did what was supererogatory, it is unreasonable to demand it of them.

Moral Literacy

Sometimes a situation comes about where the norms that we use to guide our actions come into conflict. For example, a code of ethics may be found to be inconsistent or contradict itself in a new situation, and so the code must be revised to deal with that situation in the future. Sometimes new technology changes what people can do, and such codes must be updated to include rules of how to use that technology well.

In cases where the rules are unclear or where our norms suggest we should take multiple, conflicting actions, we must rely on our ability to interpret, imagine, and reason through the morally important aspects of the situation in question. In these cases, we will have to decide what to do ourselves, and we will be responsible for what we choose. Because of this, we need to be able to reason well about norms and morality in general in order to take an action that is well justified.

There are several different approaches to moral reasoning. We will look at one called Moral Literacy from the work of ethicist Nancy Tuana. This approach takes moral reasoning to be a certain way of "reading" situations to think about how we should act in that situation. **Three of the major skills that one needs to build according to this approach are Moral Sensitivity, Moral Imagination, and Moral Reasoning**

Moral Sensitivity is the ability to pick out the normatively relevant features of a situation. If someone is deciding which charity to give money to, that they prefer the logo or celebrity spokesperson of one charity to another is morally irrelevant. How effective the charity is at addressing the problem it is focused on, however, *is* morally relevant. Relevance can often be recognized by asking whether that aspect has the potential to benefit or harm someone or something. Moral sensitivity also includes being able to gauge moral intensity. Moral Intensity is a measure of how morally relevant certain features are relative to others, or how critical it is to respond to a problem relative to others. If something can cause greater benefit or harm, it is likely more important (more morally intense) than something that causes less benefit or harm. An intuitive way to think about Moral Intensity is how concerned you are with the different aspects of a situation. For example, an ethical issue with high moral intensity might be a decision about whether to fire an employee who has been repeatedly reported for violating security standards. The consequences of the decision are significant, the behavior is widely seen as morally wrong (especially because it puts other people at risk), and the decision must be made relatively quickly. In contrast, a decision about whether to change the company's logo might have lower moral intensity because the consequences are less significant, and the decision is less urgent.

Moral Imagination is the ability to think of possible responses one could have to a situation (even those situations that we have not, ourselves, personally experienced). Practicing Moral Imagination means learning to think from multiple perspectives and viewpoints to try to get a broader sense for how the moral agents involved might view or understand their situation. Moral Imagination asks what the likely outcome would be for different possible responses. Here the important questions are: what can I or someone do to address an issue or problem once it's been identified? What, if anything, has already been tried? Who or what might succeed at addressing the problem and what tools might they need? What might be reasonable to expect or require someone to do, and what would be unreasonable? Who will be affected by the different actions?

Moral Reasoning is about settling on your own approach by considering different possibilities for action and even the conflict between these possibilities. The ability to think about these different possible

actions, give justifications for them, and weigh them relative to each other. Ideally, this leads to a decision about what you ought to do that is well-justified (i.e., a good moral argument). Here one should ask which of the actions imagined best addresses the normatively relevant features of the situation? Does that action violate any important principles (e.g., individual rights or human dignity)? Are more people benefitted or less harmed by this action than the other possible actions? Is this action something that anyone in the same or similar decision-making context can be reasonably expected to do?

Works Cited:

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Further Reading:

De Beauvoir, Simone. (1948) *Ethics of Ambiguity*. Translated by Bernard Frechtman. Citadel Press.

Activity 1: Ethical Ambiguity

These skills are especially useful in cases where our norms, professional codes, etc. come into conflict with each other or with themselves. Because norms (especially in the form of rules, obligations, and principles) are general, and the situations we find ourselves in are particular circumstances, there is always the possibility that we end up in a situation covered by multiple, inconsistent norms. This inconsistency means the norms we are trying to follow tell us to take at least two different courses of action when we can only take one. This means we have to decide between these possible actions, and the trade-offs between the goods and harms that come with them.

Case 1: **Conflicting Norms**

You are a part of a team of engineers working with an international aid group in country C, a relatively poor, underdeveloped, and politically unstable country. Your team is working with the group on a project in which you are designing a hospital and its infrastructure (including the power grid, water treatment, waste management, and similar services). The community that will be served by this hospital currently does not have access to reliable medical treatment without difficult and long travel. In the middle of the project, a Traditionalist faction has secured power in C's government, and have instituted a ban on women working most jobs. For your project, being in compliance with the laws requires all women on the project be immediately removed from their positions. What are your team's options?

There are then at least three options.[1]

1: Your team can leave the country in protest. Leaving means the hospital's construction will lose much of its funding. It may still be built, but many corners will have to be cut, including services that can be offered and the environmental impact of the project.

2: Your team can continue to work without being in compliance (that is, the woman on the project continue to work). The project may still be completed, thereby serving the community, but the project is now vulnerable to legal action, which may include violent enforcement of the law.

3: Your team can continue the project and comply with the new law. This effectively means all women on the project lose their jobs. The hospital will be built, and the community will benefit greatly.

Questions:

A. **Discern the ambiguity:** what NSPE canons, rules, and obligations are relevant to this situation? Which items of the code support each option? Which are violated by an option?
   Instructors note: *This list is not exhaustive, and students may come up with others.*
   Option 1 is supported in the code of ethics by III.1.f.
   Options 2 & 3 are supported by I.1, though option 2 violates the "lawful" provision of I.6, and option 3 violates III.1.f and I.6.
B. **Moral Sensitivity:** what is relevant? What is more important?
C. **Moral Reasoning:** What should be expected of someone in this situation? What justifications outside the code of ethics would you appeal to?

[1] **Instructor note for Case 1:** moral imagination is largely covered by the case study. The case may be modified to practice moral imagination by not giving students the three options and their consequences and instead asking them to generate the list of possible actions and their consequences.

Case 2:

You are part of a design team for an algorithmic product. The algorithm calculates a percentage score that is intended to rate the risk of a prison inmate committing a crime if they are let out on parole. The higher the score, the greater the risk of recidivism. The data used to train this algorithm is gathered from United States policing statistics. Variables used to evaluate the inmate include education level, zip code, severity of the crime they were found guilty of, income, and a behavior ranking given by their prison guards. Importantly, the algorithm does NOT have an input for race, ethnicity, cultural background, etc. However, upon testing with data from actual inmates, your team discovers that your algorithm shows a noticeable racial bias. It regularly assigns higher scores to black inmates than similar white inmates. It even does so in cases where the black inmate's crime was less severe and their behavior rated better than comparable white inmates. Importantly, you have good reason to believe that this racial bias is not the result of intentional behavior by you or any one else on your team. Despite the outcome, everyone put in an honest effort and did quality work.[2]

Questions:

A. **Discern the Issue:** what NSPE canons, rules, and obligations are relevant to this situation?
B. **Moral Sensitivity:** What features are morally relevant? What is their order of importance? What might be causing the racial bias?[3]
C. **Moral Imagination:** What possible courses of action can you take? What NPSE canons, rules, and obligations can you use to support these actions? Which ones might a course of action violate?
D. **Moral Reasoning:** What should be expected of someone in this situation? What justifications outside the code of ethics would you appeal to?

[2] Scenario is based on the COMPAS algorithm and its problems with racial bias as reported by ProPublica. https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing

[3] This may require explaining the concept of proxy variables to students. Proxy variables are variables that track one sort of information, but (even if contingently) stand in as tracking another sort of information as well. For example, given the legacy of segregation, red-lining, and racial disparity of wealth distribution in the United States, zip code and income can function as a proxy variables for race. Other sources of bias may include any human generated input scores, such as the prison guards' behavior scores. The data the model is trained itself is also suspect given the way policing in American is racialized.

Topic 2: Stakeholder Theory and Policy Creation

In addition to cases where Professional Codes can be ambiguous, there are also cases where policies do not yet exist. Such cases most obviously arise around new technologies (for example, Generative AI, like ChatGPT), but they are also likely to come about due to legal or cultural changes as well. Here, it is not enough to have a good reason to justify one's own or one's group actions; new norms, usually in the form of policies, must be created.

In applied ethics, **"stakeholder"** means anyone who can affect or be affected by a decision. That is, anyone who can make or provide input for the decision, engage in an activity related to the decision, or be harmed or benefitted by the decision. Stakeholder theory is based on the idea that if someone will be affected by a decision[4] (if they have a stake in its outcome), then they deserve some say or a vote in the decision, or they at least must be considered by those who can make the decision. This is known as the "All-Affected Principle."[5] Often, the first step in making a good decision is identifying who the stakeholders are and what possible benefits or harms might result from the decision. There are at least two ways to think about stakeholder benefits and harms. The first approach focuses on stakeholders' material interests. Identifying stakeholders means identifying people who have a material interest in the outcome of a project, such that they may be positively or negatively affected by the project's potential outcomes. The second approach focuses on stakeholders' values and moral concerns. This approach takes into account their beliefs, especially those beliefs we call values (*what* they think is good or bad) and the moral intensity associated with those beliefs (*how* good or bad they think things are). Stakeholders are unlikely to share the same values or the same judgements about the moral intensity of their values.

Instructors note:

- Begin this activity with an overview of what is a "stakeholder"
- While this activity may be conducted with the whole class and having small groups of the class take each of the stakeholder roles, this is only recommended in very small class sizes (to ensure all students participate).
- Preferably divide the class into groups of five and assign a role per student. This ensures every student is involved and actively participating.

[4] Deciding what counts as "affected" by a decision is a difficult and open question in applied ethics known as the Boundary Problem. There is a trivial sense in which almost everyone, including all future people, are affected by every decision, which would make the principle unusable. Much work on the principle aims to provide a non-trivial account of what "affected" means. See Stehr 2022 for an example.

[5] There are many different versions of Stakeholder Theory. These are kept general for the module. For some background, see Jamali 2008.

Activity 2: Role-Play Policy Creation

Roleplay Activity: The roleplay activity can be played in groups of 5, or by splitting the class into 5 groups, one for each stakeholder. Each stakeholder has a belief, a value, and a starting position. These are revisable if given good reasons (which are either reasons that appeal to the stakeholder's specific value or more general practical concerns and values). While each stakeholder has their own unique belief and main value, all stakeholders are played as reasonable people who want to do what is best, given their beliefs and values. They have other common values, and they may share the values of other stakeholders (this is up to the role-player); however, their listed value is their primary concern. They also have all the information about the situation you have from the Case Study presentation.

Goal: Come to a policy decision and a justification for that policy that satisfies as many of the stakeholders' concerns as possible and do so within a given time limit. While there are two starting positions (a new policy should be adopted, and a new policy should not be adopted), new positions may be proposed and argued for during the course of the activity.

Case: Country C's parliament recently considered a bill that would require all chemical plants to meet higher reporting standards. These standards include the addition of a monitoring system that continuously tracks the emission of a list of potentially harmful chemicals. The current law only requires monitoring systems that provide an alert when a harmful chemical emission goes above a specified threshold. The technology for this system did not exist at the time of construction of most chemical plants in the country. The results of this monitoring system would be made publicly available on a government run website. The bill did not get the required votes to pass, with the reasons cited being that it would impose a high cost on industry and concerns over the public's ability to understand the data being made available. However, C's Professional Engineering Association is considering drafting a policy in favor of such monitoring systems and making the data from them available publicly. While this policy would not have the force of a nation-wide law, it would be binding on all certified professional engineers. In gathering input on whether to draft such a policy and what it should contain, the Association has a policy of following the All-Affected Principle. They have convened a roundtable of affected stakeholders.

Stakeholder Roles:

1. *Professional Engineers*
    a. Belief: The current legal regulations are out of date given the new possibilities in monitoring technologies.
    b. Value: You want whatever policy will be best for engineering as a profession (this means both the safety of engineers and that they maintain a good reputation).
    c. Starting position: Your starting position is your choice.
2. *Business Interests*
    a. Belief: These chemical plants are businesses, and so increasing profit is the most fundamental concern.
    b. Value: Anything that harms profit harms the chemical plants as a whole.
    c. Starting position: You want either no policy to be drafted, or one that adds not additional costs beyond the minimum legal regulations.
3. *Environmental Advocates*
    a. Belief: These chemical plants are potentially dangerous to the environment, thereby harming everyone.

b. Value: You value minimizing the possibility of environmental harms.
c. Starting Position: You are in favor of the most strict monitoring policy that provides the most publicly available data, regardless of financial costs.

4. *Plant Workers*
    a. Belief: A strict policy may mean less jobs due to increased costs, but you are the first people at risk if anything goes wrong.
    b. Value: You value a balance of safety and financial concerns.
    c. Starting position: You favor a moderate policy that protects workers first.
5. *Nearby Residents*
    a. Belief: If something goes wrong with these plants, your family and home may be in danger.
    b. Value: You value safety and openness on the part of chemical plants operations.
    c. Starting position: You favor a strict policy, and especially one that includes making as much data as possible publicly available.

Moderating Activity Stages and Instructions:

Instructors Note: Guide students through each of the following stages. Instruct students to complete one state at a time and stop for your instructions before moving ahead to the next stage (a summarized version of these stage instructions is provided in the "Student Handouts" section at the end of this document).

1. Stakeholder Survey Stage:

To begin, each stakeholder should explain to the others their main value and how it relates to their starting position. Each stakeholder should write down the values of the other stakeholders. Once each stakeholder has explained their value, take a moment to rank the values in terms of moral intensity from the perspective of your role. The value given by your role will start as "1", meaning it is the most important to you. Choose the value you think is second most important and give it a "2", and so on. If you think a specific value is not relevant to your role, assign it a zero. <u>These choices should be made individually.</u> These rankings will change throughout the discussion stage, so it is fine to make quick decisions here.

2. Discussion Stage:

Take on the position described by your role and begin discussing the Starting Policy Proposal (listed below). Make sure everyone has a chance to speak and respond. As people suggest ideas you think are good, you should add them to your list of beliefs. You may also cross out beliefs or rewrite them if you are convinced otherwise. As you do so, you should reflect on your values. Have your changing beliefs changed the moral intensity of the values you hold? If so, alter their ranking to reflect this. If new values are brought up during discussion, they can also be added to your ranking. If you have changed your position from your starting position, let the group know. There is no limit to the number of times you change your position, but you should do so only when it coincides with the accepting of a new belief or changing the order of your value ranking. While doing so, you may also propose a change to the Starting Policy Proposal. When you do, take a vote. If at least 3 stakeholders vote in favor of the change, write out the new proposal. If a point is reached where all 5 stakeholders approve of the Policy Proposal, you

have reached consensus and the Discussion Stage ends. Approval may come after either a change in the Policy Proposal or when a stakeholder is convinced to change or reorder their values.

3. **Starting Policy Proposal:**

"The Association of Professional Engineers will give their seal of approval only to chemical plants that employ continuous monitoring practices of all hazardous chemicals used or produced in that plant. All plants must maintain websites that make this data publicly available."

At the end of the time limit or if a consensus is reached (whichever comes first), the discussion ends. If no consensus is reached, take a vote on the current Policy Proposal. Then, have each stakeholder explain how the decision did or did not align with their values.

4. **Consensus Stage:**

Once the time is up or consensus is reached, groups should present their decision and their reasoning. This should include the different ways they revised their (or their role's) beliefs, what outcomes they imagined, how the moral intensity of their values changed, and how they understand their decision as a consensus among the different values of everyone involved in the decision-making process. Compare the different values and value rankings at the end (consensus can often be achieved even if each stakeholder has a very different list and ranking of values). If consensus is not achieved, students should explain the main obstacles to consensus and what beliefs and values could not be reconciled or made consistent.

Ethical Reflection:

Instructors Note: use the following reflection to close the session. You may read the reflection aloud or use your own version.

The world is always changing, especially in terms of technological advancement. As future professional engineers, you may one day have to respond to unprecedented situations like the case study above. You may also find yourself a member of a professional organization that sets codes of ethics. In these latter cases, you will not just have to make your own personal decision about how to act in a specific situation, but also make rules for how those in your professional ought to act in certain general types of situations.

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Student Handouts

Activity 1: Ethical Ambiguity

These skills are especially useful in cases where our norms, professional codes, etc. come into conflict with each other or with themselves. Because norms (especially in the form of rules, obligations, and principles) are general, and the situations we find ourselves in are particular circumstances, there is always the possibility that we end up in a situation covered by multiple, inconsistent norms. This inconsistency means the norms we are trying to follow tell us to take at least two different courses of action when we can only take one. This means we have to decide between these possible actions, and the trade-offs between the goods and harms that come with them.

Case 1: **Conflicting Norms**

You are a part of a team of engineers working with an international aid group in country C, a relatively poor, underdeveloped, and politically unstable country. Your team is working with the group on a project in which you are designing a hospital and its infrastructure (including the power grid, water treatment, waste management, and similar services). The community that will be served by this hospital currently does not have access to reliable medical treatment without difficult and long travel. In the middle of the project, a Traditionalist faction has secured power in C's government, and have instituted a ban on women working most jobs. For your project, being in compliance with the laws requires all women on the project be immediately removed from their positions.

What are your team's options?

Questions:

A. **Discern the ambiguity:** what NSPE canons, rules, and obligations are relevant to this situation? Which items of the code support each option? Which are violated by an option?

B. **Moral Sensitivity:** what is relevant? What is more important?

C. **Moral Reasoning:** What should be expected of someone in this situation? What justifications outside the code of ethics would you appeal to?

Case 2:

You are part of a design team for an algorithmic product. The algorithm calculates a percentage score that is intended to rate the risk of a prison inmate committing a crime if they are let out on parole. The higher the score, the greater the risk of recidivism. The data used to train this algorithm is gathered from United States policing statistics. Variables used to evaluate the inmate include education level, zip code, severity of the crime they were found guilty of, income, and a behavior ranking given by their prison guards. Importantly, the algorithm does NOT have an input for race, ethnicity, cultural background, etc. However, upon testing with data from actual inmates, your team discovers that your algorithm shows a noticeable racial bias. It regularly assigns higher scores to black inmates than similar white inmates. It even does so in cases where the black inmate's crime was less severe and their behavior rated better than comparable white inmates. Importantly, you have good reason to believe that this racial bias is not the result of intentional behavior by you or any one else on your team. Despite the outcome, everyone put in an honest effort and did quality work.

Questions:

A. **Discern the Issue:** what NSPE canons, rules, and obligations are relevant to this situation?

B. **Moral Sensitivity:** What features are morally relevant? What is their order of importance? What might be causing the racial bias?

C. **Moral Imagination:** What possible courses of action can you take? What NPSE canons, rules, and obligations can you use to support these actions? Which ones might a course of action violate?

D. **Moral Reasoning:** What should be expected of someone in this situation? What justifications outside the code of ethics would you appeal to?

Activity 2: Role-Play Policy Creation

Roleplay Activity: You will be divided into 5 roles / groups representing different stakeholders and your goal is to arrive at a common decision and justification for the case / situation given to your group for consideration.

Goal: Come to a policy decision and a justification for that policy that satisfies as many of the stakeholders' concerns as possible and do so within a given time limit. While there are two starting positions (a new policy should **be** adopted, and a new policy should **not be** adopted), new positions may be proposed and argued for during the course of the activity.

Instructions:

Note: wait for your instructor to give you the signal to start each of the stages below

<u>Stakeholder Survey Stage:</u>

1. Read over your assigned stakeholder role.
    a. Each stakeholder has a **belief**, a **value**, and a **starting position**. These beliefs, values and positions are revisable if given good reasons (which are either reasons that appeal to the stakeholder's specific value or more general practical concerns and values).
2. Each stakeholder should state their starting position.
3. Explain to the others their main value and how it relates to their starting position.
    a. Each stakeholder should write down the values of the other stakeholders.
4. Rank the values in terms of moral intensity from the perspective of your role. Assign a value of "1" to your role's value, meaning it is the most important to you. Choose the value you think is second most important and give it a "2", and so on. If you think a specific value is not relevant to your role, assign it a zero. <u>These choices should be made individually.</u> **These rankings will change throughout the discussion stage, so it is fine to make quick decisions here.**

<u>Discussion Stage:</u>

1. Read the Starting Policy Proposal as a group:

    Starting Policy Proposal:
    "The Association of Professional Engineers will give their seal of approval only to chemical plants that employ continuous monitoring practices of all hazardous chemicals used or produced in that plant. All plants must maintain websites that make this data publicly available."

2. Take on the position described by your role and begin discussing the Starting Policy Proposal. Make sure everyone has a chance to speak and respond.
    a. As people suggest ideas you think are good, you should add them to your list of beliefs.
    b. You may also cross out beliefs or rewrite them if you are convinced otherwise.
3. Reflect on your values.
    a. Have your changing beliefs changed the moral intensity of the values you hold? If so, alter their ranking to reflect this.
    b. Have new values been brought up during discussion? If so, they can also be added to your ranking.

    c. Have changed your position from your starting position? If so, let the group know. There is no limit to the number of times you change your position, but you should do so only when it coincides with the accepting of a new belief or changing the order of your value ranking.
4. Continue the discussion until time ends or a consensus is reached.
    a. **Approval may come after either a change in the Policy Proposal or when a stakeholder is convinced to change or reorder their values.**
    b. You propose a change to the Starting Policy Proposal. When you do, take a vote. If at least 3 stakeholders vote in favor of the change, write out the new proposal.
    c. If a point is reached where all 5 stakeholders approve of the Policy Proposal, you have reached consensus and the Discussion Stage ends.

    At the end of the time limit or if a consensus is reached (whichever comes first), the discussion ends. If no consensus is reached, take a vote on the current Policy Proposal. Then, have each stakeholder explain how the decision did or did not align with their values.

<u>Consensus Stage:</u>

1. Once the time is up or consensus is reached, groups should present their decision and their reasoning. This should include:
    a. The different ways they revised their (or their role's) beliefs
    b. What outcomes they imagined
    c. How the moral intensity of their values changed
    d. How they understand their decision as a consensus among the different values of everyone involved in the decision-making process.
2. Compare the different values and value rankings at the end (consensus can often be achieved even if each stakeholder has a very different list and ranking of values).
    a. If consensus is not achieved, students should explain the main obstacles to consensus and what beliefs and values could not be reconciled or made consistent.

Case:

Country C's parliament recently considered a bill that would require all chemical plants to meet higher reporting standards. These standards include the addition of a monitoring system that continuously tracks the emission of a list of potentially harmful chemicals. The current law only requires monitoring systems that provide an alert when a harmful chemical emission goes above a specified threshold. The technology for this system did not exist at the time of construction of most chemical plants in the country. The results of this monitoring system would be made publicly available on a government run website. The bill did not get the required votes to pass, with the reasons cited being that it would impose a high cost on industry and concerns over the public's ability to understand the data being made available. However, C's Professional Engineering Association is considering drafting a policy in favor of such monitoring systems and making the data from them available publicly. While this policy would not have the force of a nation-wide law, it would be binding on all certified professional engineers. In gathering input on whether to draft such a policy and what it should contain, the Association has a policy of following the All-Affected Principle. They have convened a roundtable of affected stakeholders.

Stakeholder Roles:

Instructors Note: prior to class, print and cut the following role positions into strips to be handed to each student individually.

Professional Engineers

Belief: The current legal regulations are out of date given the new possibilities in monitoring technologies.

Value: You want whatever policy will be best for engineering as a profession (this means both the safety of engineers and that they maintain a good reputation).

Starting position: Your starting position is your choice.

Business Interests

Belief: These chemical plants are businesses, and so increasing profit is the most fundamental concern.

Value: Anything that harms profit harms the chemical plants as a whole.

Starting position: You want either no policy to be drafted, or one that adds not additional costs beyond the minimum legal regulations.

Environmental Advocates

Belief: These chemical plants are potentially dangerous to the environment, thereby harming everyone.

Value: You value minimizing the possibility of environmental harms.

Starting Position: You are in favor of the most strict monitoring policy that provides the most publicly available data, regardless of financial costs.

Plant Workers

Belief: A strict policy may mean less jobs due to increased costs, but you are the first people at risk if anything goes wrong.

Value: You value a balance of safety and financial concerns.

Starting position: You favor a moderate policy that protects workers first.

Nearby Residents

Belief: If something goes wrong with these plants, your family and home may be in danger.

Value: You value safety and openness on the part of chemical plants operations.

Starting position: You favor a strict policy, and especially one that includes making as much data as possible publicly available.

Ethical Reflection:

The world is always changing, especially in terms of technological advancement. As future professional engineers, you may one day have to respond to unprecedented situations like the case study above. You may also find yourself a member of a professional organization that sets codes of ethics. In these latter cases, you will not just have to make your own personal decision about how to act in a specific situation, but also make rules for how those in your professional ought to act in certain general types of situations.