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TAFT BROOME: I say, look, I'm writing a term paper on your article, you know? I'd like to ask you a few questions, because when it comes to engineering ethics, there's about a-- if it's strictly engineering ethics as opposed to other kinds-- I mean, the more general ethics, there's a 90% chance that I will know the author who you're talking about. Tell you a little bit where they're coming from and invite you to call them up.

OK. We've got a good day today. What I'd like to do is to-- I'm giving your papers back. What I'd like to do is to review the papers, but I want your permission. What I want to do is to make an anonymous review, but I want to make it public. I want to read it out to everybody. Nobody will know who said what.

AUDIENCE: But there's only two of us.

[LAUGHTER]

TAFT BROOME: Well, they don't know which one of you-- I'll tell you what. It's not--

AUDIENCE: It doesn't-- I don't care.

TAFT BROOME: Well, let's see-- let's see how it goes. There's nothing in here that's going to--

AUDIENCE: No.

TAFT BROOME: --that I have to say that's going to be-- you know. Anything that's-- let me use some judgment and see how it goes. And-- OK. Now what I want you to do is I'm going to-- the grade that I have put down here is not the grade for the paper you gave me. The grade that I put down here is for your second draft that will respond to my comments.

AUDIENCE: OK.

TAFT BROOME: And that you can save. You don't give back to me, but you can save, but you can talk to me about it, OK? As we go along. In other words, I want to-- I said at the beginning of class, I want to see improvement, all right? So I want you to feel like you can doctor this thing up a little bit.

OK. I marked good in several cases on both papers, mainly because-- not because you made good observations, which you did, and good thoughts. You gave me some good thoughts. But I was actually surprised, positively surprised by the good thoughts that both of you had put in here. But it was little things like that you did get a reference that I had not brought in and you did it on your own. That was good, OK?

And for example, I didn't make a distinction between act and rule utilitarianism, and you all figured that out. That's the kind of stuff I'm looking for.

Another one is an anomaly that's just in the field. Let me tell you-- let me give you something that will cause you to remember it. It's a little game that you can play with three-year-olds. You ever played-- y'all play around with kids? Three-year-olds, four-year-olds. It's a little game, but it is very-- my experience with telling it, with playing this game with these little kids is very, very interesting.

And that is you say, what has a big head, red eyes, and eats rocks? Kid says, I don't know. You say, a big-headed, red-eyed rock eater.

[LAUGHTER]

Kid says, OK. Then you say, what has a big head, yellow eyes, and eats rocks? And the kid says, a big-headed, yellow-eyed rock eater. You say, no. They only come in red.

[LAUGHTER]

Now my experience is that four-year-olds will see the point to that. That's just the way life is, OK? All right? Now in ethics, you will find a lot of this. You'll find deontological ethics, but nobody-- very few people-- not a lot of people talk about ontological ethics. Don't be bothered by that, OK? And there'll be a lot of those. There'll be a lot of them.

Let me see if I can think of another one. They'll talk about consequentialists and non-consequentialists, but there's another one. I'll think of it before the class is over. But there are a lot of these little anomalies. Just don't let them bother you, but pick them up. Pick them up. OK. Another thing is that this case is more properly called the A7D case than the A7 case.

AUDIENCE: What does that mean?

TAFT BROOME: It's the nomenclature for the break.

AUDIENCE: OK.

TAFT BROOME: Now here's a very significant teaching point. Very significant teaching point for this kind of class. On the one hand, a prescription for behavior is made more compelling, I agree, if you use two very different approaches and come up with the same prescription. That is very compelling.

But in ethics, there's no reason that two prescriptions should be the same. If you get different prescriptions, you don't have to say, you need more work. That's the way it can end. OK, what you're really looking for is the defensibility of it.

So I could give you a classic case, one that I think you should think over, and probably one that you've thought over before. It doesn't have a name, but you've seen it in movies. A ship sinks. Some people escape in a lifeboat. There are 10 people in the lifeboat. There's food enough for 10 people for a week, but they don't expect to be picked up for a month.

Well, you can come up with a whole lot of solutions that are very different, even opposite, and all of them are equally defensible. You can come up with some solutions-- you can come up-- you can come up with a solution that is defensible. I can come up with the same solution, but it's not defensible. OK? All right.

So in an engineering class, we-- well, let's put it this way. In undergraduate engineering, there is such a thing as the answer in the back of the book. The operative word is the. OK? In graduate, you're going to find you can get more than one answer and there's costs and benefits on either side.

Out there, a lot of good answers, a lot of bad answers. And what is going to count most in many situations is like it is here. It's your argument. And that's going to be because-- and this is one thing that I try to direct my class to, because people just will not know, no matter what you say, what the right answer is.

The question-- let me tell you a story. I've got another story. Let me just tell this story. I'm a young assistant professor, and I'm down there-- and I go down to NASA Langley Research Center. This is in Hampton, Virginia. Know about it?

AUDIENCE: I worked there.

TAFT BROOME: Oh.

AUDIENCE: [INAUDIBLE] for summer-- two summer internships.

TAFT BROOME: Really? What division.

AUDIENCE: The space projects [INAUDIBLE], so yeah. In the building where the Mercury astronauts were [INAUDIBLE].

TAFT BROOME: Whoa. I was down there in the late '70s and almost all through the '80s. I had grants with them for about 12 years. And I had a relationship down there where I was going down there so often that what I'd do is rent a house. I'd take students with me. We'd live in the house, work. And I did that eight or nine years, I guess.

And so we would all get in the car and ride down there. And I had this little speech I'd give. I was unmarried at the time, and I would tell them, whatever happens in Hampton stays in Hampton. I don't want any students coming back to Howard, saying, I saw Dr. Broome-- I said, whatever happens down here stays down there.

So one year we were riding down there. I was riding down there with four-- three students. Four students. Three students. And I made my little speech. They agreed with it. And then one of them said, does that go for us too? And I thought, there's never a case where I'd go back to Howard and tell what students did. I don't care what they did. I just thought, do it.

And so I said, yeah, I guess it goes for you too. So they started lighting up these reefers. And I said, oh my god. What have I got myself into? Then the police came. It was because they were speeding.

And there's a place in Virginia. I'm going to tell you right now. It's called-- it's called-- what's it called? I can't think of it right now, but there's a place in Virginia where if the police get you for speeding, they don't give you a ticket on the spot. They take you about 10 miles off the road to a special place where you have to fill out a form and you have to pay in cash. They took us off. I said, I know I'm going to jail.

[LAUGHTER]

That was 30 years ago. But the story is that one day, I went to what's called a division meeting. This was the structures and dynamics division. And I had to go to all of the division meetings. And it got me spirited in there that day.

So imagine a room. There's about 100 engineers. 95 of them have PhDs. They called the place a campus when I was there. And these engineers were up making a presentation, and the chief was sitting on the side and started quizzing them about it.

And it got mean in there. And he hit his fist on the table, and it kept going round and round. And so that was my first meeting, I think. And I said, my god, if I have to make a presentation in here, I'm just going to have to dread it, because it was awful. Awful is the word.

So after that, it was lunch time. Went to the cafeteria. And this man sat at this long table after he got his tray. Sat at this long table, and nobody sat with him at that table, not from the division, not from any place else. Everybody went someplace else, except he's sitting over there by himself.

So I came up with my tray and I said, look, I said, you mind some company? No. He said no. And so I said, well, I'm down here just for-- as you know, just for the summer. Maybe next summer too. But I said, this is an opportunity for me to learn something. I said, it was a pretty mean meeting we just had.

And I said to him-- I said, not only that, but let's call a spade a spade. I said, all those PhDs in there that you are tearing up, and you don't even hold a PhD or a masters from MIT. I said, how do you know when they're right or when they're wrong?

And he said, being right or wrong is not the issue. He said, it's a question of commitment. What are they willing to put their careers on? He said, so I put the heat on them. And what I'm looking for is, number one, whether or not they're going to stand by what they said or whether they're going to start backpedaling.

And number two, whether anybody sitting out there is going to join them or be glad it's not then. He said, you watched them. He said, I put them under pressure. After a while, they started backpedaling, and nobody came to their aid, so we're not going with those results. They're probably right. But we're not going with that.

He said, if they stood up to me-- he said, this is government. They're know there's going to be a rift coming around in a year or so, OK? These guys-- he's going to fire them.

He said, but look. He said, if they had stood up to me and if a couple of them out of the audience stood up and stood with them, he said, that's what we're going to go with. The thing might go up and come back down, explode. He said, but that's the business we're in. This is the real world of engineering. It's the commitment that counts.

And we've got good people out here. And if they are willing to commit, then the United States will say, when the thing goes up and explodes, they will say, here's some more money. Try it again.

But if we have the right answers, it's not the whole story. It's not even the main story, particularly if you're talking about space where you don't have a tradition. Everything you're doing is for the first time. So that's the real world.

Now the good news is-- the bad news is that undergraduate education is not like that. Semi depends on who your major professor is. Graduate education is not like that in engineering.

But from day one, ethics education is like that, because-- we want a good answer. Now don't get me wrong, OK? But it's that argument up to it and whether or not as I'm grading it and as any other professor would grade it whether or not I would commit me and my kids to your answers, to your analysis, because my kids are going to have to cross that bridge.

And so I'm interested that you got everything written down, but there's got to be something under it that's compelling. And that is impossible to grade, but I can tell you whether or not it's there. I can tell you whether or not I feel it. And most importantly, even if I don't feel it, I've been out here long enough to know whether somebody else will. I will say, yeah, there are some people out here that would really feel this. But that takes time.

My objective in this class is not to meet that objective. It's the first time you've had an engineering ethics course, and if this was a sequence, then I would expect it the next time. It's my objective in this class to talk about it.

Let's see. Yes. A few comments. Immanuel Kant takes his categorical imperative and states it three or four different ways. Now I think you all picked that up. There's a subtlety in one of them.

The golden rule is one of those statements. So tie that in to Kant. He explicitly says that the golden rule is a legitimate statement of the categorical imperative.

So what that means is that out of the different formulations of his categorical imperative, you can pick any one of them. I'm not too sure that a philosopher would say that one is better than the other. Just different ways of stating the thing properly, because it's a complicated sort of thing.

I guess you all know which one is my preference, treating people as means to ends. That's my preference. The first one is a little bit convoluted. Frankly, I like it, because he's really trying-- he's really saying what I think he really means, and that is he's trying to connect this categorical imperative to first principles of logic.

So that's important to you. I think the main importance of that to you is that now you can see what counts as a fundamental idea as opposed to a theory that's incremental. You can now say that, well, now I know what the Nobel-- if there was a Nobel Prize for philosophy, which there isn't-- even though philosophers have gotten Nobel Prizes-- for what?

AUDIENCE: For peace?

TAFT BROOME: I think maybe you can count some of them-- all of them who got it for peace were philosophers or doing philosophy, even some of the chemists who did it. But Sartre. Jump off from Sartre. He's a philosopher. He got it. He got it, and some others, but they got it from literature. But they were doing philosophy in the literature.

And Sartre-- I think is the way a Frenchman would pronounce it. I think I can get away with saying "Sar-truh"-- is someone that I would like to cover. OK. And we can read-- the good thing about doing Sartre is that his plays-- you can read his plays overnight. They're real short.

And we can talk about what-- but he is-- Sartre is a Frenchman. He is in a different category. He's going to tell you things just by what I just did. He's going to tell a story. Out of that, you've got to synthesize what the message is. [INAUDIBLE]. Let's see if I can make some more.

AUDIENCE: Professor Broome, so there are three ways to look at it. If we're doing an analysis, I know we probably won't have an assignment like we do where we're specifically told to take this approach. But is it OK just to choose our favorite and pick one? In theory, should they all come to the same conclusion?

TAFT BROOME: There's no reason that they should all come to the same conclusion.

AUDIENCE: OK. So we could phrase it in a different way and come up with something completely different, depending on which interpretation we'd like or choose to use, or think is the most appropriate.

TAFT BROOME: What I hope is that you have enough experiences within this class that you will find that you can come up with two opposite even conclusions that are well grounded.

AUDIENCE: And we should write about both of them and have the same defensibility for both of them.

TAFT BROOME: OK, you're putting me in--

AUDIENCE: My question is, since we talked about wanting to have the passion behind the conclusion, should we-- does that mean we should only write about the approach that gives us that passion--

TAFT BROOME: No.

AUDIENCE: --and that argument? No.

TAFT BROOME: No.

AUDIENCE: OK.

TAFT BROOME: Because this thing takes time, OK? It takes time. This is going to be an assignment that I'm going to make before the class is over. And the most important thing-- not the most important thing, but what I'm going to take out of it today is something that the office says early on, right at the end of his preface. He calls it forward, [INAUDIBLE] forward.

And this is Wolfram von Eschenbach's *Parzival*. It's part of the Arthurian mythology. But this is a German who's writing it. And you're probably most familiar with Thomas Malory's. It was called *Morte d'Arthur*, King Arthur's story. You know, Guinevere and all of that. You're probably most familiar with that. They are pretty much different versions of the same story, and you'll find many of the same characters in these stories.

But both the translators, both of the ones that I have, this one and the one of *Morte Arthur*, start out by telling you that, well, I could translate this thing back into plain English, but I won't because [INAUDIBLE]. He says, because if you just read it in the vernacular of the time, that after a while, maybe page 30, maybe page 50, it'll sound right.

And you've already had that experience with Shakespeare. You read Shakespeare, but you were like-- the first time you read it, you would say, good god. Why didn't the teacher give me plain English Shakespeare? Well, if they gave you Shakespeare-- and after a while, something magic happens. The stuff sounds like-- you feel like you've learned a language, right? Something happens, and that's what happened. That's what happens.

And I took that long explanation to come back to tell you that that's what happens in this kind of course. You're learning something very new, and it'll take a while to get in the rhythm of it, particularly with complexities. After a while, you'll say, well, yeah, it is complex, but I see a way through this.

Let's see. Many of the comments that I had were pretty much the same. And-- oh, another issue is with the utilitarian approach. It's a little bit forgiving in terms of your being able to predict consequences. You don't have to be exactly this. If you read Stuart [? Milliner, ?] what they're saying is, your best judgment at the time.

So you make your judgment at the time. You don't have to take into in. You know-- you see, that's what really comes into account with engineering. You're going to build a bridge. You're going to build that bridge for a life of 100 years.

Now you're supposed to tell me what the consequences are to everybody who crosses that bridge? You've got to make some kind of judgement, a reasonable judgement that is not so much defensible as it is-- I'm going to use the term committable. You think that other people will say, yeah, we'll go along with this.

And that's why there's-- and when it comes to engineering, you won't find this in many of the texts. I don't think you'll find it in any of them, frankly. But I'll tell you right now, which is one of the most compelling rationales an engineer can give for doing x as opposed to y that works almost-- if it applies, works almost all the time. We always do it that way. Tradition.

OK, so you've got a citizen group in here, and they want to know why you want to put the nuclear waste dump over there as opposed to over there. And then you come up with some kind of a formula, and they don't understand the formula, and they're mad about it, OK?

If you are able to tell their rightly, and all the other engineers in the room go along with it, that that formula is what we always use, you're going to go a long way with that. Scientists can't get away with that, because there's always a formula that's better than the old ones. But engineers traditionally is a good one. And you can use that in ethics.

OK. Let's see. Oh, lastly, the story turns. I'm going to leave that one to more discussion as we go along the class, because I plan to do more of that.

So when you do your draft two-- and I'm going to ask you to make draft two a copy of draft one so that you can look back and see your progress. Don't amend it. Don't edit draft one, OK? So as time goes along, see if you will go back and change anything you said about the story turns. OK. Did I step on anybody's toes? Any comments, questions? This was the homework.

OK. Let's do some unfinished-- well, no. Let me give you more time. OK. Unfinished business and then new business, better stated since you all love parliamentary procedure so much. You have experience with parliamentary bodies?

AUDIENCE: Not much. I think high school, like student council was the most [INAUDIBLE]. Yeah.

TAFT BROOME: Maybe we should do more. I was chair of the Faculty Senate at Howard for six years. Now senates are usually at universities either a senate, a committee of the faculty that does certain things and represents the faculty to the president.

At Howard, the senate is a-- consists of all of the faculty, all the full-time faculty. And it also consists of the president and the dean, those ex officio members, without vote.

And this senate, all of its committees and all of its meetings are presided over by a faculty person. And the senate reports to the board of trustees through the president. So they give the document to the president, and the president is compelled to give it to the board. Now the president can decide how to give it to the board. But nevertheless, that's the way it operates.

The point I'm trying to make is that try to imagine an engineer with a gavel, parliamentary procedure at a university where you've got a law school, a department of business. And I'll tell you the hardest ones to preside over. We've got a medical school for surgeons. Every surgeon knows exactly the way he or she knows it's got to go, and you can't tell them one way or the other.

The lawyers, there's a way to deal with them. Well, they operate with the law a lot like they do with ethics. If one lawyer believes A, another one believes B. So when the one who's believing A is tearing you up, find one that--

[LAUGHTER]

--that will use approach B. Right. So now you're beginning to see what connection that I am going to make matters between law and ethics. There's a whole lot of connection. And depending on what country you're in-- depending on what country are you in, you may find that there's no difference between law and ethics.

You may go to the Middle East, and the judges have on clerical outfits with the Quran in front of them, and they're doing-- they don't see any difference between law, ethics, and religion. No difference. It's all the same.

OK. So where was I? Oh, we don't want to do old business. Unfinished business. What were we doing last? I don't think we finished it. Chap-- oh.

AUDIENCE: We had started talking about Ford Pinto.

TAFT BROOME: Ford Pinto. Now there was something I think is unfinished about that, about our discussion on that. We talked about Ford, but we didn't talk about any persons.

Now I want to put the question to you. First let me put an observation to you, that in law, a corporation has the status of a person. So that means a corporation can commit a crime. A corporation can be punished for the crime, even though nobody in the corporation has been found guilty of committing any crime, OK? We agree on that?

AUDIENCE: Mm-hmm.

TAFT BROOME: All right. If you find a better, sharper statement and bring it in next class, we'll amend it, is what I just said. OK. When engineering ethics was really invented back in the early, early '70s-- did I give y'all a history of engineering ethics yet or the STS movement?

AUDIENCE: Yes, you did.

TAFT BROOME: OK. Then one of the-- there were two great hopes of the scholars, mainly the philosophers in it. One great hope was that someone would be able to discover a new ethic, maybe from a utilitarian variety, maybe from a categorical or the ontological variety. Maybe a new variety. But a lot of people thought they would be able to find a new ethic. I'm not so sure that they did.

AUDIENCE: Meaning a new moral standard on which to base decisions?

TAFT BROOME: Yeah. Actually, they did, and I'll tell you about one or two that I think they might have done, or we might have done. So that was one of the great hopes.

Another great hope was to be able to give a corporation moral agency. The hope was to be able to say that a corporation did the wrong thing.

And there was this paper that was written by one of-- I'll call him out One of the giants in the field, his name is John Ladd, L-A-D-D. John Ladd is in semi-retirement. I guess he's about 80 now, but he's still active. Still writes. Still comes to meetings.

John Ladd wrote this paper, and what it said was that there's nothing in any moral tradition that would allow the assignment of moral agency to a corporation. As a matter of fact, he said, there's only one assignment that you can make to a group as opposed to an individual. You want to take a wild guess as to what group that is, a collection of persons that has moral-- that has moral agency, a collection as opposed to an individual? If you make a wild guess, you'll probably be right.

AUDIENCE: A religion?

TAFT BROOME: No.

AUDIENCE: A religion?

TAFT BROOME: Nope. That's a good one, because you would think that because of the hierarchical arrangement that-- no. Family, because the kids-- the parents are responsible for what-- morally responsible for the kid's moral behavior, he argued. And I don't remember anybody arguing back on it.

Now this is John Ladd talking, OK? If you ever decide to do anything with John Ladd, I'll give you his phone number. I have to look at up, but I've got it, and I've got his home phone number too. We could call him up. He'd really like to talk to you.

So that pretty much killed it, that corporations could not have moral agency. Now I'm going to talk about a way to make corporations have moral agency. It's going to be new, but I'm going to put that towards the end of the course. All right.

So when we talked about the Ford Pinto case, I remember us talking a lot about Ford and the Ford Pinto, but I don't remember us talking about individuals. Were there any individual behaviors in there that we should discuss, and then characterize that behavior as either moral, immoral, ethical, or unethical?

Any difference between morals and ethics? Oh. See, that's one thing that is typical of this course. Typically, you get halfway through the course before somebody will define what the course means.

[LAUGHTER]

OK, that's not unusual at all, but it's about time for us to get a little sophisticated about those two words. OK, so I'll give you a chance to look them up first, and then I'll tell you what's going on. Yeah. Are there any individuals that we need to talk about in this Ford Pinto case? Did they name any, or did they just talk about engineers generally?

AUDIENCE: In our little blurb, they name one. They name Echold, the Director of Automotive Safety.

TAFT BROOME: Yeah, what did they say about Echold?

AUDIENCE: He is the one who actually issued the study with the cost-benefit analysis, concluding that it was more costly to add in the safety feature.

TAFT BROOME: OK.

AUDIENCE: But he's one character.

TAFT BROOME: Yeah.

AUDIENCE: I would say another one-- it's not mentioned in the article-- is Iacocca, who said we need to make a vehicle that's less than \$2,000 and less than 2,000 pounds. We've got to do it.

TAFT BROOME: OK Lee Iacocca, interestingly enough after that, I think you all probably know better than I, became quite a corporate hero in America.

AUDIENCE: Yeah.

TAFT BROOME: Yeah. Well, Echold. Now what do you think Echold would say-- if Echold came in here, what do you think Echold would say-- how he would say-- would he defend what he did? And could you defend what he did? And could you criticize what he did? And you can play devil's advocate. You can give me both arguments.

AUDIENCE: So I assume he would defend what he did, saying that it was-- that cost-benefit analysis, which assigns cost to human life, is legitimate, and it's a practice and used--

TAFT BROOME: It's tradition.

AUDIENCE: --by-- yeah, by engineers and engineering managers in deciding whether a rescue is acceptable.

TAFT BROOME: All right, let's play a game. Suppose I'm Echold, and I hire you not as my lawyer, but as my ethicist. And I'm going before an ethical review, and you've got to present my case, two of y'all.

[LAUGHTER]

And you've got to ground this. Just can't say, give me an opinion. How would you ground it?

AUDIENCE: I would probably ground it in the fact that a manager, that it's their responsibility-- I think we discussed this a little bit last time-- to worry about money. As a manager, that's my ethical responsibility to conduct the study that is going to accurately tell you how this is going to affect the company's finances.

TAFT BROOME: So how can you justify it? Is that your personal theory, or is there some theory out here you can reference? Well, you can probably use something of a content nature. Not exactly [? Kant, ?] but talk about a contract. Do you have an obligation? That's a principle. Is there a principle that you have to live up to your contract?

AUDIENCE: No, that is the contract that I have with the country-- with the company when I took this job. That was the contract. I'm worried about money, bottom line, making this thing work. And that's my contract.

TAFT BROOME: OK. Now we have to worry that after you've said that, that there's an opposing point of view that's going to give a different answer.

AUDIENCE: Oh, yeah.

TAFT BROOME: Utilitarian.

[LAUGHTER]

And that the interesting part about that is that your customers are most likely going to use your utilitarian, because that affects them. That's the way they're going to see it.

OK. So probably Echold or somebody in Echold's position would typically say what you just said, but I would add something to it. We've already said this in the class. We've already seen it. And that is that the ethical responsibility beyond that is at a higher level. OK?

Now let me give you something that will come into play once you say that. And I've done my job. The utilitarian responsibility is at the higher level. Let's play that again. My job is the ontological. I have a principle. Live up to my contracts. I made a deal. The contract was legal.

AUDIENCE: Wait, what's the-- what role are you playing now?

TAFT BROOME: I don't know which role-- I'm playing Echold's role.

AUDIENCE: OK. And then what's the contract?

TAFT BROOME: The contract is my job description.

AUDIENCE: OK.

TAFT BROOME: Which has legal force, because the corporation is incorporated. That is that there exists a contract between the entity and society. So you can play that game straight down the line. There's a contract between the entity and society in the Articles of Incorporation.

And that is a hierarchical organization, and my position in the hierarchy has a name and a responsibility, or a mission. To live up to that principle, I have to live up to that mission.

AUDIENCE: [INAUDIBLE]

TAFT BROOME: Pardon? Again?

AUDIENCE: [INAUDIBLE] break a contract.

TAFT BROOME: Now to break a contract-- now we're in the gray area between ethics and law. And if we shift too much to the law area, you'll know it, because I won't know what I'm talking about.

[LAUGHTER]

OK? But I do know that to break a contract, both parties to the contract have to agree to break, unless you break a leg or something like that. But it takes some agreement, all right? So your point is going to-- your point is going to be included in what I'm about to say.

I don't if this is in this particular textbook or not, but it's something that's in probably enough engineering ethics textbooks or in enough ethics textbooks, or in enough textbooks on science, scientific ethics, which is mostly research ethics, that this is something you have to know.

It's called the Nuremberg principle. Anybody want to give a lecture? All right. Nuremberg. The Nuremberg trials, that's where it comes from.

Now this is interesting. Try to read some law-- I'll try to read law, because I have to argue with lawyers at dinner all the time on weekends. I just found-- when my wife and I go out with friends, a third of them are lawyers and a third of them are psychiatrists. The other third vary. But I don't defend myself against the psychiatrists.

[LAUGHTER]

And it just was very strange that my wife's first husband is a psychiatrist. But all of these other psychiatrists are friends that I had before I met her. And I guess they like practicing on me. [INAUDIBLE].

But that's significant, because when we talk about the Nuremberg principle, there's some really fundamental stuff-- fundamental stuff in there about the law that is taken directly from ethics. See, there's two kinds of law. Anybody know lawyers, hang out with lawyers? You should sometime. You'd get them to talk-- I mean, if you can stop them from talking.

But there are two kinds of law. One is called natural law and the other one is-- I'm trying to think of the name. It's not exactly scientific law. What's the other one called? I get these names-- I wasn't prepared to talk about this today, but now that it's come up, I'm going to go through it, and they will amend it next class, or add to it, or whatever we need to. But look up the other kind.

The natural law basically says that law and ethics-- law should never disobey ethical principles. Should always be supported by ethical principles. Most law that's done in the United States it's not natural law, but both came up in the Nuremberg principles.

Now what happened in the Nuremberg principle was that the defendants were Nazis. Big Nazis. And their basic defense was that they were following orders, that in their country-- it's almost the same thing we're talking about now with Ford, that the government had a responsibility to the people, and that there was a hierarchy, and that if anybody at the top did something that was morally wrong, then punish him. The rest of us were doing what we were legally required to do.

What they said-- and what happened was in the end-- or what happened was that they wound up into a quandary, because the West wanted to say that what they had done was to commit a crime against humanity, of which each person in the hierarchy was responsible.

And defense-- and not all of the defendants had the same lawyer. There was this one lawyer. As a matter of fact, if you see this movie called *Judgement at Nuremberg*, the lawyer was played by Max-- anybody remember his last name? Lawyer. He got the Academy Award that year for Best Supporting Actor.

The lawyer said, yes, they committed-- they were not only following their orders, but yes, they committed, each one of them, a crime against humanity. Then he came up with a brilliant remark to that. You can't punish a person for breaking a law that you just made. At the time they did it, there was no law called crime against humanity.

So what the West finally did was they came up with all of these films from the concentration camps and used those films pretty much like the OJ case. Just bear down on public opinion. So what they did in the end, they got pretty much support from the rest of the world. That's the way that thing came down.

It came down-- check the spelling on this. I had not prepared for this, but it's called My Lai. It was in Vietnam. It was a Vietnam case where an American-- where American soldiers killed these civilians, men, women, and children. And Lieutenant Calley said that he was merely following orders.

And what the scholars did-- I'm not going to talk about the law anymore. What the scholars did was they came back to the Nuremberg principle and said that an officer is responsible for what he or she does, regardless of the orders. The sergeant and the rest of the men should follow orders. They divided the house.

So now if we apply this thinking to Ford, what we would tell Echold is that being a professional employee as opposed to a technical or other kind of an employee, you are responsible for what you do, orders notwithstanding. OK.

All right. So now what I'm going to do is I just thought rather than all of us just saying, we'll revisit this the next time, I'm going to make a lighthearted assignment, and that is that you become familiar with the Nuremberg principle, the Calley case, and see if you can apply it to the Ford Pinto case, and whatever corrections need to be made at the next class on anything that I said in this class, or even the following class, that it'll be everybody's responsibility to get it right. But I think that I'm 99% on all of this.

AUDIENCE: [INAUDIBLE]?

TAFT BROOME: Yes?

AUDIENCE: [INAUDIBLE]

TAFT BROOME: Which one? This one? This one?

AUDIENCE: [INAUDIBLE]

TAFT BROOME: It's in a lot of movies.

AUDIENCE: The one with Jack Nicholson from-- the military movie.

AUDIENCE: [INAUDIBLE]

AUDIENCE: [INAUDIBLE]

AUDIENCE: *A Few Good Men?* [INAUDIBLE] Jack Nicholson [INAUDIBLE].

TAFT BROOME: Jack Nicholson, you said?

AUDIENCE: [INAUDIBLE]

AUDIENCE: [INAUDIBLE]

AUDIENCE: [INAUDIBLE] Tom Cruise.

AUDIENCE: Tom Cruise.

TAFT BROOME: Tom-- what's the name of it?

AUDIENCE: *A Few Good Men.*

TAFT BROOME: *A Few Good Men.*

AUDIENCE: There was a trial there. There was some [INAUDIBLE] in Guantanamo.

TAFT BROOME: Yes. Oh, in Guantanamo. Whoa.

AUDIENCE: [INAUDIBLE] then get off on [INAUDIBLE]. And I think [INAUDIBLE].

TAFT BROOME: There was another one that I didn't see starring Gene Hackman and Denzel Washington where Denzel is captain of this nuclear sub, and Hackman gives him the order to fire. I don't know the name of that film.

AUDIENCE: I've seen it. [INAUDIBLE].

TAFT BROOME: Now I guess you know I'm susceptible to talking about films in class.

[LAUGHTER]

So if you see any of these films and you want to make a five-minute report on the film, that is legitimate for this class. That was another one. I'll tell you another one that goes back a little early for you all.

When Ronald Reagan was president, there was a military event in the Red Sea. And Reagan came on national television and said that only he as president had the authority to order a military person in combat to use nuclear weapons, but he was delegating his authority in the Red Sea to the ship captain.

Now I'll tell you why I remember that so well, because when I saw him come on television and say that, I was in an airplane that was getting ready to land at [? Darain, ?] which is on the Red Sea. I was on my way to China and we were-- actually, it was [? Darain. ?] That's where I was going, [? Darain. ?]

And we were just about 20 minutes out before they said, prepare to land. And [INAUDIBLE]. I'm looking over there, looking at the Red Sea. My god. I said, am I going to be in a nuclear war? But I remember that.

So yes, these situations are not-- I would like to call them real, but I think that they are more than realistic, if you can follow my meeting in that.

What do you do when the delegation of authority goes down to ship commanders for a nuclear war, to launch a nuclear weapon in defense? Now you begin to talk about these issues. Somebody is responsible, no matter who gave them the authority. OK. I think I'm happy with this discussion on the Ford Pinto.

AUDIENCE: Can I bring up one topic on it?

TAFT BROOME: I'm going to bring up-- I just thought of another topic I'm going to bring up on it. Go ahead. Actually, it's a story I'm going to tell.

AUDIENCE: Well, so I've been trying to find a way to say that the actions of Ford in producing and selling the Pintos is not morally defensible. And what I came up with was to say that even though the utilitarian cost-benefit analysis said it was not worth it to add the safety feature and to sell the car, what they didn't think about was informed consent.

So they didn't respect the moral agency of the public to decide about the risk they were [INAUDIBLE]. Is that an appropriate issue to bring into this case?

TAFT BROOME: That's a good question. That's a good question. Now informed consent-- I want y'all to know that term. Informed consent comes out of medical ethics, because now you're talking about your physician not only getting your consent for some kind of procedure, but the physician giving you some lessons on what you're doing.

Now a little bit of US history. When I was a kid, you just did not-- you just did not criticize what a doctor said. Just totally unheard of. It was almost bordering on the religious. You just did not question your doctor. And getting a second opinion would have been-- would have been unthinkable.

During the late '60s, that began to turn around, mainly because-- now everything I've said is empirically testable. I doubt if anybody would dispute what I just said. Now you might get a little dispute, but anybody who would dispute what I'm about to say would understand clearly what I'm saying and why I said it, and that is that things began to turn around when the women's movement began to give women more recognition for their responsibilities and thoughts and abilities.

Which meant that you now have women who had children and who are reading books about how to care for their children. They just weren't consulting the doctors. And if the doctor said something that they didn't believe it, consult another one. So out of that, you get the STS movement, and medical ethics then began to start talking about informed consent being a moral dimension to a relationship between physician and patient.

Now if you apply informed consent to engineering, you run into not a theoretical, but an applications problem, that in most cases in utilitarianism you can't find all of the affected parties. And informed consent is so easy, because it's the patient or the patient's mother. Could be the patient's father too, but you see what I'm saying. We're talking about a role in the family that you play [INAUDIBLE]. All right?

So informed consent then, all-- except for one case-- well, not one case, but one case that I'm going to bring in the class-- and I'm not going to tell you which one it is, but I'm going to bring one in the class. Informed consent in engineering usually gets diffused. Now, in this case, that you-- informed consent, how would you apply it to the Ford Pinto case?

AUDIENCE: Well, one option is that one of the engineers who knew of the test results, knew that the car would explode if hit in a certain way, could at least write a memo to an authority that maybe wasn't being told about these things, like a higher manager, and hope that an action would be taken. And then if that didn't do anything, contact a news agency and say, I want to blow the whistle on this car that's about to be in production.

TAFT BROOME: All right. Now I've never heard that argument applied before Pinto, but what I'm saying is you're bringing up something that's causing my mind to turn around. Maybe this is a good project. Whether or not there is some action that is short of whistleblower that gets the consent of the affected parties is appropriate to this case, and my instincts tell me it is.

AUDIENCE: I mean, now we have the Consumer Report. So if a car is produced and really unsafe, that word gets out. And when people buy cars, they can [INAUDIBLE] and see how unsafe it is. So maybe that's the correction on something like this.

TAFT BROOME: Why don't you give it some thought?

AUDIENCE: OK.

TAFT BROOME: Everybody give it some thought. I think this requires a little thought. I don't know that anybody has thought of that one. I've not seen anything on it.

I do know that-- let's put it this way. What you're really bringing up is you're suggesting that there is a continuum somewhere between whistleblowing and what they call public understanding of engineering. And that's a formal term. There's an office at the National Academy of Engineering called Public Understanding of Engineering. There's an office at the National Academy of Sciences called Public Understanding of Science.

And so a person could inform them, you might say, which is not-- I don't if this is the same thing as going-- I haven't given this thought. I don't know who has given a thought. My instincts tell me nobody's given it a thought, because I would have read it by now. So give it some thought. And even if you don't come up with a conclusion, if you come up with some more questions or comments as the course goes along, throw them in. OK. OK.

AUDIENCE: [INAUDIBLE]

TAFT BROOME: Yeah?

AUDIENCE: When I [INAUDIBLE].

AUDIENCE: They passed the 20-mile-per-hour test, but in two years, there was going to be a new standard that was 21 miles per hour [INAUDIBLE].

AUDIENCE: [INAUDIBLE]. Is that a federal standard or something that's required by the [INAUDIBLE]?

TAFT BROOME: That was a federal standard, right?

AUDIENCE: Mm-hmm.

TAFT BROOME: Yeah, that was not a professional engineering standard.

AUDIENCE: [INAUDIBLE]

TAFT BROOME: Now there are two things I can say on that. And probably whatever you have in mind, if you have a thought on this, put it on the table. We'll probably buy it.

Well, you're in a case almost like this Nuremberg case, you know? Somebody's supposed to-- somebody guilty of a crime before the act was made a crime. They performed the act before it was made-- that's one.

Then there's another one that I want to bring up in this class. I was talking-- we've got to get out of here, but I was talking to somebody-- let me give you-- do we have an assignment? We still have to do the two nuclear cases. So that's your assignment. We still have to do Chernobyl and Three Mile Island. OK, so that's next time. This is Thursday?

AUDIENCE: Mm-hmm.

TAFT BROOME: All right.

AUDIENCE: [INAUDIBLE]

TAFT BROOME: Ah, now let me do that, and then let me put this-- if I have time, put this other issue on the board. OK. I want everybody to read this book, and I'm going to give you a month to do it. Let me see. A month, a month, a month. Where would a month put us? How about three weeks?

Because the first 50 pages is going to be like reading Shakespeare. It's going to be a little laborious. That's why I'm giving you a lot of time. But after that, it rolls right out. Today is the 9th. What about April 1?

AUDIENCE: [INAUDIBLE]

TAFT BROOME: April-- oh, OK. Why not the first class after spring break? So April 1 is Saturday, so that will be April 4. OK. I'm going to give you-- I'm going to give you--

OK. Now it's important to get the spelling right, because there is *Parzival*, and it's by Wolfram von Eschenbach. And I would like for you to get-- there's more than one translation, and the translations are different. But I would like for you to get the one that's Penguin Classic. It's one of the Penguin Classics.

And this particular translator is named Attao, A-T-T-A-O. The main reason for choosing Attao is to choose one so that we have the same one, because the translations will vary.

OK. So get that one, and we'll discuss it first class after the spring break. Like I said, the first 50 pages, don't be put off. It's like reading Shakespeare the first time. It's a little bit, you know-- let me just open a page at random.

"There was a heathen named Flegetanis-- Flegetanis who was highly renowned for his acquirements."
Acquirements. "The same physicus was descended from Solomon."

Don't worry about physics. You'll get it, OK? In other words, don't even look for a dictionary-- I mean, a dictionary. Just read this author's forward and he'll tell you how to get through this book. And after this, it'll knock your socks off.

If you get *Parzival* mixed up with *Parsifal*-- P-A-R-S-I-F-A-L-- it's the same mythical character. Pretty much the same story, but different. Very different. And *Parsifal* is-- it's time to go, just about time to go. *Parsifal* is the name of a great German opera, and he's one of the characters. And Lohengrin is his son. And that's a whole different thing. It's been turned around.

Then there's Percival. Same knight. Pretty much-- there's a Venn diagram. There's overlapping stories. A lot in the middle is the same, but there's a lot on the edges that are different.

Percival is the same knight in King Arthur's Round Table. It's *Parzival*, but the stories tell it different a little bit. A little bit. But I want you to read that one.

And by the time you've finished it, we will start-- and I do have time to do this. That what we have done so far is that we've looked at-- in the Greek tradition, we've looked at consequentialist approaches. At least one consequentialist approach. One non-consequentialist approach or principled approach, deontological approach.

Then we're going to look at virtue ethics. And under that, we're going to look at narrative ethics. And then actually, what I'm going to do-- this gets a little complicated. This narrative ethics is going to be non-Greek, OK?

And then we're going to-- remember the two paintings. We had *The School at Athens*. All of this is in *The School of Athens* except this one. This one goes out and does something else.

Then we're going to go look at the painting, which is *The Mass at Bolsena*, and we're going to look at the Roman point of view. And we're going to look at all of these cases, but through the lens of codes of ethics.

We're going to go back to each one of these cases and see what the code has-- what if some code has to say about it. So that will be towards the end. And I do not plan to spend a whole lot of time on this, but I plan to spend a whole lot of time on this, a whole lot of time on this. Not so much on this, not so much on that, but a whole lot of time on that.

And when we start doing the narrative ethics, we will need characters from mythology. And we'll have at least one mythology that we can all anchor ourselves on. And I would like to have some other mythologies.

And it would be fun for you to read some mythologies from some cultures that you don't know anything about. Or if you know something about them, let's make sure they're not Western. OK? Well, that's it for today. Thank you.