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PROFESSOR: We'll start with a little bit of recap from two Fridays ago. But just a reminder of things to keep in mind while you guys are testing. On one hand, most of you are pretty much the most expert players in your game at this point in time, [INAUDIBLE] You know the game better than anybody else.

And the kind of things that-- that means you suck as a tester. That means you still have a role to play as testers. You can be looking for the degenerate strategies, and you can be looking for exploits. Sometimes it takes more imagination than a sleep-deprived MIT student has available to them, to be able to see these exploits. But, because you know the systems better than anyone else, you're in a good position to spot that.

The kinds of things you're looking for are obviously value [UNINTELLIGIBLE] strategy. I mentioned that the last time we were in this room.

But also, look for those strategies were, like, OK, I have two [UNINTELLIGIBLE] those decision points where I could do decision A or I could do the decision B, but if I change my strategy, and nobody else has changed their strategy, I'm screwed. And that makes it really really hesitant for someone to say, well, Strategy B could be really interesting, I can go for this kind of play, but on the assumption that the only way how this is going to be beneficial is if everybody else also changes their strategy.

Now you have a situation where nobody wants to try that second option. That's one way to think about cyberpunks. It's like, if you change your position and the only way that you can change your position is at a cost to yourself, then the benefits of changing that position is going to be lower than the risk that you're taking on, then you've got a situation where it's very difficult to break out of one dominant strategy. So if you've got a situation where there are three dominant strategies, then none of them are dominant anymore that's great, now I have an option of different things they can choose.

So that's just one thing to keep in mind if all you guys are looking at a game. If everyone just ends up adopting the same strategy, and you're just hoping for a chance of drawing the right cards, in order to win your game, then [UNINTELLIGIBLE], then you've got a game where the individual player's decisions aren't quite that influential on the outcome. And I still need to play your games to be able to see what you guys are going for. But, for the most part, it looks like you guys are not going for a purely chance-based game. You're looking for something where someone's decision actually matters.

So that's one reminder from the game theory point of view. And the other one I never really got time to talk about games or system of conflict, and we don't have a huge amount of time because we have today's readings to go through. But if you think about games as games where multiple people are striving for some sort of goal, and there are going to be winners and there are going to be losers, then the idea of thinking of games as some kind of conflict makes sense. If you think of them as, are games competitive, or are games cooperative, for throughout some games that are known to be cooperative [UNINTELLIGIBLE] there are certain modes in certain different games that flip it from competitive to cooperative.

AUDIENCE: [UNINTELLIGIBLE]

PROFESSOR: But it is designed for four people to play, all going for the same goal.

AUDIENCE: Gears of War

PROFESSOR: Gears of War multiplayer, yeah. [UNINTELLIGIBLE] interesting, yeah. Because it's kind of the risk of cooperation. Pandemic is you against the board, actually. You against the game rules. And actually, that leads into today's lecture a bit. So hang onto that idea of Pandemic.

But there is one argument that all games are competitive. Even games like *Left for Dead*, where you're playing against the computer, or *Pandemic*, when you're playing against the game rules. Or--

AUDIENCE: Shelter [UNINTELLIGIBLE].

PROFESSOR: [UNINTELLIGIBLE] a bit--

[INTERPOSING VOICES]

AUDIENCE: You're mostly playing against the game rules. Unless there's a trader, there's not always one in the game.

PROFESSOR: But the basic idea is that even in a game that's generally assumed to be co-op, you're still playing against the world. So as competitive against the world, just not here, computing against the other human people that are playing it. If they're competing against. Anyone is probably going to decide who set it up, to [UNINTELLIGIBLE].

So that's one way to think of all games as competitive. Obviously, the games that people generally think of as competitive, real-time games like chess, for instance. There's one winner, there's one loser, and if there's a draw then nobody wins. Or, those games people generally think of as competitive. But then, the other way to think about cooperation is that all games are also cooperative. Because if you don't agree on the rules-- if you're all in fact not playing the same rules, then you don't actually have a game. So you all have to cooperate to play. We have the same set of rules and we're going to play according to them.

That's not necessarily the same thing as saying that everyone knows all the rules. There are plenty of games, especially computer games, where you're going into the game not knowing all the rules. You're going to try to figure out the rules as the one system lets you.

Role-playing games, where you start off like, I want to do this. I want to-- you know, get drunk now, and how do I do that? And then the GM tells you the rules. Roll against your--

AUDIENCE: Constitution.

PROFESSOR: Constitution, is it constitution?

AUDIENCE: Yeah, [UNINTELLIGIBLE] but. Drunkenness.

PROFESSOR: Always good. Possibly. And then you get told the rules. And then you go and do it. Live-action role-playing games. I know there's a bunch of people here who play them. You usually get a subset of all the rules that were written for the game. You get the subset that pertains to you. And you assume that everybody else has the subset that pertains to them. And that they're playing according to it. There's a strong honor system, and even in a game, especially the kinds that are played in MIT, which are fiercely competitive.

There's literally assassin games. You literally want to lead someone into a dark alley and shoot them. Even then, you have to assume that whatever rules that person, who you're leading down a dark alley in order to shoot them. Whatever rules [UNINTELLIGIBLE] they're playing by those rules. They're not going to say-- if you shoot them, they can say, that didn't work. You have to assume that actually didn't work, because they have rules that tell them when it works and when it didn't work. So it's still cooperative, even though it's competitive play.

And, some terminology now. There's systemic cooperation, which is what I'm describing. It's the, you are agreeing that the system works. And you are agreeing how the system works. These are the ways how I'm going to interact with the system. If I'm going to be playing-- Goldeneye or [UNINTELLIGIBLE] on the split screen. Or *Halo* on the split screen. And you agree not to look at somebody else's screen. Then, that's a systemic rule. You might also decide, no, it's on the screen, I can't avoid seeing it, therefore we can all look at each others' screens. That would be a systemic rule. Even though the goals are the same, let's shoot each other.

And then there's clear cooperation, which is a little bit more like the games like *Pandemic* and *Left for Dead*, where you're explicitly trying to help each other in your team in a shared goal. And I'm just trying to differentiate them. Because it's useful sometimes to sort of try to figure out the differences. There's a game that I don't think we're making you play, called *The War on Terror*. That we have in the lab.

And one of the things about this game is that it actually doesn't end. If you look at the rules, it seems that there are conditions for the game end, but they're really, really hard to reach. And if you're interested in seeing how the game ends, I'll be happy to pass you to Cory, and he can try to figure it out, or play it.

But of course, that's the point that they're trying to make, right? It's a War on Terror, it never really ends. It'll keep going. It perpetuates yourself, and it's designed to be a competitive game. Everybody tries to take down all the other states. The other nation states, by sponsoring terrorist activity, or trying to defend themselves from terrorist activity. Which means everybody's responsible for terrorism in the end, in that game.

But in the end, what you're hoping is at some point in time, the players are going to cooperate, because this game's not going to end. That's the whole point of the game. And the entire group coming to that conclusion in a shared way, is what the game designers were trying to go for. It's a funny game.

Anybody who played *Crunch*, it was done by the same folks. But it's a little bit more of the, we have an opinion and we want you to share it, then this is a game that you actually want to try to win. It's funny. [UNINTELLIGIBLE PHRASE]

So, that's some opinions about cooperation, and that is, systemic cooperation, where you're agreeing on the rules, or you agree that the system works. And that's their cooperation, where players are actually agreeing towards some sort of shared goal. And there are games where it flips between player cooperation and player competition. It's like-- *Castle Crashers*, who's played *Castle Crashers*? It's a great game, xBox Live arcade game. You run around, it's a side scrolling game, where a little knight with a sword--

AUDIENCE: It's a sword?

AUDIENCE: No, it can be an axe. It can be a fish.

PROFESSOR: Some sort of bludgeoning device. Fish is awesome. And in general, if you're playing with three other people with controllers right to you on the couch, you're pretty much going for the same goal. There are you four, and there are a whole bunch of baddies on screen, and you're trying to kill it all. But then, as soon as you beat the last one, the game switches from defeat all the baddies to save the princess. And, wait a minute--

AUDIENCE: No, you've already saved the princess. It goes to get the princess.

PROFESSOR: It becomes get the princess. There's one princess, there's four knights, and it becomes a competitive game. All of a sudden, everything that you were using against the baddies becomes something that you use on your teammates. And there are games that flip-flop between that. Diplomacy is a really fluid game in that sense. You have to assume everybody's competitive in that game.

But the only way to obtain your goals is to cooperate occasionally. And so you can adapt. All that's clear cooperation. No-one's disagreeing on rules. So that's systemic cooperation all the way through, but then there's player competition and cooperation going back and forth. So, that's cooperation.

Finally, think a little bit about level playing field and what it means in your games, whether they're [UNINTELLIGIBLE]. In many of your games, especially card games, they're going to start with some sort of deal. They're going to start with some sort of hand, or maybe a drawing in some sort of systematic way from a shuffled deck. That pretty much means that you're starting out with something that's effectively random.

But then it could be also influenced by your knowledge of the game, by your skill at the game. And you want to see how-- at what point, how do you want to balance it between someone's skill, familiarity with the game, against pure chance. And a level playing field means different things to a lot of different people. For some people, it may mean, no matter what skill level I am, I have a chance at winning. So you're sort of biasing towards chance.

For some people a level playing field is, no matter what hand I get given, there is a valid strategy. Or the goals that get set in a way that allows me to obtain it. A lot of trick-kicking games, especially games with bidding, actually have an automatic ranking system. In various lives that you only bid a game that you think you can win. And the whole idea is, the game is to push your opponent to bid on something which they couldn't actually get. So, that's a level playing field. I can have a crappy hand, but that's not chance so much as the decisions that you're making.

So, what I would advocate, in this class, if [UNINTELLIGIBLE PHRASE] is, when you're trying to balance it out towards whatever your interpretation of a level playing field is going to be, try to pick decisions that push you in the direction of meaningful decisions. Things that players can make a decision on, and can see the consequences. They can understand how those consequences play out in the game. And the outcome of the overall game is going to be resolved then.

That is, again, not necessarily the only definition. So I want to be very very clear. What I'm asking of you here is not necessarily the only definition of a well-designed game. Because designing a game to be played from ages 3 to 90, you probably want a game where making a meaningful decision isn't going to bias the game to the point where [UNINTELLIGIBLE] people, or really smart because that's just not [UNINTELLIGIBLE].

And this particular task. Try and bias it so that, in that competitive sense, you want everyone to feel like they have a chance of winning. But I want you to bias your game towards the-- and whether you win or lose is going to be based on the outcome of these decisions. Clearly understanding the outcome of the decision that you make in the game. Not necessarily just what you wish , or what you were dealt. You can still use those things in your game. Sometimes it's the whole idea of the, oh my God, I hope it's the right card, aargh. But then there's things like probability.

There's, how much information are you giving to the player about what the probability that you have the right card going to be. Are you letting them look at the deck ahead of time? Are you giving them information about how many of those cards are in the deck, so that you can actually make guesses on-- all right, we played through half this deck and we haven't seen any of those cards yet, that means the probability of that card showing up has now gone up. And now we come to a decision that you can make. Do I draw, do I hold-- that sort of thing. So that's my suggestion for this class. I would love to be able to see those kinds of games come out of this class. So that's all the things that [UNINTELLIGIBLE]

So, actually, before we move on, does anyone have any questions regarding that?

One point of administration. Who here needs to print on the Gambit printers? Or who here has access to other printers that you guys are fairly confident about using for your assignment? You need a printer?

AUDIENCE: No, did you say that you need a printer or that you have access. Because you said both?

PROFESSOR: Oh, right. So who here needs to use Gambit printers? Who absolutely needs to use Gambit printers. Because we don't actually have computers set up for everybody to log in. So I would suggest not using any of the computers in this lab because [UNINTELLIGIBLE] lab work on it. So you've all got access to printers, that's awesome. I think you sent out an e-mail about card stock.

AUDIENCE: That card stock's actually out of stock.

PROFESSOR: [UNINTELLIGIBLE]

AUDIENCE: I went to order and I was like, oh, shit. [UNINTELLIGIBLE]

AUDIENCE: Is there like a Staples somewhere near here?

PROFESSOR: Harvard has a Staples, downtown has a staples.

AUDIENCE: CopyTech has--

AUDIENCE: I went to CopyTech and they said they can print and cut your cards for you.

PROFESSOR: They have a pretty awesome card printer. Their cutter is harsh, harsh.

AUDIENCE: What does that mean?

PROFESSOR: Well, first of all, it's really pointy on the corners, which is kind of cool if that's what you're going for. But [UNINTELLIGIBLE]

AUDIENCE: Can they round it or do we have to use--

AUDIENCE: I don't think they can.

PROFESSOR: They can't. I have a rounder. I have a corner punch that, you have to do it four times for each card, but--

AUDIENCE: We'll do it. We can do it.

[INTERPOSING VOICES]

PROFESSOR: Just ask me and you can borrow it. You may want to do it on some test cards before you really get a sense of how it works. [UNINTELLIGIBLE] And I wouldn't suggest punching more than one card at a time.

The other thing is, if you're printing it on a, not like CopyTech, where they obviously know what kind of paper works best with their printers. If you're printing it on something like a Laserjet, if you go to the paper manufacturer's website, a lot of them actually specifically state Laserjet compatible. And the problem is actually the width of the card.

There's not the folding of the paper as it goes through the printer. It's whether the toner will bond to the paper. Like, does the paper get hot enough, and open up [UNINTELLIGIBLE]. Does the paper get hot enough for the toner to actually bind. And a lot of card stocks actually don't, because they're so thick that the heat doesn't transfer well.

And as a result of that, after print it looks great when it comes out and it starts leaking. So, that's the problem with the card stock. Some card stocks will jam your printer, but the majority of the modern Laserjets actually deal pretty well with that. [UNINTELLIGIBLE PHRASE]

AUDIENCE: Did you want us to print on card stock for Wednesday, or was that for when it's due?

PROFESSOR: When it's due.

AUDIENCE: OK. So Wednesday--

PROFESSOR: And in fact, printing card stock for when it's due is not necessary. It is much appreciated. It was a great thing for you to do for yourself, if you want to make copies for your friends or your team, that you actually want to end up playing. To be perfectly honest, if you say-- if our printer wasn't working and all we could do were these regular white papers, if I also cut them in the right shape, so then we could just play the game, that's fine. We're not going to take the weight of your paper and do the [UNINTELLIGIBLE].

AUDIENCE: [UNINTELLIGIBLE] the deck first, erm.

[INTERPOSING VOICES]

PROFESSOR: Has anyone played, what was it, *High Society* [UNINTELLIGIBLE]

AUDIENCE: Yes.

AUDIENCE: Those are awesome.

PROFESSOR: They were like kids' books, you know?

AUDIENCE: [UNINTELLIGIBLE]

PROFESSOR: If anyone does have issues printing, before you jump straight into the [UNINTELLIGIBLE] talk to Jason and I. Jason usually has room by the TV lounge, my room is just down the corridor. And we might be able to help you with that. But in general, if you've got access to other printers, go right for it. Because going through us is a bottleneck. Again, not for Wednesday. For Wednesday just have something testable so that we can [UNINTELLIGIBLE] before the date it's due, try to print something. You don't want to wait until the last minute and you don't want to suddenly realize that your paper doesn't work very well with the printer at the last minute.

So, today's reading was Bartle and Chapter 11, I think, of the [UNINTELLIGIBLE]. And in general, both of them are asking the same question. Which is, who are you designing your game for? On the assumption that you're not designing the game for yourself. Of course, realistically, if you're going to get a job making games, the majority of the games that you're going to design are not games for yourself, they're going to be games for some other demographic.

And the Bartle paper is a little bit more influential in how people think about games, because it shifted the question from, what's the age group, what's the demographic, what are people out there who are already buying games going to want? And you fit that into, what sort of things are people looking for in a game? He doesn't actually take it to the next step, which is where-- I think he wrote that in the 70s or late 80s, does anyone remember?

AUDIENCE: In the 90s.

AUDIENCE: I think it was in, like, 1990.

AUDIENCE: [UNINTELLIGIBLE]

PROFESSOR: But a lot of the ideas come from the 70s, actually. Because that's when he made the first MUD. Richard Bartle [UNINTELLIGIBLE].

AUDIENCE: What exactly is a MUD? They never actually described it. They just assumed everyone knew what a MUD was.

PROFESSOR: MUD stands for Multi-User Dungeon. Anyone want to describe one?

AUDIENCE: It's like, an online text-adventure thing, where everyone's interacting with the same text-based dungeon thing.

AUDIENCE: The best way to describe it is, imagine if WoW was presented entirely [UNINTELLIGIBLE].

AUDIENCE: I found that kind of annoying in the text. He just assumed everyone knew what a MUD was. But never actually said, this is what a MUD is.

PROFESSOR: Yeah. Because the whole sort of, reading the article, actually I believe he formatted that for a forum post for for community. So there's an assumption. But yeah, apologies for that. Actually, if you're interested-- and here he does define it right at the bottom. Which is right at the end of the article here. He talks about specifically, this is what I mean by MUD. Somewhere in the footnotes--these text adventures, text-style online games where multiple people are interacting. And if you look at the rest of the website, there's actually a bunch of stuff about how MUDs work.

But, for the most part, that was sort of online multiplayer gaming, back when he started. He's credited for having built the first MUD. And, frankly, not all that different from MMOGs you get today. The difference being that they were all text. But you still went out hunting monsters. They call them mobiles, or mobs. And in fact there's still some of that terminology going around. They drop loot. You will pick up loot and show it off.

And sometimes, some games [UNINTELLIGIBLE] loot. Most games let you exchange loot. And then you would use your loot to go and kill other monsters and get better loot. Sometimes you'd do it with other people. Sometimes you attack other people. Sometimes you just hang around and chat and talk about things that are completely not in game, like what did I have for lunch today. [UNINTELLIGIBLE] And sometimes it will take multiple people to take a monster.

And it was just handled on a how fast can you type kind of thing. Attack monster, attack monster. I think you can just hit repeat and but, the behaviors are also not all that different. And how he describes it is, a game will sight itself in a position where it is variably appealing to various kinds of players. And that's how he described it.

Where game studies has kind of gone on to since then, is the realization that just because you're-- some people through all the four types that you--

AUDIENCE: Explorer. Killer. [UNINTELLIGIBLE]

PROFESSOR: So, there are these four types of players. And just because you're an achiever in one game doesn't necessarily mean that you're going to be an achiever in another game. Different people play different games, or possibly even different types of the same game, for different reasons.

And that's where we go back to earlier concepts that we brought up, is [UNINTELLIGIBLE] kinds of fun. What are people trying to get out of their game playing? So, but he was-- if you're looking at the content of any one of MUD, and a little slice of what you saw of somebody's personality, [UNINTELLIGIBLE] and all the things that they were doing. And the kinds of things that you tended to keep doing every time you logged in, it was very easy to stereotype them into somewhere along those lines. Even he acknowledges that nobody's really all the way on one of these layers.

Griefers, I think, are the words that I hear generally used for killers nowadays. But even then, that's not quite the way that he's using it. He's actually using it as somebody who's generally still playing by the rules of the game. They are there to cause misery to other people, but they're not there to break the game. There is a class of people called griefers, who are deliberately trying to find ways to exploit the system, to just make the game just kind of silly.

But all the other dynamics that he draws on are very much there. You get a whole bunch of socializers together. People who want to do nothing but chat and have a good time, they don't really care about the game, and there's going to be a whole bunch of people going right after them, saying these are great people to grief. Because they are enjoying themselves so much. We could end that. Second Life gets a lot of this, because *Second Life* has that whole, you can do anything you want. And socializing is one of the big things. Personalizing is one of the big things.

So, do keep in mind that the way that he's talking about it, sounds like all of these different personalities are somewhat mutually exclusive when really the discussion has now come to, how do you cater to all of these different desires at any given time? I may be an achiever today, I may be an explorer tomorrow.

And he even talks about explorers thinking that achievers are beginner explorers, because it's like, once you've already beaten the game, what else is there left to do but explore what else you can do? So he himself acknowledges that there's some personality transfer that can happen.

But it's kind of interesting how he talks about the feedback loops of people. You'll get a whole bunch of achievers, and you get a whole bunch of socializers.

[INTERPOSING VOICES]

AUDIENCE: [UNINTELLIGIBLE] killers, and achievers--

PROFESSOR: [UNINTELLIGIBLE] you've got the competition [UNINTELLIGIBLE]

But he also makes this weird assumption that there is a finite pool of people who are going to be playing the game. Which is actually true, even in a 10-20 million player game like in *World of Warcraft*. All those things have to be-- we don't have 20 million people logging onto one server.

They say, I have [UNINTELLIGIBLE] or something. [UNINTELLIGIBLE]

AUDIENCE: Exactly, exactly.

AUDIENCE: And I'm like, once [UNINTELLIGIBLE] you can start [UNINTELLIGIBLE] that are just really big numbers. Like, 25-- it's currently 25 is the highest. They used to go to 40. But yeah, and you just kill bigger monsters and get lots of loot. And then there's PvP, which you go-- the main thing right now is arenas. And you have the team of two or three or five, and you fight other players with your gear by doing battlegrounds and [UNINTELLIGIBLE] arena. And it's basically, WoW.

PROFESSOR: I can't remember. Are there role-playing servers?

AUDIENCE: Yes. There are role-playing servers. I have actually never visited one, so I can't really talk about that.

AUDIENCE: That's a lot of dancing.

PROFESSOR: [UNINTELLIGIBLE] slash dance, maybe, or your character dances. And it was those things that really is popular among socialized type players all over-- and Diablo. But it's not just [UNINTELLIGIBLE]. I mean, slash dance means other things now. It could mean I'm bored. It's like, I have nothing to do right now, I have to wait for this stupid thing to respawn, slash dance. It's more fun than just standing there.

But there is a group in WoW. And I guess-- maybe not a group. There are folks who play *World of Warcraft* and they engage you to think on theory crafts. Which is, how we optimize the way how you build a character. And the things that you equip a character for, to make that character really, really good at doing one or two different things.

So as you're building up a character that's designed to heal, what class should they be, what race should they be, what equipment should they be getting, depending on what [UNINTELLIGIBLE] you are in the game. And they're going to try to derive as much of the math of the cause and effect in the game as they possibly can. There is actually [UNINTELLIGIBLE] which is-- [UNINTELLIGIBLE PHRASE]

It's actually kind of funny. The Elitist Jerks' forums had one guy who just happened to write a forum post about dressing up in real life. Like, this is how you get really nice [UNINTELLIGIBLE] because he worked at a men's fashion place. And it turned out that that community was really, really, really interested in learning more about that. Which is actually not all that weird. It's like, you care about what armor you get in the game. You care about what you wear in real life. Especially if it might have some impact on your real life. What job that you're looking for. OK, you know.

So, I would actually put those more in the explorers part of things. Sure, they're looking to optimize. They're looking to do their best. But they're not looking to be necessarily rewarded by the game system. They're using the game system to test their ideas against. It's like, I'm looking for a better way to suck up more damage, because I'm a tank. I'm supposed to be absorbing all the damage. Or the other as they call it. Or the attentions of the characters being controlled by the computer, while the rest of my folks put out a lot of damage, can do their job.

But I am not interested in what the system has deemed to be, you have absorbed tons of damage, good job. I don't care what the system says. I care how the system operates, so that I could optimize it through some sort of metric that I've figured out and my friends have figured out and the community has figured out. So I want to understand the system. Again, that's what it comes down to. The metric that they're using is, how do I optimize it. But for the most part, people who engage in that kind of theory craft, it's like about this armor combined with those pants, I've proven something, those are well in the area of explorers even though their behavior seems very much, that's the best solution.

Whereas achievers are very much focused on, how do I get to level-- it's like, how do I get the coolest mount. In *World of Warcraft* you can ride around and every once in a while, Blizzard, the company that makes it, will release some new stuff. And the achievers will say, I've got to get that. Because the space [UNINTELLIGIBLE] it takes a lot of effort and a lot of money to be able to get one of those things. But to be able to get it, it gives you some recognizable status. You will see someone with the limited edition of some kind of mount. And you'll know that [UNINTELLIGIBLE] is to spend a heck of a lot of time in this game and play the game really well, that's the kind of recognition they're looking for. So that's the difference between achievers and explorers.

So I want to try one little activity. Which is, I've got the chart that Bartle lays out. The whole player versus-- interacting and acting, player and the world. And he uses this to describe where your game could be at any given time. If you're acting on players that your game's biased towards killers. If you're designing your game to be more about interacting with other players, then you're somewhat biasing it towards socializers. Interacting with the world is more for the achievers. Acting on the world is more for the achievers. Given these quests, I've beaten all the quests. I have 100% of the quests complete. That's achievers. And interacting with the world is more of the explorers. It's like, what else can you do in this world? There are these goals that are set, that's great. But how does this world work that I can do cool stuff.

AUDIENCE: [UNINTELLIGIBLE] distinction between acting and interacting, incredibly [UNINTELLIGIBLE], I didn't really understand what he was trying to say.

PROFESSOR: It was [UNINTELLIGIBLE]. I think he came across those terms because they sounded cute. Acting, interacting, is like a--

AUDIENCE: I mean, can you interact without action?

PROFESSOR: Well, [UNINTELLIGIBLE]

AUDIENCE: What does that mean? And, like, the really classic example he gives. Like, the acting on a play is like a pure [UNINTELLIGIBLE] the other player fights back. There's an interaction there.

PROFESSOR: Sure. But the thing about it--

AUDIENCE: But the difference there--

PROFESSOR: So I believe what he means by that is that the killer is actually less interested in what the player does back to him. In some sense, they are interacting because they're trying to see what sort of response they get. It's like, I'm going to do something to this player. This player's either going to die, or fight back, or whine about the fact that I'm hitting him so much. But they're not looking for the competitive bit. They're not really interested in the, and now that person's going to turn around and attack me.

AUDIENCE: I know, but the whole point is supposed to be that killers are griefers, so they really care about how people respond to them. He says later on that one of the most annoying things you can do to a griever is just ignore them and not rise to the bait. So interacting seems to be the crucial thing. Again, I feel like his--

[INTERPOSING VOICES]

AUDIENCE: I kind of see it as, does the person care about how the other works, in a sense? And so it is the case that a griever wants to get a certain reaction. But beyond that it doesn't matter. So in the same case within the game system, I want it to do this thing, I want it to give me points but why it did that or how the mechanic works is kind of irrelevant. And that's how I understood it.

AUDIENCE: Well, in particular, with the interacting, when somebody is like trying to player kill or something, the reaction is not necessarily-- the reaction they're looking for is to piss somebody off, right? And that reaction is not necessarily part of the game. So, it is acting on them because you are taking what the game allows you to do, and using this against a person. But you don't care about what they use in the game against you. You more care about this abstract idea. So I think the interaction is not actually part of the game.

AUDIENCE: [UNINTELLIGIBLE] specifically to do with game mechanics, whereas interacting is to do with something which is-- so maybe acting is something mechanical, whereas interacting is something dynamics-related? Or?

AUDIENCE: Well, I see it as like, acting is sort of like a single direction with mechanics. So, for example, the mechanic there is being able to hit somebody in the head with your [UNINTELLIGIBLE]. Whereas interacting would be the case where you are hitting each other on each others' heads with your swords. Which is an entirely different thing. And it's more of a competitive thing rather than the, I just want to make you angry.

AUDIENCE: I think the unidirectional perspective makes sense. You could think of it as going with the hitting on the head example. If I'm acting, then I care that information is flowing one way. I am dealing damage to you. If I'm interacting, I'm curious as to how that is computed and what that means for me in return. Does that make sense?

AUDIENCE: So like, if I'm really bad at terminology--

[INTERPOSING VOICES]

AUDIENCE: A bunch of other examples of things that you do to maximize interacting versus acting. There might be interesting examples of things like make super [UNINTELLIGIBLE]. And then the acting ones are like, make [UNINTELLIGIBLE].

PROFESSOR: So, in the context of a MUD, a puzzle is often like a door. So you've got to solve this puzzle if you want to get into a new area. Because that's really the only thing-- sometimes you get your loot. And the idea behind that is, you are either privileging it to getting people to talk with each other more and socialize with each other more. Or you're privileging it to getting people to look at the world more, see more of the world and understand how it works.

Then in a sense, you don't want to put too many barriers between the people who've been in for a very long time and the people who just started playing, the people who are in one area of the world and people in another area of the world. You kind of want quick flow. So in MUDs, that's one thing where the definition of puzzles is very specific. It's like, but I have to move this set of levers.

AUDIENCE: Another point that I've found that's really strange, because I would expect an explorer, who is supposed to be a world interacting person to really enjoy deep puzzles, which reward them for knowing more about the world.

PROFESSOR: But a problem with puzzles in MUDs is that they're usually simple solutions. So there's less pleasure to be found in a very difficult puzzle, because all that told you was, you just solved this one thing. There is still some pleasure there. The interest that explorers are way more compelled by-- kind of the latent dynamics-- is understanding the interaction of how mechanics-- especially [UNINTELLIGIBLE] in a way that might not have been originally designed that way.

That's what they're looking for. They're not looking for, what is the solution that was designed in the game. They're looking for, how am I going to get this game to do something that it might not have been designed to do originally, but would be cool once I figure it out. So that, unfortunately-- you are definitely right. But that one suffers from the very specific terminology of what a puzzle is in a MUD, as opposed to the more general definition of what a puzzle is.

The reason why, at least for achievers, hard puzzles are very important, because if you make a puzzle that most people aren't going to be able to get, being able to get that puzzle gives you some [UNINTELLIGIBLE] status. Usually some sort of visible reward, even. You are now in a location not everybody else can get to, or you now have a piece of equipment that no-one else has.

Whereas explorers, they will probably have an advantage in solving difficult puzzles. But they're not necessarily the sort of thing that makes them want to interact with the world. Lots of the mechanics that interact with each other in and new and interesting ways, are more likely to be interesting to an explorer. But you're right, acting and interacting are crappy, crappy terminology sort of thing.

AUDIENCE: Are you talking about how griefers are more like actors, where they just try to get people to interact with them, or try to get people to get annoyed by them. I've definitely seen, [UNINTELLIGIBLE] game design. But [UNINTELLIGIBLE] 300. Where we watched a video of griefers in *Team Fortress 2*, where there's a certain door where, if they stand in a certain spot, it won't open. So this person started making everyone interact. OK, we're going to play a game today. If you want to leave, you have to answer correctly.

PROFESSOR: Yeah, what is the capital of--

AUDIENCE: That I see as more of an explorer things. Like, you bounce some weird combination of the interaction with the mechanics that allows you to do something new, which is turn *Team Fortress 2* into a game show.

AUDIENCE: It was pretty funny.

AUDIENCE: But people who can't play.

AUDIENCE: Griefers and explorers are a combination of bottle types, if you're going to be a successful griefer.

PROFESSOR: And that's absolutely true. If your personality's oriented one way, you may have to engage with some other behaviors in order to be able to maximize that core behavior they're looking for. So there are people who are looking at exploits and trying to understand how the world works so they can cause maximum damage and maximum grief to other people. That's definitely one good way of doing it.

But what I find is that as soon as they find it, they are not interested in finding more ways until that first way gets boring. Or gets fixed. So, people are going to say, there's a lot of teleporting you directly in front of a turret, stuff like that. Teleporting your own teammates in front of a turret, that sort of thing. [UNINTELLIGIBLE]

AUDIENCE: I don't understand.

PROFESSOR: You don't understand?

AUDIENCE: [UNINTELLIGIBLE].

PROFESSOR: It's fun.

AUDIENCE: Griefers.

AUDIENCE: No, it's not.

AUDIENCE: So, I'm going to mess with you. Just for the hell of it.

AUDIENCE: I remember in *Sims Online*, an effective way to grief would be to organize a band of people and arrive on that property. Since there was a population limit of 12 people or something on any given lot. In that lot, was a business that required a lot of people to come through. And then you just had 12 of your people show up and mill around. And say a lot of profanities. You could tag the place and lock it up and no-one else could go there and visit it, sometimes including owners and stuff like that. It was very frustrating.

PROFESSOR: In fact, some of the behavior they did got towards organized crime level. Actually, I mean it wasn't real crime, it was virtual. But there are actually a good number of articles about the *Sims Online* mafia. Because that game had so much built in for-- actually for socializers-- to be able to communicate, express themselves. I mean if you played the original *Sims*, there's a whole range of different expressive things that you can do to communicate how you're feeling and to be able to chat with people.

And someone, I think it might have been Maxis itself, actually charted out the web of influence of all the players. And there was one alpha player who was in charge of everything. And if she decided that this person wasn't wanted, she didn't want, spending too much time [UNINTELLIGIBLE] because of how it pissed her off or piss one of her friends off or something, she'd organize something like that. Effectively. It was called the *Sims* mafia. and you get that [UNINTELLIGIBLE PHRASE] And it's kind of interesting to see how different worlds respond to that. Even though in [UNINTELLIGIBLE] which is-- actually, one thing I'd like to do is, I'd like to throw different games up on that chart. So I am looking mostly at multiplayer games. Preferably online multiplayer games. But, and I don't know all the games that are out there. So, I'd like people to call-out games. And tell me roughly what I should put up. If you disagree, then by all means put up your hand and suggest that it should be moved.

AUDIENCE: *Minecraft* should go definitely toward world interaction and explorer type.

AUDIENCE: Like, [UNINTELLIGIBLE] far, far.

AUDIENCE: So what is *Minecraft*? I've heard of it, I just don't know what exactly it's about.

AUDIENCE: You basically go around mining things and creating objects, and you can create your own worlds.

AUDIENCE: So it's like-- I guess?

AUDIENCE: *EVE* is definitely world interacting as well.

AUDIENCE: Yeah.

AUDIENCE: So that's same as *EVE*.

AUDIENCE: I would say *EVE* is also player to player interacting.

[INTERPOSING VOICES]

AUDIENCE: I'd see it as in the middle, then.

AUDIENCE: In *EVE* you have to form corporations with bunches of people in order to do anything.

PROFESSOR: That's true. You have to be really good in your social skills, actually. It's one of the games that's most ruthlessly [UNINTELLIGIBLE].

[INTERPOSING VOICES]

AUDIENCE: If you interact with the people and the world a lot.

AUDIENCE: I think it's more strongly player attracting and is world attracting than most games.

PROFESSOR: You cannot [UNINTELLIGIBLE].

AUDIENCE: But there's also a huge amount of achievement and player versus player conflict in this kind of stuff.
[UNINTELLIGIBLE]

AUDIENCE: You can die far down the interacting scale. I mean, consider things in *Second Life* instead. Which would be way further down the interacting end of the spectrum than *EVE Online*, surely.

AUDIENCE: [UNINTELLIGIBLE]

AUDIENCE: Assuming that [UNINTELLIGIBLE].

AUDIENCE: I'm not sure it's hacking. Like, PvP is the opposite of [UNINTELLIGIBLE].

AUDIENCE: I mean it's not--

AUDIENCE: I think it's definitely player interaction more than player action.

AUDIENCE: Yeah, I believe it's interaction.

AUDIENCE: Something like having PvP tournaments, I think, would be definitely a lot of interaction.

AUDIENCE: Yeah. I think that's the distinction between griefing and like people fighting each other.

AUDIENCE: Griefing can be an [UNINTELLIGIBLE].

AUDIENCE: What I got from this article is that acting is like, I go and kill someone and ha, I killed them and that's it. Or I go through the world, it's like, I killed a monster, I killed a monster. And you just have a goal. If you want to get the goal instead of diverting from your goal. So, I don't know. I definitely think griefing can be hugely interactive. But there could be a whole bunch of-- in *EVE* if you infiltrate someone's company and you--

AUDIENCE: Steal ten thousand dollars' worth of their money.

AUDIENCE: Exactly. That's hugely interactive griefing.

AUDIENCE: I don't think that's griefing.

AUDIENCE: Consider *Team Fortress*, right. There's *Team Fortress* player interaction. Because that means it's a socializer game.

PROFESSOR: I personally do not think *Team Fortress* falls under player interacting with team.
[INTERPOSING VOICES]

AUDIENCE: But *Left for Dead* is.

PROFESSOR: [UNINTELLIGIBLE]

AUDIENCE: There's definitely interaction happening--
[INTERPOSING VOICES]

AUDIENCE: I'd say probably more-- it depends on what you're doing
[INTERPOSING VOICES]

AUDIENCE: So with *Left for Dead* you can play-- you're interacting, but then you're also online and you can go against other players who are actually the zombies, against you.

PROFESSOR: Right. So let's talk about the basic [UNINTELLIGIBLE].

AUDIENCE: So the basic, most common mode is going to be four players playing cooperatively against the game world.

AUDIENCE: That's just interacting with the world.

AUDIENCE: And there is a lot of interaction that goes on between players, because you cannot basically survive unless you get each others' backs.

AUDIENCE: So I would say it's--

AUDIENCE: And there's built-in functions to help other people. So someone might get back up on a ledge and he'll be holding on and you have to pull him back up.

AUDIENCE: Or smokers.

AUDIENCE: At the same time, there's also an intelligent engine that plans that level for you and places zombies specifically to maintain you in a state of nervousness. And so it's different every single time you play. So those balance out and probably place it somewhere in the middle. Maybe a little bit more player biased than world biased, because you really have to stick together.

PROFESSOR: So, it's weird because it's almost like, you want to have like a plane.

[INTERPOSING VOICES]

AUDIENCE: I think the big problem with this sort of graph is that you can't really necessarily separate games into one of these quadrants.

[INTERPOSING VOICES]

PROFESSOR: And that is actually also--

[INTERPOSING VOICES]

AUDIENCE: It might be a little more useful to actually draw areas within the graph to represent a game, I guess. Draw the area that encompasses all the pieces the game represents.

[INTERPOSING VOICES]

PROFESSOR: Like *Halo* co-op and *Halo* multiplayer, and player versus player. That will probably be a little refinement, if I create some sort of scatter chart or Venn diagram.

AUDIENCE: Because I could definitely see there being a game where there's a lot of acting on the world and interacting with players. And if you're just separating these into distinct points, that isn't possible with this graph.

PROFESSOR: So that's another problem, is the assumption that acting and interacting are--

AUDIENCE: Mutually exclusive?

PROFESSOR: They're mutually opposite. [UNINTELLIGIBLE] Do people generally accept this?

AUDIENCE: No, no. They do less acting than interacting.

AUDIENCE: If you just warp space, then you can have [UNINTELLIGIBLE].

[INTERPOSING VOICES]

AUDIENCE: I think if you had different values for player world interacting and acting would necessarily be connected. I think *EVE* definitely in world is very high, and in player is very high.

PROFESSOR: World very high, player very high. But I mean, player is interacting and world is acting on the world.

AUDIENCE: On the world still. [UNINTELLIGIBLE]

PROFESSOR: I mean, because-- you're exploring the world spatially a lot. Are you exploring the systems of the world a lot? Or are you really exploring the systems set up by people?

AUDIENCE: That's true.

PROFESSOR: The nice thing about things like *EVE Online*-- also [UNINTELLIGIBLE] *EVE Online* [UNINTELLIGIBLE] game basically, where you start off as a captain. Correct me if I'm wrong with this.

AUDIENCE: It's a super-sandbox game.

PROFESSOR: But for the most part, you're traveling in space.

AUDIENCE: Can you get out of your ship and walk on foot?

AUDIENCE: Have they added that, because I know they wanted to add an expansion where you could actually walk on planets. Last time I heard, they hadn't.

AUDIENCE: Last I heard they hadn't.

AUDIENCE: Dust 66 or something like that.

PROFESSOR: [UNINTELLIGIBLE PHRASE]

AUDIENCE: It's a separate game.

PROFESSOR: No, you're traveling through space. [UNINTELLIGIBLE] But the whole idea is that it's all built around this economy, where [UNINTELLIGIBLE] mining, [UNINTELLIGIBLE] cash. But the real power in the game comes when players start to ally with each other. Form armadas, form trade groups. Form areas that you can patrol and control. And areas where you want to agree that if you don't get along with the people who are in control of this space, you will die when you fly in there. And the only thing that's making that happen are other players deciding that this social contract is [UNINTELLIGIBLE]. So it's pretty damn amazing.

What some folks were talking about earlier was a big story about how, basically, one person got into a very, very powerful position in one of these clans. And decided to defect. Take a majority of one clan's financial resources with him. And-- remember, this is a fairly modern massive multiplayer online game. In-game assets can now be traded for real money.

AUDIENCE: It's illegal so that--

PROFESSOR: It's illegal.

AUDIENCE: Like, in-game. So you can get your account banned. So what happened, if I'm talking about the one that you're talking about. Someone got to a really powerful place in this banking clan. And then took all of their assets and traded it for real money. So he got \$10,000 by selling it off.

AUDIENCE: [UNINTELLIGIBLE]

AUDIENCE: One was a guy who infiltrated the clan [UNINTELLIGIBLE] that much money. One was like a parent who was going into financial trouble and held a fifth of the assets of the major bank, and cashed it in for \$6,000 to help pay off part of his house and his kids' medical bills. And then posted an apology on the board and quit the game.

AUDIENCE: I thought he got banned from the game.

AUDIENCE: He was banned from the game, but he also quit the game.

AUDIENCE: [UNINTELLIGIBLE]

AUDIENCE: He was like, I'm sorry, everybody, but this is kind of important.

AUDIENCE: The amazing one was the guy who actually infiltrated the company and just took it down as a years-long operation--

AUDIENCE: [UNINTELLIGIBLE] thought he was a friend and all that.

AUDIENCE: Yeah. Trying to get in and then managed to take down this gigantic in-game corporation.

AUDIENCE: How many active players are there on *EVE Online*? A hundred thousand?

AUDIENCE: No. I feel like the active players are--

PROFESSOR: [UNINTELLIGIBLE]

AUDIENCE: At any moment?

PROFESSOR: No, I mean active current players who have active accounts.

AUDIENCE: Do they have new players arriving regularly, or--

AUDIENCE: Occasionally.

AUDIENCE: They don't have a game that's been--

[INTERPOSING VOICES]

AUDIENCE: It's like a ridiculous learning curve, yeah.

AUDIENCE: It's like four months or something. It's insane.

PROFESSOR: But the interesting thing about the particular case where someone infiltrated, took all the money and basically decimated this clan deliberately, was that that person [UNINTELLIGIBLE] [INTERPOSING VOICES]

AUDIENCE: The most recent one that I read about, theoretically had in the tens of thousands of US dollars of assets in the game and did not cash in any of it for real money because there is no authorized mechanism. And the article that I read, basically, the end note was, no-one knows what he can do with it. He's technically rich but there's no legal mechanism [UNINTELLIGIBLE] I don't think he got banned at all because--

PROFESSOR: Its part of the game. At least for the definition of *EVE*. Stories like that tend to have earned its reputation in a way. This is lawless in space. We're trying to encourage this kind of player to player. And [UNINTELLIGIBLE] So I'm not entirely sure if [UNINTELLIGIBLE] grieving. It was an incredibly smart tactical--

AUDIENCE: See, I would not call that grieving. It may have been done to annoy the people who were running the company that he took down. But see it as exploration. I'm going to try and-- it's [UNINTELLIGIBLE] player interaction.

PROFESSOR: [UNINTELLIGIBLE]

[INTERPOSING VOICES]

AUDIENCE: I started a major corporation all by myself.

AUDIENCE: Yeah, might actually be--

[INTERPOSING VOICES]

AUDIENCE: Do you put that on your resume? Single-handedly [UNINTELLIGIBLE]

AUDIENCE: [UNINTELLIGIBLE] been hired by a lawyer.

AUDIENCE: [UNINTELLIGIBLE]

PROFESSOR: So, what I would actually like to end this with-- we've got about 15 minutes. Is to spend some time-- I would say, how many of you have we got? One, two, three, four, five, six, seven, eight, nine, 10, 11, 12, 13, 14, 15, 16. So, groups of four. And what I'd like folks to do-- [UNINTELLIGIBLE] -- I'd like folks to come up with other axes. Not necessarily anything having to do with [UNINTELLIGIBLE]. Give me two things that you feel are diametrically opposed but in describing a game, or any series of games. You can place games on other sub-axes. If we have time, we can talk about an attitude difference. But something to help describe two people, OK, this game is on the hard extreme of one, this game's on the hard extreme of the other.

The goal here is to come up with terms that will help you identify who this game might be target towards. What kind of player might this game be targeting? Not necessarily using Bartle's terminology at all. Bartle's terminology, as we have said, is kind of weak, so let's throw out some other words to describe games already. If that fails, because you haven't really thought about it, to come up with some new words. Real game-ish words.

[INTERPOSING VOICES]

AUDIENCE: Random versus strategy.

PROFESSOR: Oh, very good.

AUDIENCE: Original versus copy.

PROFESSOR: [UNINTELLIGIBLE PHRASE] I'd rather use more chance or random to get the point across pretty clearly.

AUDIENCE: [UNINTELLIGIBLE]

AUDIENCE: Right. So I think that axis should be random, deterministic and/or reactive and deliberative.

[INTERPOSING VOICES]

AUDIENCE: It's fancy.

AUDIENCE: [UNINTELLIGIBLE]

PROFESSOR: Say that one again?

AUDIENCE: Reactive.

AUDIENCE: So reactive and deliberative.

AUDIENCE: Reactive and deliberative.

AUDIENCE: Or random and deterministic.

AUDIENCE: So you can definitely still have randomness and have strategy.

AUDIENCE: Right.

AUDIENCE: But random and deterministic.

AUDIENCE: They would be somewhere on the axis, right?

AUDIENCE: So the problem is, you can have incredible amount of randomness but if you can just figure out the probabilities, you can still have an optimum strategy, right?

AUDIENCE: But then that's less random.

PROFESSOR: In doing this, you can't have a system that is so complex yet deterministic that there's no way you can predict what's going to happen next.

AUDIENCE: Yeah. Killer robot.

AUDIENCE: [UNINTELLIGIBLE]

PROFESSOR: It's theoretically possible, but this is--

[INTERPOSING VOICES]

AUDIENCE: Player versus system agency?

PROFESSOR: Player versus-- also system-- player versus system agency is kind of your--

AUDIENCE: It's distributed.

PROFESSOR: It's the name of your tactics, right?

AUDIENCE: Yes. [UNINTELLIGIBLE]

AUDIENCE: You also had a low learning curve versus high learning curve. You're definitely not on both ends of that, and--

AUDIENCE: Fast versus slow.

AUDIENCE: [UNINTELLIGIBLE]

AUDIENCE: I like that idea. Fast versus slow.

AUDIENCE: So, another axis you may have was you could call it freedom and predetermined paths in the game.

AUDIENCE: [UNINTELLIGIBLE]

AUDIENCE: Huh?

AUDIENCE: [UNINTELLIGIBLE]

AUDIENCE: Freedom versus constraint.

AUDIENCE: I can't remember the terms, but ludus and pitheus, something like that.

[INTERPOSING VOICES]

PROFESSOR: So one more that I use here often, [UNINTELLIGIBLE PHRASE]

[INTERPOSING VOICES]

PROFESSOR: 13 hours of *Final Fantasy*--

AUDIENCE: [UNINTELLIGIBLE]

[INTERPOSING VOICES]

AUDIENCE: For 60 hours.

[INTERPOSING VOICES]

PROFESSOR: Sandbox, I would say, [UNINTELLIGIBLE] is a very broad one. It's one that people generally understand as embodying a sort of freedom. You get to dick around, basically. You get to play *Grand Theft Auto* totally not following the storyline. And-- actually, it kind of goes on, it becomes a little bit less of that, you can get to do , you get to play but the whole idea is that that world has ramps everywhere, so that you can drive cars and vehicles [UNINTELLIGIBLE] Anything else?

AUDIENCE: There's realism versus attraction.

AUDIENCE: Oooh.

AUDIENCE: What?

AUDIENCE: So the difference between *EVE Online*, for example, which is supposed to be very realistic, simulating something. Whereas poker, for example, is just cards and numbers.

AUDIENCE: Something on the freedom sandbox versus [UNINTELLIGIBLE] on rails, there's a very interesting thing in [UNINTELLIGIBLE PHRASE] there's a feature in one of the games where you were told you need X amount of money to be able to pay for the ship out of here. And you're placed in a sort of sandbox environment. And you're given-- you're not told, but-- whatever ways you can think of to make that amount of money. The amount of money you need to leave that part of the game. So it's a predetermined sandbox .

PROFESSOR: [UNINTELLIGIBLE] a lot of adventure games, a lot of roleplaying games, are largely [UNINTELLIGIBLE] areas of freedom. Even in a game like *Final Fantasy*, it is not something [UNINTELLIGIBLE] in other games in the series, the story is largely predetermined. But what you do in combat is very, very fluid. And that's kind of like the dichotomy that [UNINTELLIGIBLE] Square Enix, or Square in the past, have decided that that was OK.

This helps us cater to people who want some flexibility in how they're going to play, by making the combat system fluid [UNINTELLIGIBLE] they want. But also lets us cater to people who really want that long, over-arching, epic narrative. And we can only pick one. We can't branch [UNINTELLIGIBLE PHRASE] Are there others?

AUDIENCE: I mean, [UNINTELLIGIBLE] a lot of [UNINTELLIGIBLE PHRASE] puzzle games there's only one way to do it, whereas [UNINTELLIGIBLE]

AUDIENCE: [UNINTELLIGIBLE]

PROFESSOR: I mean, you could have multiple solutions, I guess.

AUDIENCE: Multiple and single.

AUDIENCE: [UNINTELLIGIBLE]

PROFESSOR: I'm not so sure if that tells you [UNINTELLIGIBLE] if I tell you something about the constraints on [UNINTELLIGIBLE] budget of--

AUDIENCE: I prefer games that are much more [UNINTELLIGIBLE PHRASE] And I guess it goes back to [UNINTELLIGIBLE]

PROFESSOR: Because the interesting thing about multiple solutions and single solutions is that multiple solutions-- it could be all design. I could design in the game-- in fact, now, if you play *Deus Ex*, or any of the sequels, they specifically stated that they made this game with multiple solutions in mind. And with the data sets to, they designed it so that they thought, this puzzle needs to have three solutions. And they actually will design an environment for it.

So, while the game kind of tells us, you get to play with the system, you get to figure out how all these things combine and come up with solutions on your own. Really, they tried to design it so that you have three very clear options at any given time. [UNINTELLIGIBLE] And so you can have multiple solutions. Whereas this is like freedom sandboxing, kind of applies not necessarily to design. You've got lots of little things that you can do and lots of different spaces that you can explore and design.

It's not like you've got one obstacle and three different ways to solve it. You've got all kinds of different things that you could be doing. You could be like [UNINTELLIGIBLE]. So these are different axes. I just want to point out that these are different ways of doing different things.

AUDIENCE: You can have, in terms of rule changing games, whether it's dynamic rules or static rules.

AUDIENCE: Hmm. So, hyper-dynamic, static, and then [UNINTELLIGIBLE]

PROFESSOR: Are the rule going to change if [UNINTELLIGIBLE]

AUDIENCE: There are some games where the whole point is changing rules.

AUDIENCE: Like *Flux*.

AUDIENCE: [UNINTELLIGIBLE]

AUDIENCE: [UNINTELLIGIBLE]

[INTERPOSING VOICES]

AUDIENCE: And assuming basically [UNINTELLIGIBLE]

AUDIENCE: Timescale of decisions.

PROFESSOR: So, short model?

AUDIENCE: Yeah, like twitch games versus thought games.

AUDIENCE: [UNINTELLIGIBLE] decisions. Sort of like that are contemplative and reactive.

[INTERPOSING VOICES]

PROFESSOR: Are you guys going for basically the same thing. Like, reactive means things are coming at you and you have to respond really, really quickly. Maybe [UNINTELLIGIBLE] about it. And deliberative is like a trivia game.

AUDIENCE: [UNINTELLIGIBLE]

PROFESSOR: Doesn't necessarily mean that. The kind of turn-based game is very fast-paced. Because the weight of any given decision is not going to be so deep. So, [UNINTELLIGIBLE] I'm just going to put this up here because I'm running out of space [UNINTELLIGIBLE] that's one way of describing a game, reactive versus deliberative. [UNINTELLIGIBLE] I bet you could take two of these and put them on an axis and then we could talk about them. On a [UNINTELLIGIBLE] but every once in a while we find a game that [UNINTELLIGIBLE] Which is fine. Which is part of [UNINTELLIGIBLE] to talk about these games. These are really, really useful terms. [UNINTELLIGIBLE]

AUDIENCE: [UNINTELLIGIBLE]

[INTERPOSING VOICES]

PROFESSOR: [UNINTELLIGIBLE] it's a little bit more boxing, it's a little bit more restrictive than predetermined. [UNINTELLIGIBLE] sandbox and rails are more like [UNINTELLIGIBLE PHRASE]