

The following content is provided under a Creative Commons license. Your support will help MIT OpenCourseWare continue to offer high quality educational resources for free. To make a donation or view additional materials from hundreds of MIT courses, visit MIT OpenCourseWare at ocw.mit.edu.

PROFESSOR: OK, so the plan today is that we're going to talk a little bit about the reading, which should feed directly into your thinking for the final assignment in this class. We're going to play a couple of the games. There should be just enough games for everyone to get through one round. And the rest of the class today will be used to form teams, and then talk in your teams and try to figure out what project you're doing. Actually, the other way around. We're going to talk about projects, and then you're going to form teams around them.

So today's reading was-- in the title Simulation 101. Right, literally 101. It was very, very introductory. Here's a bunch of terminology and a bunch of concepts about simulation. Has anyone read that before, any other class? Because I know it comes up in some other classes.

OK, so we have some sort of source reality. Which I am going to put question marks because we live in a postmodern world. And some sort of source reality where we are trying to create some sort of model. And then we've got something that we think of as a simplified abstracted version, which ought [INAUDIBLE] simulation. Anyone remember what are some of the things that simulations do that-- well, actually, what are the alternatives to a simulation that the article was talking about? How do we typically talk to people about [INAUDIBLE]? How do we usually convey an idea of this is how reality seems your work? What are some other ways That you do that?

AUDIENCE: You extract it.

PROFESSOR: You can extract it. Extractions are useful words. I'm going to write it here. That's-- you can do that to a bunch of different moves. When Jane Austen tells you how life was like in-- when was that? 18th century?

AUDIENCE: 19th century.

PROFESSOR: OK. How was she doing it?

AUDIENCE: Metaphor.

PROFESSOR: She tells a story. She uses the process of narrative. She does use some metaphors, but for the most part it's just very plain. This is what happened to these people, and everyone is upset. That was what the reading today was. All right, you have this way of telling people about how something is. One way that you do it is you could tell a story about it. You could do a painting, a visual version of it. You could create a little physical sculpture of it, if the concept is-- if that is a good way to convey a concept. You can create a simulation of it.

He lumps together things that represent how the world works as a representation. It's like a picture of a pipe is a representation of a pipe. It's not the actual pipe. But it is a visual representation. And the narrative will be a sequence of events, a linear time representation of what happened. But it doesn't tell you anything about how that version of reality works. It doesn't-- it may give you a clue that you can intuit. But It's not actually trying to show you how this thing behaves. And what we trying to do in simulation, in the broad sense you can think of simulation as a kind of a representation. But very specifically, a simulation is trying to tell you about how the system actually behaves. So, it is looking at some sort of reality. What are the kinds of things that you could be looking at? Before you actually try to make some working simulation about how reality works, what are some of the things that you want to look at?

Let's be a bit more concrete about this. Your reality is student debt. OK, let's just say that is the system that we are looking at. We are looking at the world of student debt. And you are trying to create a model. If you wanted to explain to somebody else, who doesn't really understand student debt, that these are all the things you've got to worry about. What are the things that you would try to-- that you might consider explaining to them? A high school student is thinking-- let's give this [INAUDIBLE]. The high school student who doesn't understand student debt but is thinking of [INAUDIBLE] college. What would you tell them? What are some things you want to tell them?

AUDIENCE: The situation [INAUDIBLE] under which student debt accrues. What things [INAUDIBLE]

PROFESSOR: Break it up a little bit more. What are some of the components of that?

AUDIENCE: Situations where you would take out loans.

PROFESSOR: OK, situations. Maybe cases, you know? These are examples of things that they [INAUDIBLE]. OK, what else? Eventually they're going to make games about this sort of thing. So what you want to know [INAUDIBLE].

AUDIENCE: You want to tell them how [INAUDIBLE], and the how to pay it off eventually.

PROFESSOR: OK, those are mechanics right? Those are verbs. How do I do that?

AUDIENCE: How to avoid having to take out loans. Getting scholarships and things instead. Trying to work around it.

PROFESSOR: I would call those strategies. These-- you have a range of different strategies, all of which to achieve the same goal. But some of them are better than others, and some of them completely avoid. What else?

AUDIENCE: I'd say that any sort of [INAUDIBLE] that usually happens. [INAUDIBLE]

PROFESSOR: So probability of how often things happen. OK.

AUDIENCE: Also trends. Student debt is increasing. [INAUDIBLE] A big picture of what it's looking like.

PROFESSOR: OK, so that's coming from a more historical point of view, right? There were also two things that [INAUDIBLE]. Things to compare yourself against.

AUDIENCE: The effects that having debt will have on the person or situation.

PROFESSOR: Consequences?

AUDIENCE: Yeah.

PROFESSOR: One of the things I would include would be things like variables. What are the numbers that you want to keep in your head? Easy monitoring that will tell you how the system works. The situation, cases, verbs, strategies, that's probably something-- I don't have a good word for it-- to explain how one thing affects something else. But that is like consequences. Maybe flows. Where does the money go? What's the rate of money coming in from getting student a job? Was it getting a [INAUDIBLE]? Was it some other source of revenue? [INAUDIBLE] and loads, that sort of thing. And how does that affect how much money you have versus how much money you owe.

So you have got all these things that come into the model. This other reality, you create some sort of model that you understand. This is how you understand the world as it is. In the team project, this is how your team understands the world as it operates. And then you decide that you are going to make a situation out of it. And you can choose what are the things that you want to bring over. I'm not to go through that part of the exercise because they everyone will have a different answer. But for some people certain variables are going to be more important than other variables, depending on the kind of simulation you make. if want to play this game-- actually, I've got to add a rule system. That's really what our assignment is about.

I you want to play this game as someone who is giving [INAUDIBLE], then the worlds, and the variables, and the cases that you are thinking up are going to be different. They are going to be thinking about [INAUDIBLE] Whereas, if you are playing this same as a student, then you-- the simulation [INAUDIBLE] what it will look from the student. Then what these sort [INAUDIBLE] won't matter that much to you. You'll just care about yourself. So the variables you care about will be different. How those things affect your life are going to be different.

Now, there is a [INAUDIBLE] to abstraction. And correct me if I'm wrong, but that's where [INAUDIBLE] put simulation the gap?

AUDIENCE: Yes

PROFESSOR: Yes . That's this thing where not only do you decide that there's a bunch of things in here that you are going to choose not to bring over to you simulation, or choose to bring over to your simulation. Then you can think of a way to simplify that. Maybe we're not going to-- maybe certain kinds of consequences from interest from loans or whatever normally increase on some sort of non-linear scale. But for the sake of making a simpler simulation we're going to assume that it is linear. We are going to say that every time-- every turn the amount of debt that you have increases by a fixed amount, rather than a percentage or compounding interest. Because simplifies things, but maybe you still get certain points across.

This thing down here, some people call a simulation gap. Other people sometimes place it over here. But I'm going to make the case that has to happen. No matter what you do, you have to do this because you're never going to be able to fully simulate everything that you know, and the fact you don't know everything about reality anyway. So this has to happen. But there is a design choice that you make over here of what you want to simulate and to what degree you want to simulate it.

So, for instance, one of the games that we have today is *Kolejka*, which is, again, standing in queues, waiting for rationed goods to come in while living in 1980's communist Poland. You have no idea when the next truck of goods is going to show up. The reality is that there is-- there are schedules. Even in communist Poland, people actually-- there was a schedule in which objects were supposed to show up in certain stores. I believe that there's actually an action that hints at that, but all it does is that it allows you to place an object in multiple stores at will. And it's a special thing that you [INAUDIBLE].

But for the sake of the abstracted version of the game, which they made, they are going to say, when you-- as someone who was living at that time, yes, there were schedules. It was possible to actually figure out when different goods were going to show to some reasonable level of accuracy. But the majority of people who were involved in this system had no idea. And so for the most part, it was random. That the decision that they're making, and the point they're trying to get across. Now whether that's true or not, that's something that the designers want to convey through design of the game.

That's something that you can also decide. If there is that you want make across, a lot of the rhetorical points are going to be right here. So if you want to say-- we had a game last year which was about people cross-dressing to get into the French theater. Not all of them were cross-dressing, some of them were dressing up, some of them were dressing down for various reasons of social class and trying to get a cheaper ticket and being able to get into parts of the theater that you otherwise couldn't. It wasn't explicitly a simulation, but they were trying to get across a point. That this is a sort of thing that that you can do. Everybody had a-- if you wanted to get into the theater, there were multiple ways you could get into the theater and there were different reasons for every single person.

So a noblewoman might cross-dress as a man in order to be able to get a cheaper ticket, and go slumming with the people buying the cheap tickets because it is a lot more exciting down there. Somebody who is in the clergy will have to cross-dress to be able to buy a ticket as a woman because the clergy are not supposed to be going to the theater. So they are hiding themselves for other reasons, even though they are in a more visible position. And there is a lot of bartering, there is a lot of theory of [INAUDIBLE] and clothes and such. It is a pretty fun game. I'm going to grab that and bring it over.

So when we play the games today, I want you to think a little bit about the situation they are trying to respond. *The Gentlemen of the South Sandwiche Islands* is a game about crossing bridges. If you have ever done any classes here at MIT about bridge-crossing theories, that game is all about that. But it is ostensibly a game about match-making, or finding a match. And you are sort of chasing, where the men are chasing the women who are also being chased by their--

AUDIENCE: Shepherds.

PROFESSOR: Shepherds, yes. Really good. So that's a very, very, true-- that giving the whole, actual, dialogue, where the gentleman and the ladies there. It is just making it this whole traveling game. And you could ask yourself, what are they trying to get across? Whether intentional or not, it doesn't really matter. But the game sends a message about how the system is supposed to work that you can take away as somebody who has played the game.

[INAUDIBLE], which is a game about a bubble economy. And *Crunch*, which is also about a bubble economy, only a lot more recent. And it is *Crunch*, in particular, where this [INAUDIBLE] is. It is trying to be a satirical commentary about how big banks need to be operating, whether or not that's actually how they operate is kind of beside the point. But they do have certain elements of simulation in there and then they just abstract them to make you focus on the things that they want you to focus on.

So, let's see. Two of those games are two-player games, so that is only going to account for four people in this classroom. The other two go up to five players, so we can probably split everybody else into groups of about four. 12 people, so eight. That should make the games go at a pretty good clip. *Crunch* and *The Gentlemen of the South Sandwich Islands* are pretty fast compared to the other two games, so the people who are playing those games might want to switch games and play [INAUDIBLE] after that. It will probably be a lot faster if the people who just competed a round then turns around and explains it to the next group because then they won't have to read the rules. So let's do that for about an hour. Especially because *Kolejka* takes about an hour. And after that, we'll talk about class. We'll talk about the assignment. So, any questions about this? No? Make sure you talk with your teams, especially when you're looking at how the rules work, but also while you're playing the game.

I talked to both the team that played *Tulipmania*-- not the team, but the group that played *Tulipmania* and the group that played *Kolejka*. I haven't had a chance to talk to the folks who played *Crunch* and *The Gentlemen of the South Sandwich Islands* yet. So let's talk a little bit about--

AUDIENCE: There are cards on my body that I would like to get rid of if we're done.

STUDENT: I don't want to call it. We're still in.

PROFESSOR: I'm going to say the game is on pause. But I do want to talk a little bit about, not so much how this one particular game is being played out, but rather what does this game render in very high detail? And what does it sort of gloss over a very low-level granularity? So what is very, very well rendered in this game? In the opinion of the people who played this game?

AUDIENCE: I would say corruption. I think there's a lot of-- for example, when you are sneaking a card, you kind of wonder if someone is watching you. I think that's actually pretty similar in the real world, dealing with a corrupt CEO. You wonder if someone is going back and checking your records, if you can actually get away with taking this money and storing it somewhere. Right.

STUDENT: I wouldn't quite agree, because in this game they can see the number of cards in your hand going down. And as long as they don't see you actually putting them away, they are like, you are clearly embezzling, I can't do anything about it.

PROFESSOR: So there is on one hand the not wanting to get caught in the act of embezzling. On the other hand, the very clear assumption that everybody is. You can see it, it is happening. You know that it is going on, that everybody in the game is engaging in this, but you don't. The only thing that you're worried about is just getting caught in the act. Of having your hand in the kitty. But it is OK that the kitty-- that the cookie jar seems to be emptier than normal. The game does that well. What's really sort of vague, deliberately vaguely represented in the game?

AUDIENCE: All the actual bank mechanics.

PROFESSOR: Can you give me an example?

AUDIENCE: Like the whole investing on [INAUDIBLE] thing. It's probably a pretty good simplified version of it for the game. Which is fine, because that's not the main focus, it's not to make smart investment choices. It's to embezzle things.

PROFESSOR: The odd thing about it is that the actual operation of the banks is remarkably trivial.

AUDIENCE: Right

PROFESSOR: Or it has been trivialized to the point of-- that's the point of this game, is not to run a good bank.

AUDIENCE: I also don't know how this works in the real world, but the government bailouts in this game seem like candy, basically. You just, oh I want a government bailout. Oh, OK. Government bailout? Sure, we need a government bailout like [INAUDIBLE] in the financial crisis, and all the banks were failing. The auto manufacturers started asking the government for money. [INAUDIBLE] so Ford decided they didn't need it, but GM did. [INAUDIBLE]

PROFESSOR: Again, it's a deliberate choice, right? I think what you're saying is that yeah, it is ridiculously trivial to get a government bailout. It's clearly designed, to me, to make you think that yeah, the government is going to come in and take care of this. Even though I'm in a hole of several-- \$50 million dollars or something. It is like, yeah, the government will take care of it.

So, I had a similar discussion with all of the other teams. In *Tulipmania* and *Kolejka*, what are the things that are really in high resolution? Everything that you can possibly do in standing in line is-- it is what that kind of game is about. Whereas things like money, for instance, or, oddly enough the way how the black market played out in *Kolejka* was less in the mind of the group that was playing because everybody had stuff to do. We didn't really have to stand in line but that might change with a smaller number of people. And *Tulipmania*, what did we talk about, the stuff that was really high resolution?

AUDIENCE: Trying to encourage the buyers, or use the buyers to [INAUDIBLE]

PROFESSOR: Right. So, getting other people, who have money. Why even play the game? These are not [INAUDIBLE] to put money down on the investment that you are telling them to make. It is really what they whole game is about. There is a lot of detail about how that works. It is all about. speculative activity. Whereas things like the actual prices, and where the bubble decides to burst. Those things are simplified to the point where the players can make a decision about it in a way that maybe real people can't make a decision.

OK, so hopefully that gives you ideas about the way-- how you can play around with the level of fidelity in your game. And now we're already down to the last half hour in class, so let's talk a little about your assignment 3. First of all, has anyone been thinking about this? I know you guys want to get back to your game. Has anyone got an idea about assignment 3 that you want to pitch to your teams-- to the class now, to be able to form a team now? It's probably a good time to do it. It doesn't need to be fully fleshed out.

AUDIENCE: I have an idea for a board game based around the first triumvirate, where the players are on either [INAUDIBLE] And--

PROFESSOR: The Roman triumvirate.

AUDIENCE: And basically, all the players just want to want to march on Rome and become dictator there. But there's other players in the way. And also the Roman establishment, the senate doesn't want a dictator. And so you are trying to campaign to acquire more soldiers, and more influence around so that you can overcome them. You are also pushing your luck and taking riskier plays, so you can do this back to the other players. And, eventually, someone gets far ahead of them. Or someone or something doesn't pay off and they get killed. And then the whole thing [INAUDIBLE] and the players start fighting each other.

PROFESSOR: So it's kind of tenuous cooperation.

AUDIENCE: Yes

PROFESSOR: So it's an interesting-- certainly a lot, a wealth of material to look at, when it comes to the fall of the Roman republic. Basically, if anyone points to people who-- the individual people caused the fall of the republic [INAUDIBLE]. Obviously, [INAUDIBLE]. That might be, if you are interested. Or if you don't actually know that much about ancient Romans and would like to, that is probably a good project to get into. I can't think of any better way to learn about a topic than to try to make a game about it. Anybody else?

AUDIENCE: So this isn't a complete idea at all, and I'm probably coming about it from the wrong direction, but I would be very interested in finding some historical event which-- or some role where the person consistently felt that things were out of their control, and kept getting pushed in the same direction. And then make it so that the game always does the same-- it always ends in the same way.

So it is a deterministic game, apart from how you get there. So, make it so that, for example, there's two players. One of them is guaranteed to be the winner. So make it actually follow history, and then don't tell the people this. Just have a game where eventually people realise that this is a game where, hey, this turned out remarkably like actual history. And then they play it again, and it is still remarkably like actual history. And then they eventually realise that you are playing through the motions.

PROFESSOR: You could certainly make a game where the governing forces are very powerful, so it's going to be playing out in pretty much the same way each time. But then, the question is, what is the agency that you have in there? What does [INAUDIBLE] take to be able to influence things. So even a game like [INAUDIBLE] is not a good example of this, but it's a game that's based on the events that are actually in a deck of cards. And so what you do to play out, these are things that actually happened in real history and they may not be in the right order, but they will always happen. So it ends up being what kinds of decisions you are to make in all of those circumstances. [INAUDIBLE] slightly different parameters.

AUDIENCE: Most operational-level war games do exactly that. The game is not about getting the Germans to win or winning Vietnam, it's more about what are the various strategies you have to use at the time. But more than likely, though, the game is set to end the way history does-- played out. So they're really complicated games. There's some less complicated ones, so if you end up going down that route, I might have some card-based versions of the game to show.

PROFESSOR: You might also want to zoom in into the very-- instead of a wide swath of history, go really small.

AUDIENCE: Most board games about battles will allow you to have a battle a different way. But anything operational-level tend to be very much about you just exploring what is going to be in that.

PROFESSOR: That's true. So you've had your hand up forever, and then we'll go back this way.

AUDIENCE: I have a separate idea, but just for that idea, maybe the Russian Revolution. Everyone was just caught up in all this craziness. It's like-- the game is basically forcing you that your revolution is going to lose and another one is going to come in. But along the way you are trying to set up your perfect table.

PROFESSOR: You could imagine a game where there's already this tidal wave of change happening. You don't stop the wave, but how well can you ride that wave.

AUDIENCE: But an idea I was thinking of was the dot-com bubble, back in the late '90s, where you would be some startup with a ridiculous business plan who is trying to acquire as many users as you can in a short amount of time. Get an IPO, got a lot of money from VCs, and then get out before everything crashes. So, I guess, about a bubble like *Tulipmania* is, but a little different in terms of the mechanics. How do you deal with the bubble?

TEACHING ASSISTANT: For that one, think about what the people who are going through that. What do they actually know about the bubble. Did they know that the bubble was going to happen or not. At least for this assignment. It's about being in the perspective of the person at that time, in that real time. What about it is hindsight versus what they thought at the time.

PROFESSOR: Yeah it's easy to make a game-- we have had games in this class that were also about the dot-com bubble A lot of it was making fun of how ridiculous it looks like now, in hindsight. But it's good to try to think, what information did they have at the time? It looks like-- did this look like it was going to go on forever?

AUDIENCE: I have three different ideas. Most of what I think is I want to make a two-player game, where one person is in a position of power and the other person is working for them and otherwise subversive to them. And the person in the position of power has the ability to [INAUDIBLE] the other person. And what the other person can do is-- should they try to overthrow them? Does this-- How does this describe their life? Another idea I had was a love affair thing, a three-player game. I'm not sure that a three-player with 12 pairs.

PROFESSOR: Maybe you can identify a specific three people

AUDIENCE: Yes, maybe like Yoko and all the Beatles or something

PROFESSOR: Yeah, that would go.

AUDIENCE: And then another one, [INAUDIBLE] A game about feminist actions, on how they're all not quite the same thing but they are arguably minor points. [INAUDIBLE]

PROFESSOR: [INAUDIBLE] by in time, because will be [INAUDIBLE]

AUDIENCE: Cool, so I have two vague ideas. The first one, I am really interested in technology that changes the way people live their daily lives. So, when you look at 20th century, we had personal computers, so it could be like you're trying to hack things together in garages in Silicon Valley in the 1970's. Another idea is being Henry Ford, and building cars or bringing cars to the masses. Maybe you are a plant overseer and you are a line or something. Another one could be you are the Wright Brothers, inventing airplanes. It could be an experimental game.

Another idea I had was that you are in the 1500's or the 1600's, and you are a merchant. You've got your ship, and you need to go buy stuff and bring it home and sell it. But the complication is there is-- you know how those old-time maps had sea monsters all over them, because the ships would disappear? But to a sea monster that ship is really good, am I right? That was the only rational explanation. I'm thinking that, [INAUDIBLE] What's that? When you go off the Earth.

PROFESSOR: This is after 1492.

AUDIENCE: What's that?

PROFESSOR: This is after the circumnavigation, and the world is actually round. But they could be [INAUDIBLE]

AUDIENCE: [INAUDIBLE] Here's your home, here's the place where all the resources are, and you have to get the resources back. But there is a sea monster in the middle. It's a path-building game, where there is a random aspect of the sea monster and if you [INAUDIBLE], you're dead. But if you can survive, you will profit.

PROFESSOR: So you're a ship captain.

AUDIENCE: Yeah, you are a merchant ship captain.

PROFESSOR: Everyone had a chance to say, who had their hand up?

AUDIENCE: [INAUDIBLE] you're getting data on which sensor is appearing, and you're trying to figure out where the monsters are on the map. So you're getting this information that-- [INAUDIBLE] really make it obvious that that's not actually what's going on by rolling dice or something. Or doing something very clearly random for whether-- which ships out of a particular set come back and which don't, based on where they were going. And then somehow you are supposed to make your case that, this is exactly where the monsters are. My map matches the data, and these other players maps don't.

PROFESSOR: You want to be looking at cartography technology that was out there, or what sea-going timepieces look like at that time. Navigation, but also how does society of information ran at that time. Was it all just the royal society of blah, or was it more entrepreneurial?

TEACHING ASSISTANT: So for that one, possible primary sources if you wanted to keep the fantastical element, but still make a little bit more of realistic of the time Umberto Eco wrote a book, *Baudolino*, about the mystery of Prester John, the Prester John who went from Europe to bring Christianity to the Orient. But it is a book about the Orient It is a book about map making, cartography, that kind of knowledge sharing.

And the idea that if you just say something existed, it existed for real. Enough people believed it, the people in power believed it, so that it might as well have been real. And that's the kind of-- that's the weird kind of world they were working in the 13th and 14th century in Europe. It was that you had these itinerants come around and say, yes, I met Prester John, here's this map, and by the way, here's a relic of Jesus, or here is a relic of some other saint. And just by saying that made it-- gave those objects power, gave the person power. At least for a little while within that little burg that he was traveling through.

AUDIENCE: I was also going to suggest a cartography kind of game, or an explorer trying to map out something.

PROFESSOR: So map making before modern technology is scary seeing that one of two things could proceed. Anybody else have ideas? It doesn't necessarily need to be game mechanic ideas, it could be just time period and person ideas.

AUDIENCE: So I don't know if I want to do this or not, because it is really controversial. I'm from North Dakota and I have seen a lot of the Native Americans struggle and I've read a lot of their history. So I was thinking about making a satire, Like one person is the Native Americans and one person is the United States. And just to illustrate the crazy injustices. But that is kind of heavy, and I don't know if I want to explore it. But there are ridiculous things that happen.

PROFESSOR: Well it's not that far off from of the ideas you had about two very different levels of power, right? And that also goes to very different levels of access to information. So, maybe you should your group and see if those ideas work out.

AUDIENCE: Not really fleshed out, but I was thinking about looking at a mass murder in history.

PROFESSOR: OK

AUDIENCE: Just any one of them. Trying to make a game out of it.

PROFESSOR: OK, so mass murders on the scale of armed conflict-- armed public conflict, and mass murders of the serial killers sort, where it is a mystery. Do you have a preference?

AUDIENCE: I'm thinking serial killers

PROFESSOR: All right, there are a couple of famous ones. What sort of roles? Like the investigation part of it, or the try to get away with it kind of thing?

AUDIENCE: I think the trying to get away with it thing. All right?

TEACHING ASSISTANT: I think you might get visited by the FBI.

AUDIENCE: Have people watched the Meet the Team videos for *Team Fortress 2*?

STUDENT: So one of these videos is about the pyro, he's one of the characters. And in that video it shows the pyro's worldview as *Candy Land*, basically. And this is a guy who goes around and burns everything. And I'm thinking something-- just in response to what you are saying about a mass murderer. If you can find a mass murderer who is historically known to be crazy [INAUDIBLE]. And then you make-- you could have two different boards the way that there were for the [? feed ?] game, with the last project. And you could have one of the boards be very clearly fantasy land. This guy is going after something, he's trying to find something. I don't know, trying to kill women or something. So he's going around slaughtering them, and on the other map it is the real view of what has happened there. And then you can have whomever is trying to stop see the completely different view on the situation.

AUDIENCE: So similarly related to that idea, a good example [INAUDIBLE] but it [INAUDIBLE] There is a book called *Devil in the White City*. At the Chicago World's Fair, they were building this beautiful city, they wanted to show off to the world what America could do. There was all this modernization, and showing off the electric lights, and how exciting that was. They built this beautiful, huge white building. They put up the whole thing. Then, in the shadow of this, there was a serial killer who was exploiting the fact that there were migrant workers there all the time trying to build this. Which helped obfuscate his very criminal activities.

TEACHING ASSISTANT: That's a great [INAUDIBLE]. It also keeps in the spirit of the assignment, too. Just thinking about how you've got this new situation, you've got these new systems involved, and how are you exploiting the system various ways. For anything [INAUDIBLE] I would be really, really cautious about. And even with the Native American aspect, or any kind of system of oppression, be really cautious about representing the person being oppressed. If you're putting it in a point of view of the oppressor, just be really, really careful about that. Actually, I personally think it's more interesting to be in the point of view of the person being oppressed, and how they're responding to that situation.

PROFESSOR: That's a group [INAUDIBLE] who has done a couple of games on systemic oppression. That every time there-- if you look at any historical case of human-- a period of human oppression, you can always find a system underneath it. That system actually enables people to more easily inhumane to each other. Both as game designers systems are very practical tool and look at that. But just be aware that exploiting the history of people, who are oppressed, by the way, by taking their culture away from them. Try to do it with some respect. Try to bring some empathy into it. This is what it was like. And the limits that that they had on the kinds of decisions that you could make, for instance.

AUDIENCE: A lot of historical games are very asymmetrical. Are the ones that are [INAUDIBLE] I don't know of any simple historical games [INAUDIBLE] All those historic games that are good, and simple, don't have these imbalances in power between the players because that requires very complicated rules make sure that it works.

PROFESSOR: It is a huge design challenge, for sure. It is not going to be easy. It's

AUDIENCE: Is *The Apprentice*, Irish game, asymmetric?

PROFESSOR: Yeah that is an example. That's an interesting game because-- so there is a game [INAUDIBLE] Romero. Has the designer of many many famous computer games, including the *Wizardry* series all the way back in the '80s. But what she's more often known for nowadays is a series of games that she designed for museums on various systems for human oppression. Trail of Tears. She did *Train*.

She did a game about the English occupation of Ireland. The way that game deals with it is that all the players are symmetric. All players are different Irish armies. But the system is playing against you. The system is basically this mechanical influx of the English taking more and more Irish land and cramming all of the Irish into smaller lumps of land. And people get pushed off the island-- forced immigration, basically.

But that's another way to approach it, right? It's asymmetric but in a way it's easier to design, because it's the game system versus the players. And the games that those actually get the games is that is forcing the players to conflict with each other, because there are less and less resources for more and more people in the small space.

AUDIENCE: I'm trying to think. Yeah, you're right. All the card-based two-player games that GMT puts out, like *Twilight Struggle*, they a lot of complex-- there's a lot of complex things going on underneath, and a lot of it is buried in cards.

PROFESSOR: Well, I can think of games that are highly asymmetric but not incredibly complicated, and a lot of it [INAUDIBLE]. For instance, which is not historically-based, but whatever. It is about alien races, and each alien race basically has a rule they can work in a very interesting way. But everybody starts with the same core rules, plus this one thing that you get to break. *Tammany Hall*, which we didn't get a chance to play today, is another one where it actually comes out to every round that you play in a game, there is a particular rule that you can break because you are occupying a position in city government. They can think of it as that break on special ability and execute. That is another way to be able to think about it.

So, we've already had *The* [INAUDIBLE] which was really more like two different games that are being played simultaneously. So if any of you were on that team, you already have a perspective on what it's like to design a game with magic information, and magic abilities for-- in different goals. It has been done in this class before. It is a design challenge, but you can do it.

TEACHING ASSISTANT: The original *Netrunner* is still a little complicated in that, there are a ton of different cards that are carrying a lot of the stuff. But [INAUDIBLE] it is closer to what you do in this class.

PROFESSOR: It's not like you've got a game that has different goals you already enjoy using [INAUDIBLE]

AUDIENCE: [INAUDIBLE] Cosmic Encounters, but it's not balanced at all.

PROFESSOR: No it's not. It doesn't need to be. That's not a requirement of this class. The class is something playable and engaging. I never asked for balancing. First of all, the time frames that we're giving you to completely finish these games is a little bit unrealistic for balance.

TEACHING ASSISTANT: Iteration.

PROFESSOR: Visibility--

TEACHING ASSISTANT: Iteration gets more balanced as time passes.

PROFESSOR: Yes

TEACHING ASSISTANT: But at the end, we still don't-- we're not really grading on balance as much as we're grading on iteration and--

PROFESSOR: I think these like usability is something that we are going to look at. Do understand your rules is more important than how well your rules look. If your rules completely break, that's a problem. But if your numbers are off, sorry. A few percentage points or a couple of [INAUDIBLE] or a couple of [INAUDIBLE] even. But I don't understand how your rules work, that means a lot more to me.

AUDIENCE: Just throwing an idea out there. The role of the-- one of the people who really founded the board game industry.

PROFESSOR: Do you mean the Parker brothers?

AUDIENCE: So from the perspective of a game designer or someone who is really trying to make this business a business.

PROFESSOR: Or you could be something like a Hasbro, that's just trying to beat other people to the business. Or you can be something like the independent Richie Branson, trying to [INAUDIBLE].

AUDIENCE: I figure that will be closer to people's hearts, too.

PROFESSOR: You have to do a little research, because we obviously haven't covered a lot of them. But it would be interesting research. That would fit in nicely with the time period that John was talking about, the 20th century, the mass productization of America. But also you probably do need to limit that to one country's industry. America is probably easy to do. It's a bit difficult to look at the whole world.

[INAUDIBLE] The rest of class today, I know this group wants to get back to the game, you can do it. But time for you to talk around with your ideas.

TEACHING ASSISTANT: Feel free to email your ideas to the game design mailing list. If you need to find other people, we'll do another. We will do this again at the end of the day Wednesday, right?

PROFESSOR: Wednesday.

TEACHING ASSISTANT: And then, teams should be formed by Monday, because on Wednesday the 16th, that's the first presentation

PROFESSOR: Yeah, the pitch.

TEACHING ASSISTANT: The pitch. So for a reminder about that, we want to know about what primary and secondary sources you're using as your inspiration, what kind of game you think you might be making. Nothing set in stone, it's much more about, give us a pitch of why this thing-- this game idea is interesting, and what is the source of information you're using to make sure that the game is realistic.

PROFESSOR: But let me make sure that we get this April. 14th, no, April 16th is when you do the pitch part. On April 14th, you should already be able to talk a little bit about, this is the idea that we want to work with. These are the people in my group, these are some of the sources of information that we're looking at, because we'll have guests, and they will be able to give you some feedback on that. Both in the pitch and in the guests we're not actually so much grading you on the quality of your pitch. But we are going to provide you feedback on how you're pitching, so that if you have to do pitching in real life, in your career after graduation you can get some feedback on how you present yourself.