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**TAFT BROOME:** On this particular class, I intentionally did not make an assignment, because I didn't want you to know what the answer in the back of the book is. But this is a preliminary to the discussion tomorrow Dr. [? Eng's ?] class.

But I want to put ethics in scientific and engineering problems. OK. Now, here's what I'm going to have to do. I want to make a metaphor. I've made this metaphor. It went over so well, somebody actually-- it wasn't my invention Hi.

And it went over so well that actually I published this little metaphor as a joke, but it has poetic value. The metaphor is called "the barbecue metaphor."

I was on sabbatical one year before this one, and I was down at Duke University in Durham, North Carolina. And one of the faculty had a picnic. And this highly-spirited good-natured debate broke out between the North Carolinians and the Texans on who made the best barbecue.

OK. If you know anything about the United States, those two states claim to make the best barbecue and this was a barbecue cookout. Incidentally, the person who was the host was from India, but he claimed to have the best North Carolina barbecue in the world. And the sides of the debate did come to one agreement.

Don't ask me to defend this. But they agreed that North Carolina barbecue was a verb and that Texas barbecue was a noun. That is to say, North Carolina barbecue is what it is by virtue of the method and Texas barbecue is what it is by what you put in your mouth, what you get later.

So we had a big time over that, and one of the faculty members who was there was a young faculty member. And I started talking about an ethical situation, which we later published. And what we did was we said that almost all engineering ethics at the time-- this was in the early '90s. I was there academic year '90-'91.

That engineering ethics at the time was all done like the Texas barbecue, if that in case is true, that you see the ethical situation and then you comment on it afterwards. So we began to ask ourselves, well, what about an ethical situation in the engineering where the ethical question comes up either before or during the engineering analysis? And we dealt with during the engineering analysis, and we talked about this particular problem. OK.

Yes. OK. It turns out, this particular problem caused a lot of discussion. I got notes from doctoral students telling me how miserable their lives were made because their faculty advisors made them read that article.

I'll give you the article later. And it came out of a journal, it's called *Engineering Education* and it's published by the-- oh, did it go up the wrong way? It was published by the American Society for Engineering Education.

You see that? Oops, I did that wrong. See it better? All right. Now, here's the way the problem goes. How many people have had a course in engineering dynamics? Two.

I teach engineering dynamics. So it's physics, Newtonian physics. It's just applied to a different set of problems. And here, we got a truck with a big load on the back of it. And there's a problem like that, maybe not exactly with this picture. But there's a problem like that, I dare say, in every book on engineering dynamics or they might call it "Engineering Mechanics: Dynamics."

The idea is that the driver is driving the truck down the highway, slams on the brakes because a dog is running in front of the truck. And what happens if the load shifts? The students are asked, first of all, given some information, to predict whether or not the load will shift.

And then if, in fact, it will shift, you want to know what's called the "relative velocity" of the load to the cab of the truck when the load hits the cab of the truck. So the truck may be going, let's say, 70 miles an hour, slams the brake. And somewhere between the time the brakes are slammed and the time the truck stops, this load hits the back of the cab at some velocity, some relative velocity, some velocity of the load relative to the truck.

And depending on how high that velocity is, we put in this paper, the truck driver will be injured. Now, we're going to consider two types of injury. One is where the truck driver has his spine snapped and will be a paraplegic for the rest of his or her life.

The other one is where the truck driver gets the spine snapped and dies right on the spot. Now, so you want to calculate. So your job is to buy the brakes for a fleet of trucks on your job. I don't know who you work for, but let's say you work for a company that's got a fleet of 200 trucks.

And all of a sudden, the brakes are going bad or you need a whole new set for all trucks. So they get one of their brand new engineers on the job and says, OK, look, we've got a choice of two kinds of brakes. One is very strong if the truck driver puts on the brakes at 70 miles per hour.

Then I want to if the load is going to break his back or kill him, or just injure or kill him or her. The other set of brakes cost the same amount. They're not as strong, but they give a nice smooth braking experience and that has some value to the kinds of loads we carry. We don't want them vibrating a lot. So you do your analysis.

Now, here's the last piece, and then I'll ask you all to talk about. If you break the driver's back and kill him, the cost to your company will be \$1 million, insurance, other things.

If you break the driver's back and don't kill him, put him in a wheelchair, it'll cost your company \$5 million, because you got to pay for that person the rest of his life. Which system do you use? And why? How do you justify your answer?

OK. Now, any questions about the problem? You can be creative with the problem. You can take the problem and add or even take away a few things, but I think you've got a feel for the essentials of the problem. You've got to make a hard decision here. And I want to give you some time to think about it and talk about it. Now, what I'd like to do is to, let's say, have two discussion groups.

I guess you know who the discussion leaders are going to be, and I guess you know who the spokesperson for the groups are going to be. So Ms. Ratliff, why don't you pick one of your group person and y'all talk it over? And Ms. Beth here, you pick one of yours. You talk it over. And if y'all need five minutes, that will be fine. If you need more, let me know. But enjoy the discussion.

**AUDIENCE:** I have a question.

**TAFT BROOME:** Yeah.

**AUDIENCE:** Do we know for sure that this one set of brakes will kill the driver and the other side of brakes will paralyze the driver?

**TAFT BROOME:** We have every reason to plan for that eventuality.

**AUDIENCE:** OK.

**TAFT BROOME:** Right. Consider yourself pretty much locked in on that unless the discussion leads you someplace else. But the central part of your answer depends on that. Excuse me. Actually, I didn't anticipate this and this is great. This is what ethics is all about. I don't want to stop your discussion. But can we at some point kind of merge? So everybody can get a benefit of everybody else's discussion. So rather than make a report, you can stay where you are but just each one give the other group a sense of where you are in your discussion.

**AUDIENCE:** Whatever. We have a [INAUDIBLE]. The first thing that [INAUDIBLE] came up with [INAUDIBLE] two options [INAUDIBLE] died. And we thought in terms of [INAUDIBLE] kind of [INAUDIBLE] death on one end, injury on the other end-- and we just kind of started to think of [INAUDIBLE] you should aim for that lower end. And if you aim, you should always aim [INAUDIBLE].

**TAFT BROOME:** Switch to the brakes, but what sort of brakes you going to buy?

**AUDIENCE:** Yes, and we would say-- [INAUDIBLE]. However, we realized that this is a company and-- [INAUDIBLE] injure him. If \$1 million could kill him, why don't we just kill him? So one of the things we about, though, was we think that [INAUDIBLE].

Actually [INAUDIBLE] really good idea.

One of his ideas, this was an interesting twist, was inform the driver of his increased risk and choose brake one that's going to kill him and inform the driver and just pay him [INAUDIBLE]. And at least he would be compensated-- [INAUDIBLE].

**AUDIENCE:** So give him the choice of whether or not--

**AUDIENCE:** [INAUDIBLE]

**AUDIENCE:** But we also came-- [INAUDIBLE] ethical to have this [INAUDIBLE] management not tell him which way you're going-- [INAUDIBLE].

**AUDIENCE:** [INAUDIBLE] . When you're trying to get-- [INAUDIBLE] only one million-- [INAUDIBLE] So some of the [INAUDIBLE] some it [INAUDIBLE].

**TAFT BROOME:** Just two information points that I think are a problem. When I was in the army, this was during the Vietnam War, I was talking to a friend of mine who was in submarine duty. And he had just come back from Vietnam. I didn't know that he was in the submarines over there, but I guess they had submarines over there.

He said that, when he was in Vietnam in a war situation, he was getting both hazardous duty pay and combat pay. I mean, being in a submarine, you get hazardous duty pay over and above the combat. They suspend that part once you got into combat, but that's an interesting point.

The other one to keep in mind, I think you're doing right with the use of the word "his" in talking about these male rats. But I drove a diesel for a long time. I had a little Mercedes, diesel, four cylinders. And I used to get my diesel fuel at truck stops. And occasionally, you'd see a truck driver there with his whole family, wife, maybe two little kids, because they had that little compartment in the back where you could sleep. And one of them let me look in there and they had a television in there, a little toilet.

One time I went in there and the family got in the truck and the wife was the driver. [LAUGHING] And so I think sometimes it's relevant to keep in mind the facts, because sometimes they can have a relevancy on your decision. I think it's fair to say that some people would rather have an argument with a father over the disposition of the children than the mother.

The mother might be a little more hard to deal with on a problem like that, so I invite you to continue the discussion using the pronouns that you've used. But keep in mind that some of these things can-- when you talk about lethal situation involving children, the mother is going to be a particular factor. Yeah. Keep going. I mean, keep going back and forth now this way.

**AUDIENCE:** [INAUDIBLE].

**AUDIENCE:** Yeah. So some of the things that you realize you have to make assumptions about were places where you were stuck, too. We started by doing a consequentialist approach just as a starting place. So the two are strong brakes and the weak brakes. And we also decided we needed [INAUDIBLE] which I understand why [INAUDIBLE]. And now, our list of consequences, we're not sure how to decide which one has greater utility than the other one.

So we've got, for the strong brakes, the death of the driver, the emotional damage to the family, \$1 million. The weak brakes, paralyzed driver, potentially less emotional damage to the family, and the \$5 million. So how do we compare that \$4 million difference to the difference in emotional damage to the family or lost opportunities to the family and the difference in the death and paralysis. There's three differences. And we're not sure what the sum is.

**AUDIENCE:** The question that I had that we discussed before, [INAUDIBLE] in the ethics of engineering, it is that you can draw the boundary of the problem first because you can--

**TAFT BROOME:** Right. Well, what happens is, particularly when you're talking about consequentialist ethics and the utilitarian method of it, you draw a boundary. But inevitably, it will extend out. Now, it may go out a little bit towards infinity at first. But the discussion, if it goes over a few days, I've experienced these with ethics committees in professional societies, it takes time.

You go out. And then after a while, it'll start coming back. And you may not coming back to exactly the first boundary you came to, but it will come back to a manageable boundary. People have to air all of these views and it's like group psychology that takes an effect here. I know that to be the case. You argue it long enough, and it comes back to manageable size.

**AUDIENCE:** But the decision to include the accident, the dog--

**TAFT BROOME:** That's right.

**AUDIENCE:** They assume that they are safety standards and they would take care of that. But both way, it has this safety distance. So you should not include [INAUDIBLE]. So you can draw the boundary around the truck, the driver, and his or her son.

**TAFT BROOME:** Yeah. We're going to see a boundary in the next problem. In dynamics, we call it a "free body diagram." Yeah. You draw your free body. You solve your problem. But then you debate it with a large enough group and it goes out. And then after a while, you keep debating it. And my experience has taught me that it will come back down, and it'll be a manageable set. You will not have to deal with infinity for it. But I've got something to say on that, too. But you all have the floor now. I don't want to take the floor.

**AUDIENCE:** I just want to make another comment about the [INAUDIBLE]. I mean, usually the workers, they are told about the overall risk of their careers. But now, we are discussing a component-- each component has their own bits. And usually, [INAUDIBLE] the design, I think will be complicated--

**AUDIENCE:** Yeah. But I feel like the way we're talking about it is that this situation of a need for sudden braking, if that need for sudden braking occurs, if you choose brake one, there's certainty that the driver will be killed. So that seems like a pretty straightforward risk.

**AUDIENCE:** But what I mean is this one component.

**AUDIENCE:** Right. Right.

**AUDIENCE:** You tell him about the brakes. You tell him about the other components of the car.

**AUDIENCE:** And I thought of that slippery slope analogy, and that's why I think [INAUDIBLE] you've got to aim to keep a person as safe as possible, because you have all these various components and there's a small injury and a risk of death, but maybe the better principle would be to aim for a small injury in every case. Because chances are, these are complex systems we're dealing with, that as you multiply that and multiply it, if you keep aiming for death, it's guaranteed after a certain point that [INAUDIBLE].

**AUDIENCE:** Now, I'm thinking about this self-defeating test for this one, this approach and I'm stuck. Because if you have the principle that the company should always aim for safety at whatever cost, then that principle maybe could be defeated because companies will go out of business if they're going for safety at any cost. There's no insurance that they're making a profit.

**AUDIENCE:** And we're assuming that these brakes cost the same amount of money.

**TAFT BROOME:** Yes.

**AUDIENCE:** [INAUDIBLE].

**AUDIENCE:** Right.

**TAFT BROOME:** So from the standpoint of simplicity.

**AUDIENCE:** [INAUDIBLE]. But they have the additional costs of the paralysis.

I

**AUDIENCE:** Don't know. Just to finish my argument. But on the side of being OK with a death because it costs less, it could also be self-defeating because [INAUDIBLE].

**AUDIENCE:** But I guess they already made the assumption that [INAUDIBLE] picked the driver alive [INAUDIBLE]. If you ask the people, maybe 50% of the drivers would say that they prefer to die instantly than be paralyzed for the rest of their lives.

**AUDIENCE:** So what I was trying to do was stick with the consequentialist approach and not consider the principle of the value of life versus paralysis as a principle but look at the consequences. So does the paralyzed person produce more utility for the world than the dead person? And I think we can argue that paraplegics can still be productive members of society.

**TAFT BROOME:** Is there anyone here who is an expert on cost-benefit analysis? When you do cost-benefit analysis, you come up with an equation. It has profit, P, on left out of the equal sign. Then all of these terms on the other side. And you optimize or maximize the profit. But in there, you make a monetary value of the human life.

And there's some standard numbers that you-- I don't know anybody who still does it, but we got the Sloan School here. And there's a lot of people who do cost-benefit analysis. Be interesting to see what one has to say about what they do these days. Any more discussion? Can I get into the act? OK. I'll get into the act with the discussion that my partner and I came up with, but that does not conclude the discussion.

I have forgotten, I put the reference down there. A matter that is significant to probably what I should be able to get to today is-- can you see this? This guy's name is spelled P-E-I-R-C-E, not P-I-E. His name is not "Pierce." You know this name? "Peirce." Yeah. And there's a guy by the name of Charles Sanders Peirce that we'll be talking about.

That's important. Because if you're going to try to Google the person, you have to spell it right. And it's E-I that makes it "Peirce" as opposed to the I-E that makes it "Pierce." And he was a faculty member there, too. And what got him involved was that he had two young daughters and he was making his analysis in terms of what he thought he should be teaching there. And when he said that, then I said now I've got an unconscious dimension to this paper.

So I said, you got to write this paper and we wrote it up and sent it in. Now, here's what we came out with. We struggled with it first, and then I'll tell you what we did. We started off with the utilitarian, because the ethical impact on this problem is the dollar amount assigned to what's going to happen to these people. Right?

And our first iteration came down a blind alley. We just could not decide that death as opposed to injury was better or worse. One experience that I had was a high school buddy of mine became a policeman and he was shot on duty in the back, and he spends the rest of his life in a wheelchair. And I am not too sure what he thinks about this as opposed to just dying out right.

The second thing we went to was the principle that is very effective in medical ethics that you all touched upon, was the principle of informed consent. So our informed consent solution was a slight bit different than yours is, slight difference.

And that was that we did not prescribe and then tell them and pay them more. What we did was we said we want them in on the decision-making from the beginning. Now, you got 200 or 300 of them, how can you do that? Well, we talked about representative government. They've got unions. They're involved in the Teamsters Union. You can have a set of two engineers and two union representative and three drivers, and we can kind of work that thing out. And whatever they decide is what we want to do.

We drew a boundary. We said that, outside of the company, when it comes to the dog crossing the street part, another car that you might run into, that we were going to say that our moral obligation was to uphold the law. And so we let the law decide outside of the boundary, and we did the ethics inside of the boundary. Then we said, well, on what principle?

Remember, I gave this long dissertation on Kant's theory of respect for persons, that it actually goes back to logic. Is there a logical reason why we should choose informed consent? What is so great about informed consent? So we went back and back and back, and we just could not find a logical principle to say that informed consent had the basis.

So then we came back to utilitarianism. And we came back to it with rule utilitarianism, that the rule that we're going to use, informed consent, tends to produce good consequences because everybody feels like they participate. And so what we then said was that we anticipated among ourselves that the truck drivers unions just may say, well, look, kill me and get it over with.

Make sure my family gets a big payoff. My wife can marry again. My kids can go to school. I don't want to sit around in a wheelchair. That still has something in it that I want to bring to consciousness now, and that is in respect for person. We respected the truck drivers to be able to make this decision better than us. I mean, we're sitting up here with all our degrees and the authority to make this decision, but we really thought that these truck drivers are the best people to make these decisions.

And mainly because, not only because they were the affected parties, sometimes that puts you in a worse situation to make decisions because you can be biased and all of that. But the issue was that the picture we had in our mind was a young student who just got out of college given this job to do. And the picture we have then of a truck driver, a 45-year-old man with a family.

Let's move it to a person, a guy who could make a better decision in it. So that's what we did. We also reported in there that we had given this problem to classes, various undergraduate classes in more than one university. And in none of those undergraduate classes did informed consent come up. But in all of the graduate classes, at least at the beginning of the class, the discussion was dominated by me in my career.

A student got out and said, I'm going to do what's right for the company and I'm going to advance in that company and I'm going to save them the money. It's only after the ethical debate got in there that that kind of argument lost weight in the class. I don't if it lost any weight with the individual or outside of the class, but it did lose weight in the class. The students began to turn on that after a while. But the dominant view in the beginning was, what should I do for my career on this job? And that is my word, and it is not the last word. Any more discussion?

**AUDIENCE:** [INAUDIBLE]. It's all pretty much [INAUDIBLE].

**TAFT BROOME:** So you mean in this case or in general?

**AUDIENCE:** In general.

**TAFT BROOME:** I don't know.

**AUDIENCE:** It's not the choice between dying and living. [INAUDIBLE] taking the risk if the law allows you to take the risk. [INAUDIBLE].

**TAFT BROOME:** The brakes were going to be within the legal limits. So as I said before, I do want to teach ethics without a whole lot of dependency on the law. But the law can be useful, because you can say that the public has a contract with all of us to obey the law. And so if a person does not want to take any kind of risk like this, then they'll go out on the street. Well, I got to go out on the street, but that's your problem. Don't take your problem and make it one of my problems. So it does have some kind of an effective use to it.



**AUDIENCE:** [INAUDIBLE].

**TAFT BROOME:** Yeah. Well, see, it is complex. You can't get all 200 of them in there. What are you going to do, decide by majority? What's so magical about a majority? OK. So we just said that it's actually another imitation of the law. It's a trial by jury. You just get a few people in and make a decision and have them in from the beginning.

Now, there's a lot of education that has go on in there. They haven't taken the dynamics course. But I think that in the end was our argument would produce the best results. It was utilitarian, but it was rule utilitarian. It was not based on the money. It was based on what that group had to say.

**AUDIENCE:** [INAUDIBLE]. Your decision that you couldn't justify informed consent based on the content or a logical principle--

**TAFT BROOME:** We couldn't find it. Can you?

**AUDIENCE:** Well, I wonder if I'm misunderstood, because it seems like informed consent is easy to ascribe to the respect for a person to begin with. Informed consent, you're respecting a person's moral agency to make decisions about his or her [INAUDIBLE]. So you're respecting that person's freedom. And that's based on cause categorical imperative, you treat other people-- and a free end in themselves rather than [INAUDIBLE].

**TAFT BROOME:** Right.

**AUDIENCE:** But I must be wrong somewhere, because you're saying--

**TAFT BROOME:** No, I'm not saying you're wrong. I'm saying we couldn't find it.

**AUDIENCE:** Yeah.

**TAFT BROOME:** We had problems with that. We cannot just reason it out that informed consent, even though it is respecting persons, other things are respecting persons, how do I get to something-- OK. Let me speak in pedestrian terms here. We are looking for an argument that we can hang our hat on. Let's say we may go before a judge. We may go before *The New York Times*. We may have to go to a PTA meeting and have to defend ourselves there with all of those parents in there.

OK. Can I go in there with people who are opposed to what I've done and walk out of there with people supporting what I've done? Can I do that? And my best chance at doing that is to anchor what I have to say on the great books of a learned culture. OK. I've got to be able to say that what I am doing here is consistent with this book. And there's going to be somebody in there who's going to take me to task and who's going to know what they're talking about.

OK. I learned that one time. You ready for this? I gave an ethics lecture at a prison once. One of the sociology faculty had a grant to introduce the prisoners to the various professions, and I had to go down there and talk about engineering and ethics. OK. And I'm sitting. I'm giving this lecture in this lecture hall. There must be a hundred inmates in there, and 30 or 40 of them had read Aristotle and Plato. They got nothing else to do. They read that stuff.

OK. So you got to be ready. You can't tell who's going to be ready to take you on. So that's, I guess, the most important thing I want to do in the class. And that is to say that, if you really want to hang your hat on something that's substantial and try your best to get people to follow you, not just to defend yourself or just to find the right way, but to get somebody to support and follow you, then you're going to have to put one of the great books on the table and justify that what you're doing is consistent with that and that you've made some kind of decisions as to where the big books may not apply to your particular case, how to apply it to your case.

Or the next way to do it is to come in there saying, here are the three great books on this subject and none of them apply to this case, so I have to come up with something totally new. That's fair enough, too. But don't go in there and just talk.

OK. Another thing about this problem here, which has pedagogical value, is best illustrated with the next problem I'm going to put up. And I think I can go through the next problem real quick. It's another dynamics problem. OK. Don't worry about all of the stuff in it. Let me turn out this light a little bit.

OK. Now, this is a problem-- and I'm going to give you the first reading and then the second reading. The only thing you really need to see in this problem is this little figure here. You got a person, a man pushing a box. OK. And there's the free body diagram.

And the first formulation of the problem sounds like it comes right out of a physics book. You're given the coefficients of friction. You're given the static coefficient and the kinetic coefficient. And you say how much the box weighs and you say the person can put 125-pound force on the box and how fast will the box accelerate.

OK. Now, this becomes an ethical problem when you give them this picture. So it's not a little box on the ground. The box is tall. And the question is, where does the worker put his hands on the box so that the box doesn't tip back on and fall back on top of him? So now, what happens is that the student walks into a dynamics class and is given an easy problem, but then the professor says, tell me what ethical dimensions are in the problem.

And now, you wind up with a significantly harder problem. And this problem now tells you that, well, when you analyze that problem, the answer is 2.9 feet. Under 2.9 feet, pushing at 125 pounds, the box is going to tip back over and crush the worker. So what you've got to do then is, if this is a warehouse that you've got to paint part of the box, 2.9 feet below, and say, do not push here.

All right. And then some smart student will come in and say, oh, wait a minute. Put another person on the other end, so you got other people walking around in there. You don't want the person who's pushing the box just to save himself. You don't want him to push it too high to the point where it falls over on somebody on the other side. So now, you have to make another calculation as to how high it will go. I'm not showing that solution here. And in the end, there's a zone in the middle where you say, push here only and you paint that one green. And below and above, you paint it red.

OK. Now, I bring this problem in in addition to the other one because it has pedagogical value. The more that professors want to introduce ethical material into their classes, then all they have to do is look at the problem statement and either change the problem statement or make it personal.

Or draw the picture in such a way that the student cannot avoid taking it personally. And that's what this one did. It was very subtle. It made the box tall and made the guy look like he was pushing it at the bottom. Remember, if the box was short, like that, then that question wouldn't come up.

So this is one of the things that I think that, in pedagogy, that, if I had things my way, all professors would have to be formally trained in pedagogy and learn some of these things. And formally trained does not mean necessarily taking courses. I mean, you have to read a book. You train yourself. OK. That's good for college professors. You don't have to tell them, well, you've got to get three hours credit and effort. But you give a seminar on this. Then they go back and read it.

And I'll give you a name. I don't have the reference. The name is Michael Davis. Now, Michael Davis wrote a book. He wrote a couple of books, several books, and he's written a lot of papers. He's at the Illinois Institute of Technology. But one of his works, which I have to get in my possession that I don't have, which is a final report from an NSF grant that he had.

And I saw the final report. I think it was the final report I saw, but it had something to do with his research that he published some parts of his report. What he did was he took a lot of engineering problems from various fields in here as Xerox right out of the textbook. And then he took those problems and changed the wording very slightly to get the ethical dimension into it.

And then he argued there that, if the problem is stated differently, as in the first case and this is really significant about the first case, that, depending on your ethical judgment while you are doing the problem, you may get one or another different answer. Slow brakes or heavy brakes? So it can affect your answer to a problem. So that goes back to the barbecue metaphors again.

So what I would like to do as a homework problem is-- let's see. How about the first class after the break? Find a technical problem in some area of engineering. And I'm interested in your changing the wording of the problem and change it as slight as possible and see if you can't make the problem have a clear ethical dimension to it.

Make a comment as to whether or not that change is the answer to the problem. So I don't have to understand the problem. If you come in here with something in environmental chemistry, that's fine as long as I can understand it as well as I've explained this one. But it's important for me to see a technical solution, and it's important for you to tell me in this technical solution that you have to make this change right there.

I don't need to understand that, but I need to understand that it's in the body of the problem that your ethical decision has an effect on. OK. You can do a paper, a research paper out of a journal. You can do a paper out of a textbook.

I mean, sorry, a sample problem out of a textbook. That might even be better. Just Xerox the sample problem out of a textbook, reword it, and then make a comment like an arrow in the problem of where exactly in the problem that ethical dimension is going to affect the solution of the problem.

**AUDIENCE:** This case [INAUDIBLE] the solution more [INAUDIBLE].

**TAFT BROOME:** You mean in this case?

**AUDIENCE:** This case.

**TAFT BROOME:** In this case, it introduced a whole new problem. It not only gave the acceleration, which was asked for at first. It's in here someplace.

**AUDIENCE:** It's still valid even though [INAUDIBLE].

**TAFT BROOME:** It's still valid.

**AUDIENCE:** Still valid.

**TAFT BROOME:** A sub C of them is still valid, but it gave an additional answer, which was this distance H. Before, H wasn't in the problem. But the solution is in there simply. OK. We are ready to go in to the third major approach.

And I think my calculation is what, three minutes? Yeah. OK. OK. What we have done and will continue to do is to look at ethics the way Aristotle looks at ethics, and that is from the standpoint of your reason and your experience and the style of your argumentation.

And we looked at two large categories of that, utilitarian and the ontological, one having more to do with the mind, one having to experiment with nature or test from nature. Plato is not talked about much anymore, and I'll tell you why in the next class. But what he wants to talk about is character.

And if you have a virtuous character, you can define what virtues he's talking about, that, if you have a virtuous character, then the real issue is not so much what you do or what you recommend. The real issue is whether or not you suffer when you make the decision. If it can have an impact on somebody, you feel pain for them. That's the bottom line.

So good character, we don't deal with character in the Western academic world. We leave that to religion, outside of the academy. But it used to be taught in the Western world. And now, there's some talk about it coming back. And so what I'm going to now do is to talk about a method of dealing with a problem like this in this other category.

It's not exactly virtue ethics. But the central feature of the technique is to take a problem, replace one of the characters in the problem with a fictitious character, and then work the problem out as a story and get your solution that way. The key is, which character do you choose? Which fictitious character and on what basis do you choose that character?

And secondly, when you work that person out, do you come up with a believable story? In a classroom, anything you come up with, you can justify as believable because I can't say it's not believable. All right. But in the real world, it's going to be believable or not believable. Because some mother with her child who's going to be exposed to your decision is either going to believe it or won't.

Now, that's the real test that you're going to get it in an ethical situation and we can't forget that just because we're sitting in here in a classroom. OK. And then we've got work to do on Friday. All right. Now, I'll give you a final briefing on that on Friday.

**AUDIENCE:** We have class on Thursday.

**TAFT BROOME:** We do have class on Thursday. Friday's make-up.

**AUDIENCE:** Right. Do we need to read anything for Thursday?

**TAFT BROOME:** I'll tell you one thing that was helpful to me. I got on the web and I googled "Norway" and "plagiarism." And I came up with some news articles. And apparently, there's a lot going on in Norway in the colleges with respect to plagiarism and it seems to be a repeat of what we're getting in high schools here. Some students are downloading answers on tests from the web on their cell phones or something. OK. See you on Thursday.