Module 2 ..... **2**

Lesson 2-1 Concepts of Individual Decision Making **2**

Lesson 2-1.1 Decision Analysis **2**

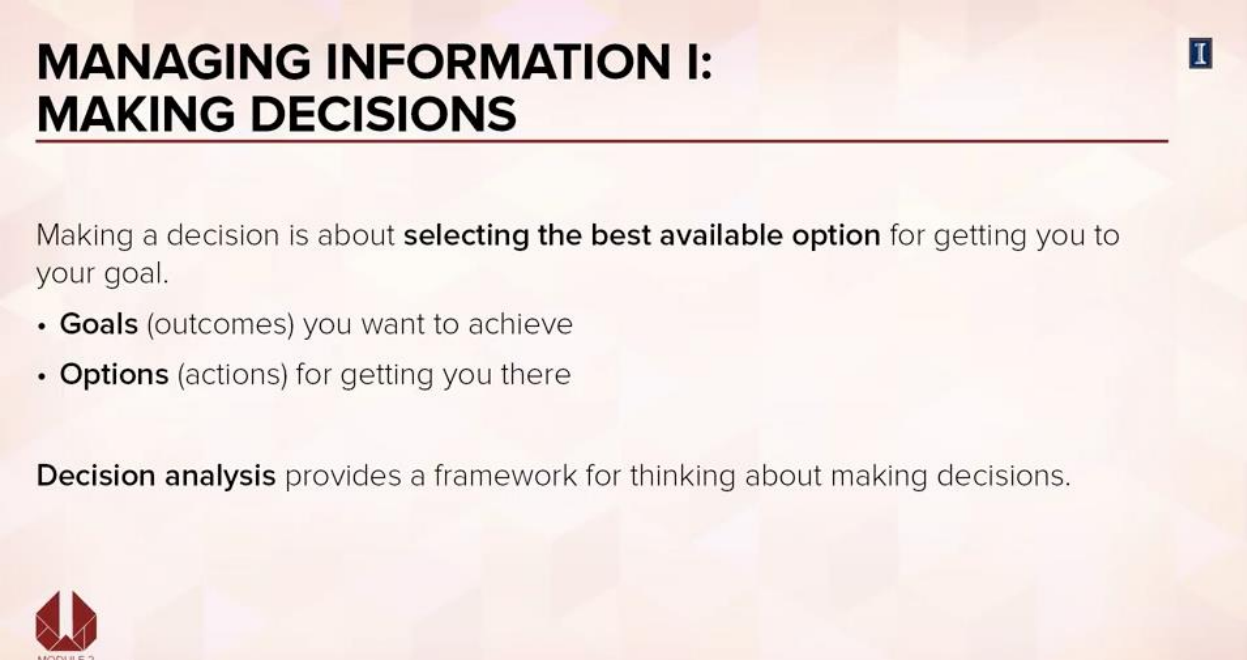
Lesson 2-1.2 Subjectivity and Anchoring **12**

Lesson 2-1.3 Fostering Creativity in Decision Making **20**

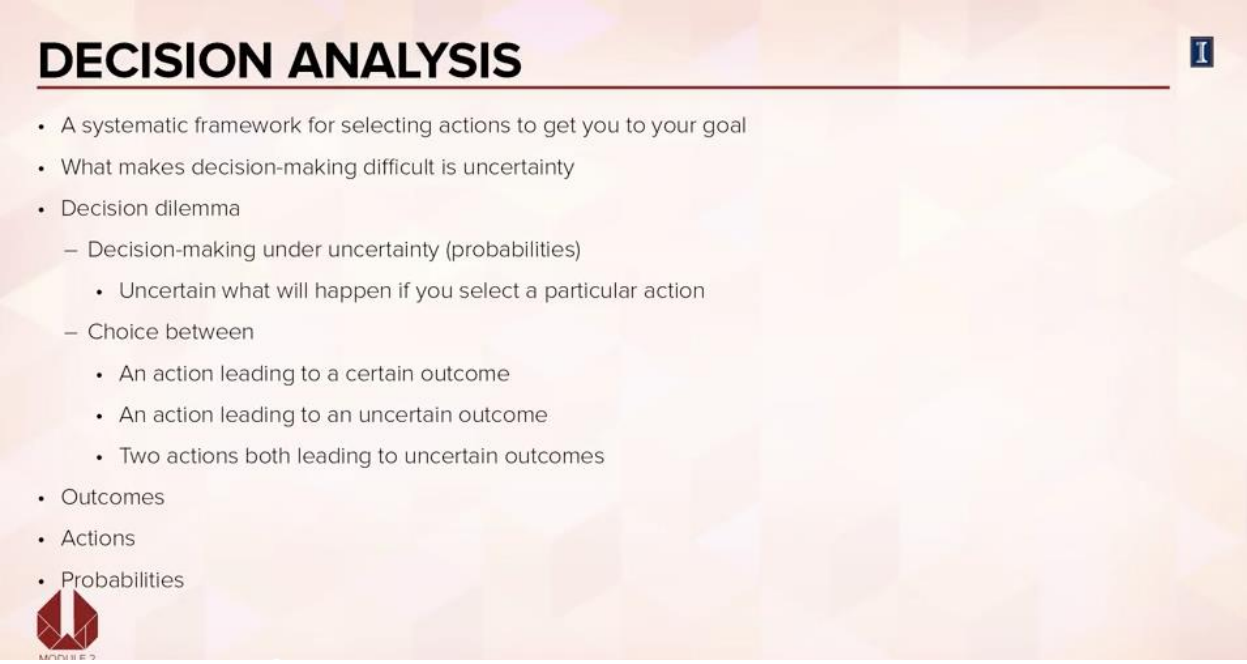
Module 2

Lesson 2-1 Concepts of Individual Decision Making

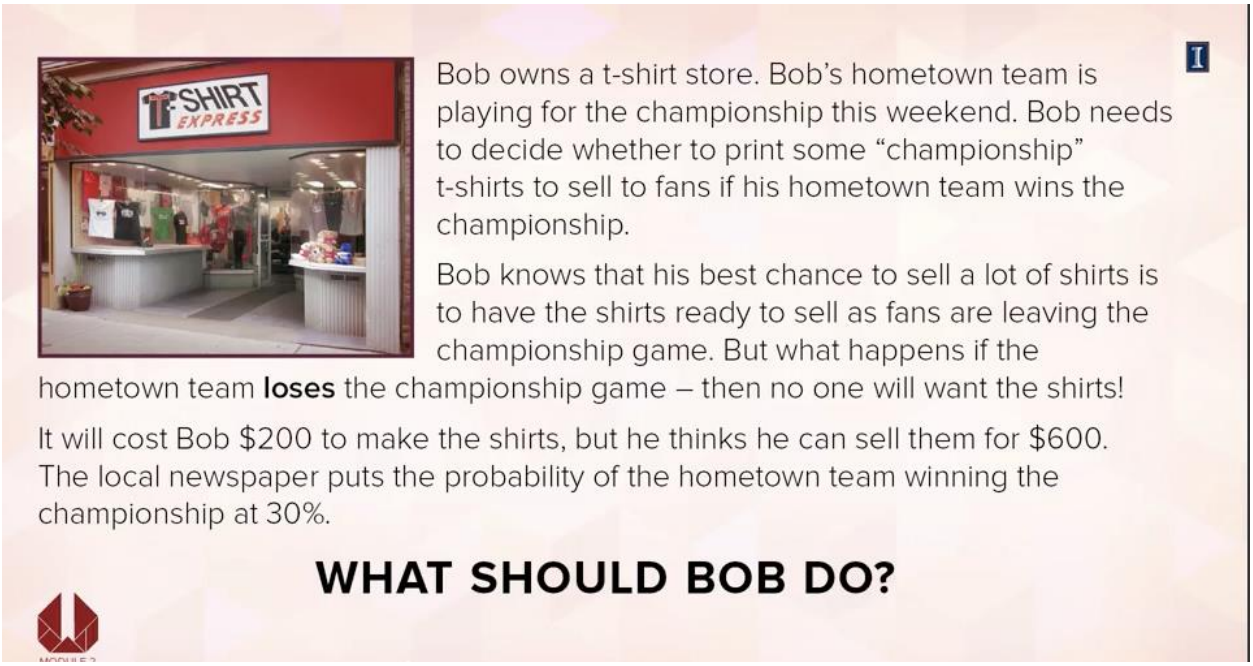
Lesson 2-1.1 Decision Analysis



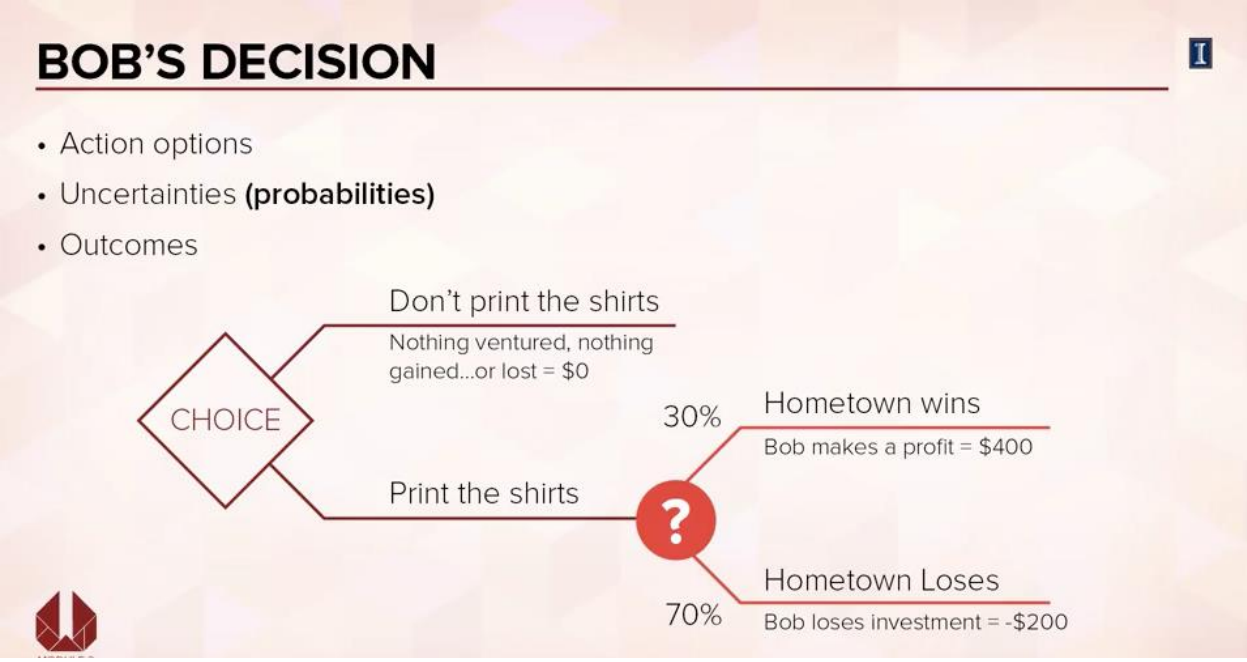
In our first class session, we talked about the fact that the two big levers that a leader has are the management of information and the management of motivation. And that these two levers are really critical to being able to make and implement decisions. Today we're going to talk specifically about making decisions, and we're going to talk about how to use information to make decisions more effectively. Making a decision is really about selecting the best available option for getting you to your goal. So we can think about decision making as involving goals, that is the outcomes you want to achieve, and the options or actions for getting you there. We're specifically going to talk about decision analysis today, because decision analysis provides a framework for thinking about making decisions.



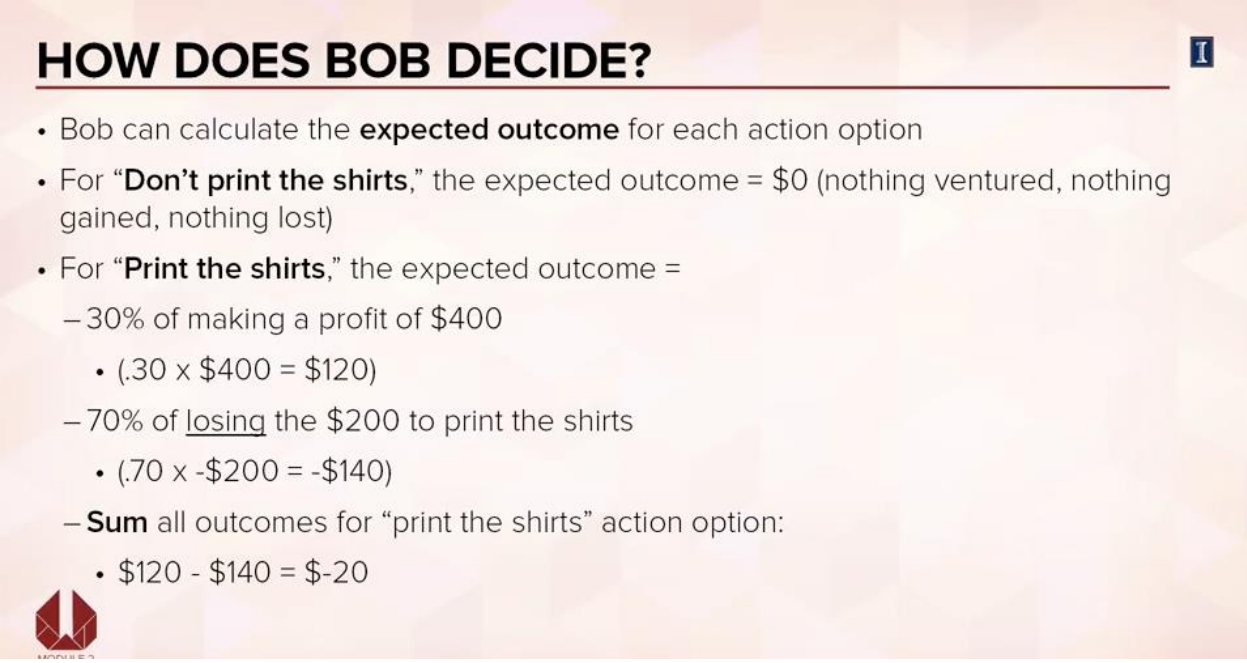
Decision analysis is a systematic framework for selecting options to get you to your goal. What makes decision analysis difficult, what makes any decision-making difficult, is uncertainty. And uncertainty is captured in the idea of a decision dilemma. A decision dilemma occurs when you make decisions under uncertainty. That is, there are probabilities attached that you have to manage. For example, when you are uncertain what will happen if a particular action is taken. The classic decision dilemma is a choice between an action that leads to a certain outcome and an action that leads to an uncertain outcome. So, we can think about three elements that we have to manage here. The outcomes that we want to achieve, the actions we're going to take to get there, and the probabilities that might be attached to some of these actions or outcomes.



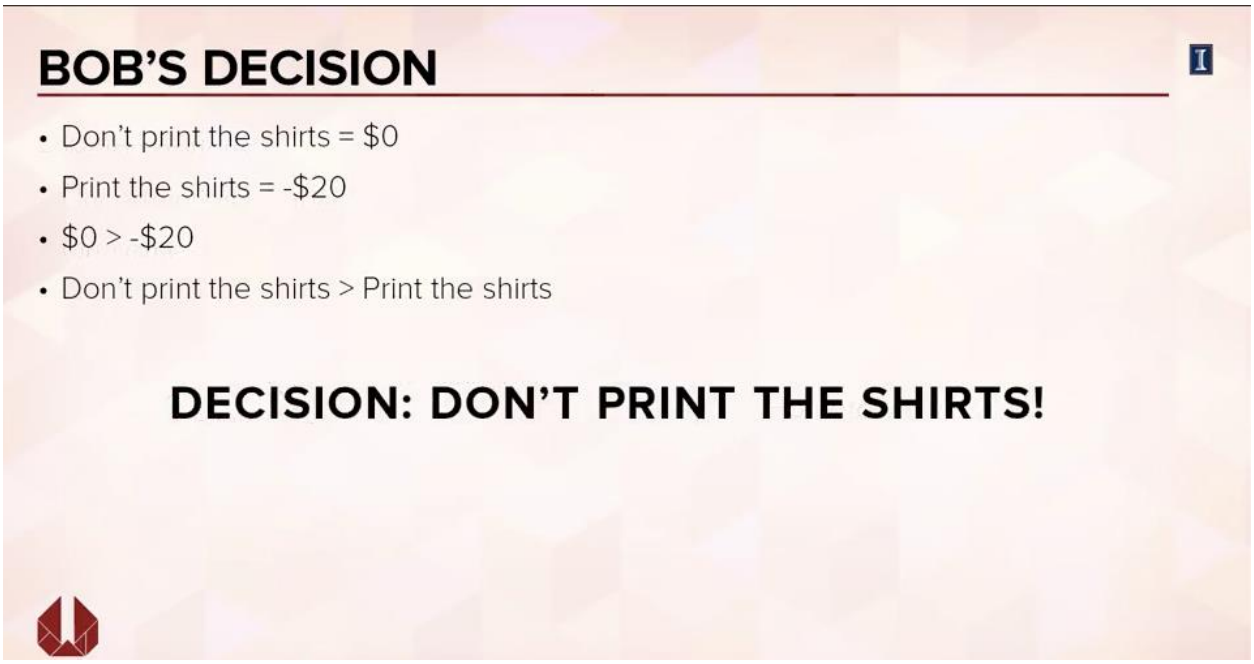
Let's take an example to illustrate this. Bob owns a t-shirt store. Bob's hometown team is playing for the championship this weekend. Bob needs to decide whether to print some championship t-shirts to sell to the fans of his hometown, if the team wins the championship. Now, Bob knows that his best chance to sell these shirts is going to be right when the game ends. And so he needs to make a decision about whether or not he prints these shirts and has them ready. The problem for Bob, of course, has to do with uncertainty. What happens if the hometown team loses the championship game, what will happen to the shirts then? Bob has estimated that it will cost about $200 to make the shirts, but he thinks he can sell them for about $600. The local newspaper puts the probability of the hometown team winning at about 30%. What do you think Bob should do?



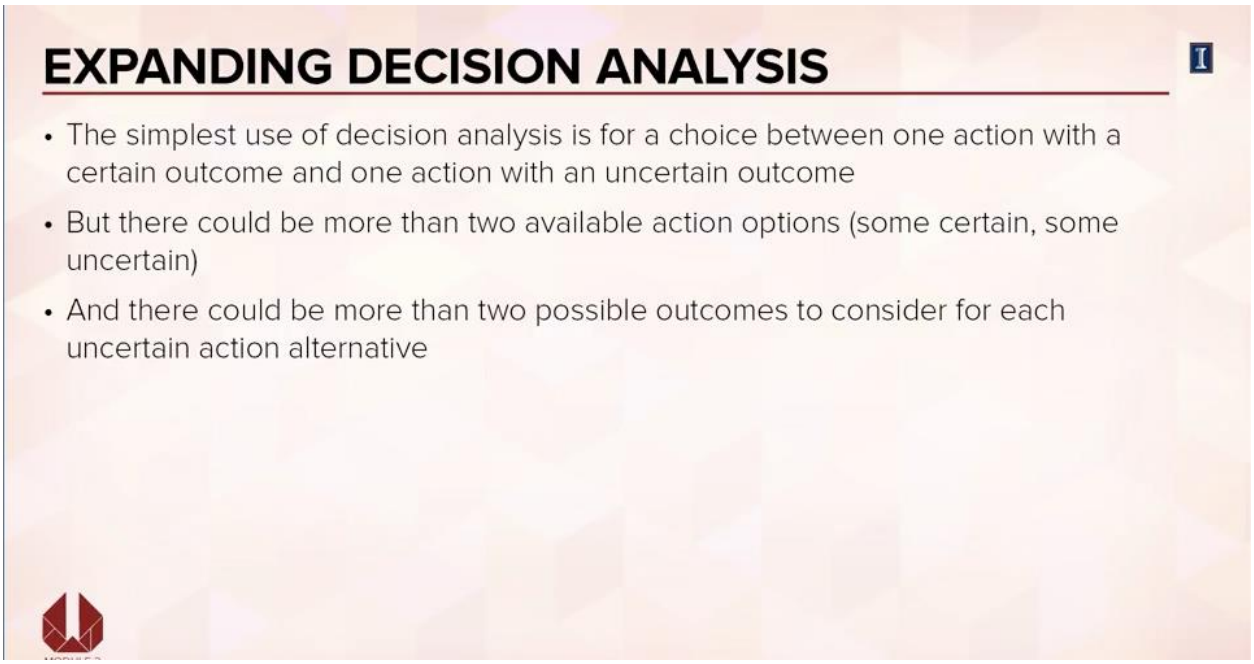
Well, let's look at this, Bob's decision, in terms of decision analysis. First, let's look at Bob's action outcomes. Bob really has two action outcomes to choose from. He can either print the shirts or he can not print the shirts. That's the central choice in Bob's decision. Now, in addition to that, there is some uncertainty here. If Bob prints the shirts, maybe the hometown team wins, maybe the hometown team loses. That's the uncertainty that Bob has to manage in this decision. And of course, there are some outcomes attached. If the hometown team wins and Bob sells the shirts, he's going to make a profit of about $400. If the hometown team loses, and Bob can't sell the shirts, he's going to lose his investment of $200. And then finally, of course, we're can tab some probabilities here. The newspaper said the probability of the hometown team winning was about 30%, which puts the probability of the hometown team losing at 70%. This is what decision analysis looks like. It is a framework for capturing action outcomes, uncertainties, and outcomes to the actions, so that we can try to decide which of the actions we should choose.



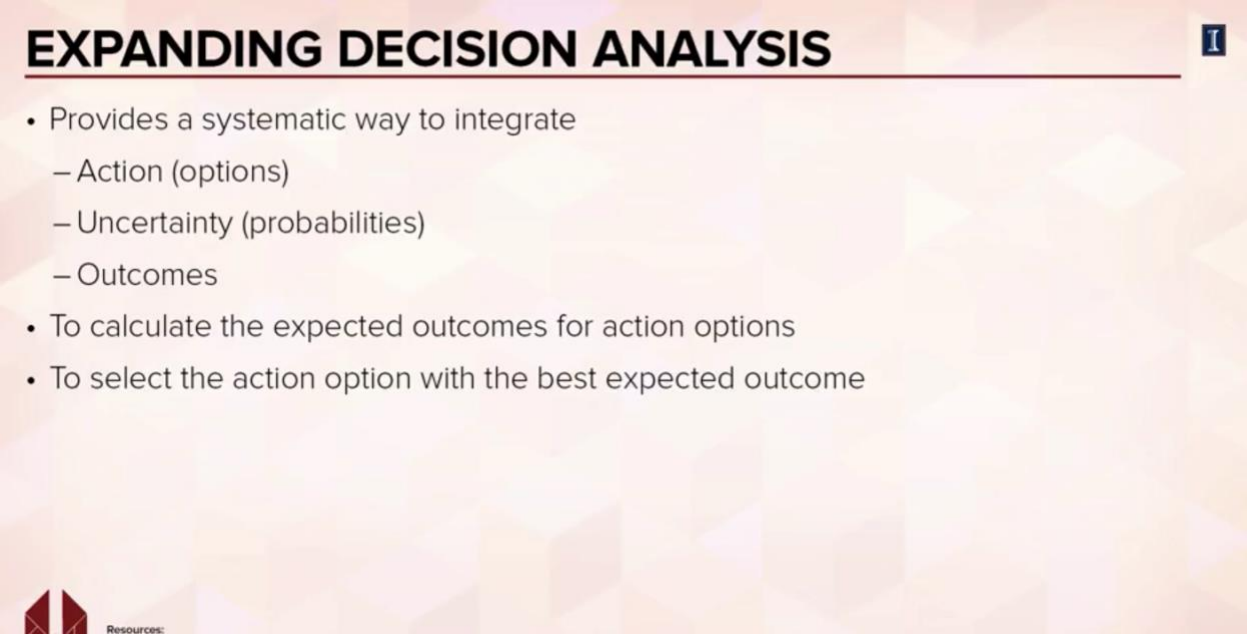
How does Bob decide? Well, he can calculate the expected outcome for each action option. For "Don't print the shirts," the expected outcome would be $0. Nothing ventured, nothing gained, nothing lost. That's the certain outcome for Bob. He knows if he doesn't print the shirts, he knows exactly what he's going to get. What happens if Bob prints the shirts? The expected outcome, we know, has a 30% chance of making Bob a profit of $400. So 30% chance of $400 is $120. We know there is a 70% chance of Bob losing $200 to print the shirts if the team loses. So that's 70% of minus $200, or minus $140. The sum of all outcomes for print the shirts action option would be the $120 minus $140 or, in other words, $-20. We can look at this in terms of Bob's decision analysis or what we call Bob's decision tree, and this means we can assign an expected outcome to each of the action outcomes.



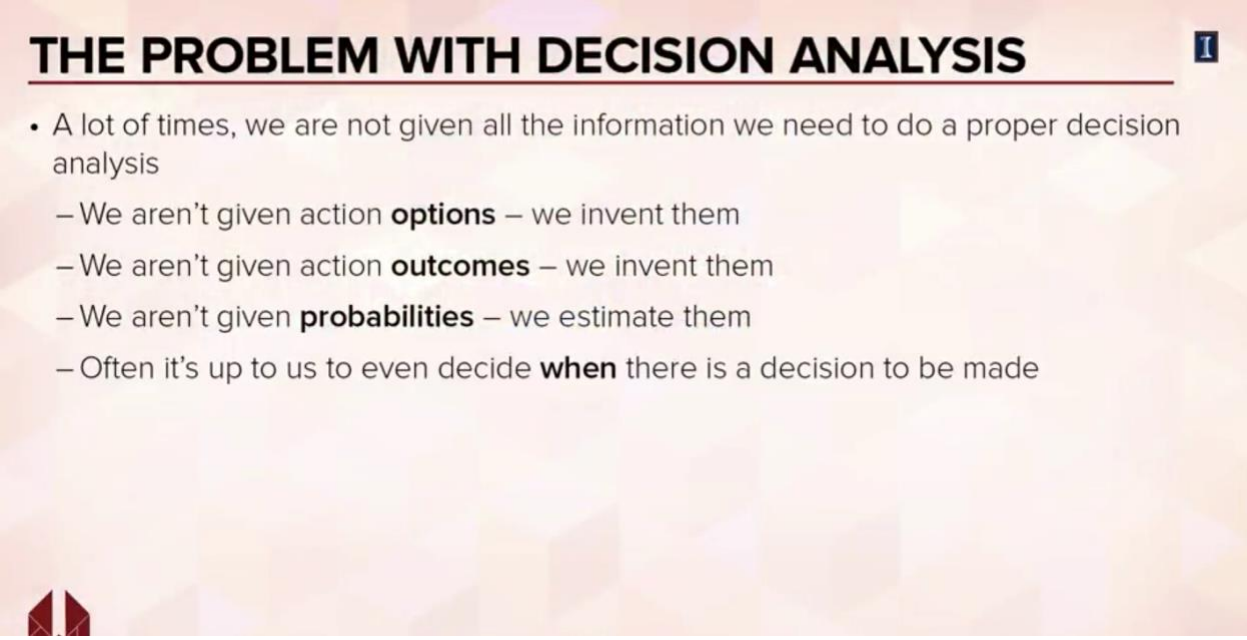
The assigned value for the action outcome of printing the shirts is -$20. The expected value of the action option of not printing the shirts is zero. It looks like it would be a better bet for Bob to not print the shirts. So Bob's decision is don't print the shirts is zero dollars, print the shirts is minus -$20. Zero sounds a lot better than -$20, so Bob decides not to print the shirts.



Of course, what we've talked about is the simplest version of decision analysis, where there is a simple choice between one certain outcome and an uncertain outcome. We could expand this to two available action options, some certain, some uncertain. And there could be more than two possible outcomes to consider for each uncertain action alternative.



So, decision analysis provides us a systematic way to integrate action options, uncertainty and the probabilities, and the outcomes that we might achieve. This allows us to calculate the expected outcome for each action option and to select the action option with the best expected outcome. Decision analysis is about using this integration of actions and uncertainties and outcomes to be able to arrive at expected values that allow us to select the action options with the best expected value. The problem with decision analysis, of course, is that it assumes a lot. It assumes that we have a lot of information that you may not actually have when you really make decisions.



A lot of times, we are not given all the information we need to do a proper decision analysis. So, for example, we aren't given the action options, we invent them. We decide what the choices are we're going to make about what we might be able to do. You might realize in the example that I gave you, Bob actually has more than two options. He could print some shirts, he could do something else with the money.

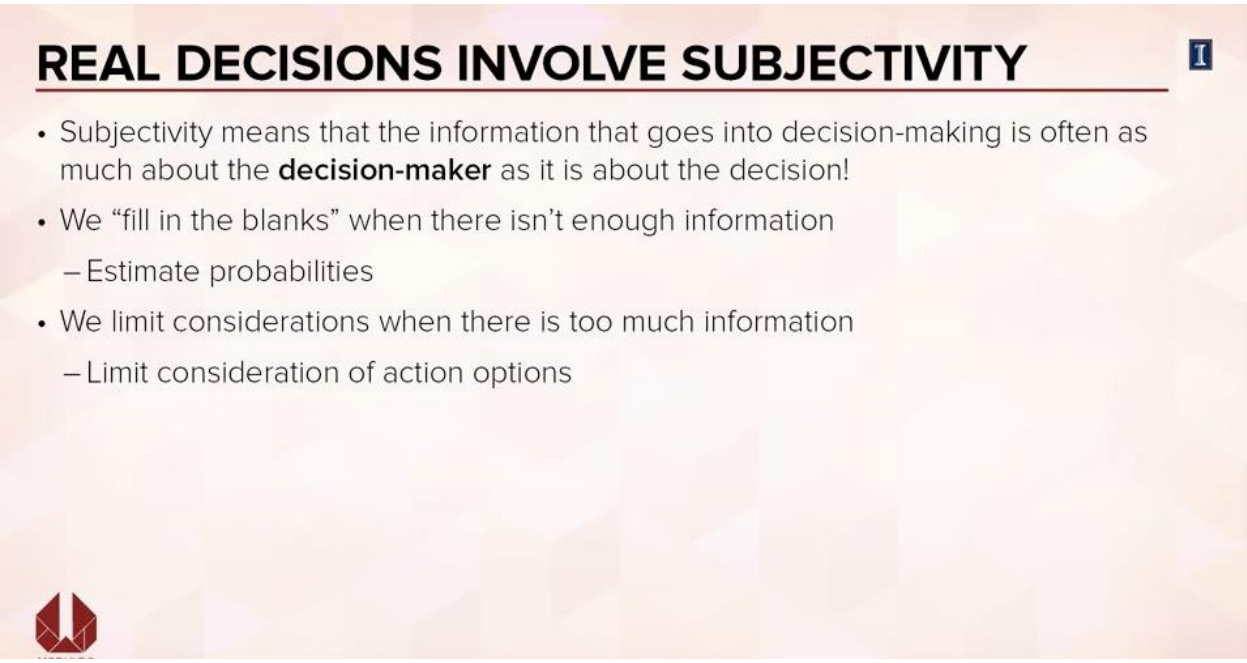
There are lots of other action outcomes. We've simply simplified this by only having him consider a couple. We aren't given action outcomes either. We invent those as well. We might ask, okay, so what's going to happen if we take this particular action? And we don't necessarily contemplate all the possibilities that might occur because that would be pretty difficult. And we aren't typically given probabilities. Maybe, in this case, you get a probability from the newspaper, but the fact of the matter is often we have to estimate those probabilities.

So often, it's up to us even to decide even when there is a decision to be made. Think about right now. You could be making a decision right now, but instead you're watching this video. So, the fact is, you have, in some ways, constrained the amount of choice you have to make by deciding, at least for now, you're not going to decide. But in real life, every second provides another opportunity to make a decision, if you decide that's what you want to do. So the problem with decision analysis is that we often have to fill in

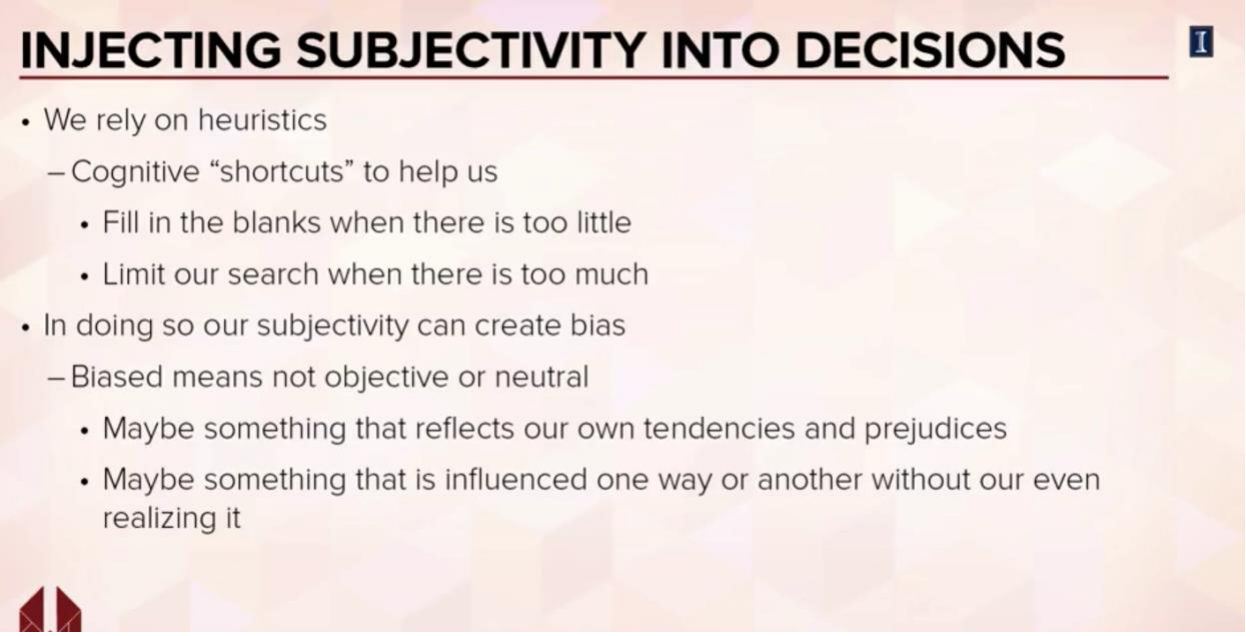
the blanks. We have to decide what information we have. And we often have to limit the amount of information we use to make decisions.

Module 2

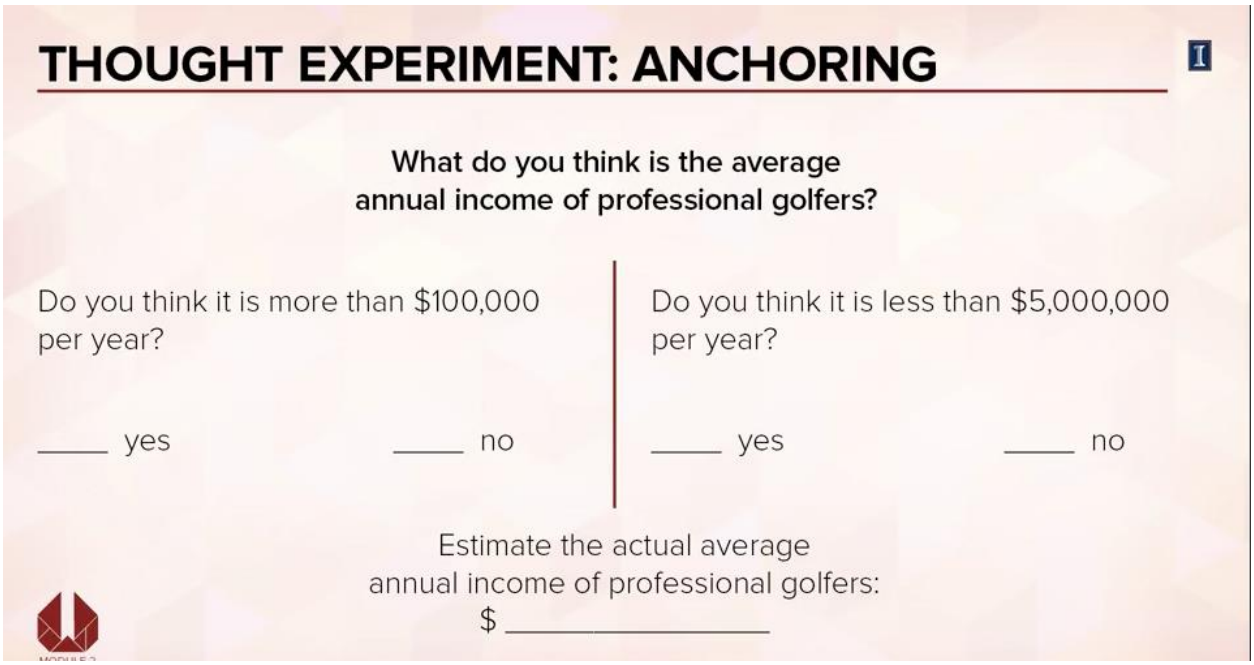
Lesson 2-1.2 Subjectivity and Anchoring



When we start making decisions about how we make decisions, that introduces subjectivity into the process. Subjectivity means that the information that goes into decision-making is often as much about the decision-maker as it is about the decision. So often we fill in the blanks when there isn't enough information. For example, we estimate probabilities. What's the probability that the team's going to win? Well, nobody knows the answer to that. We're just going to have to guess. And in some cases we also limit consideration when there is too much information to process.

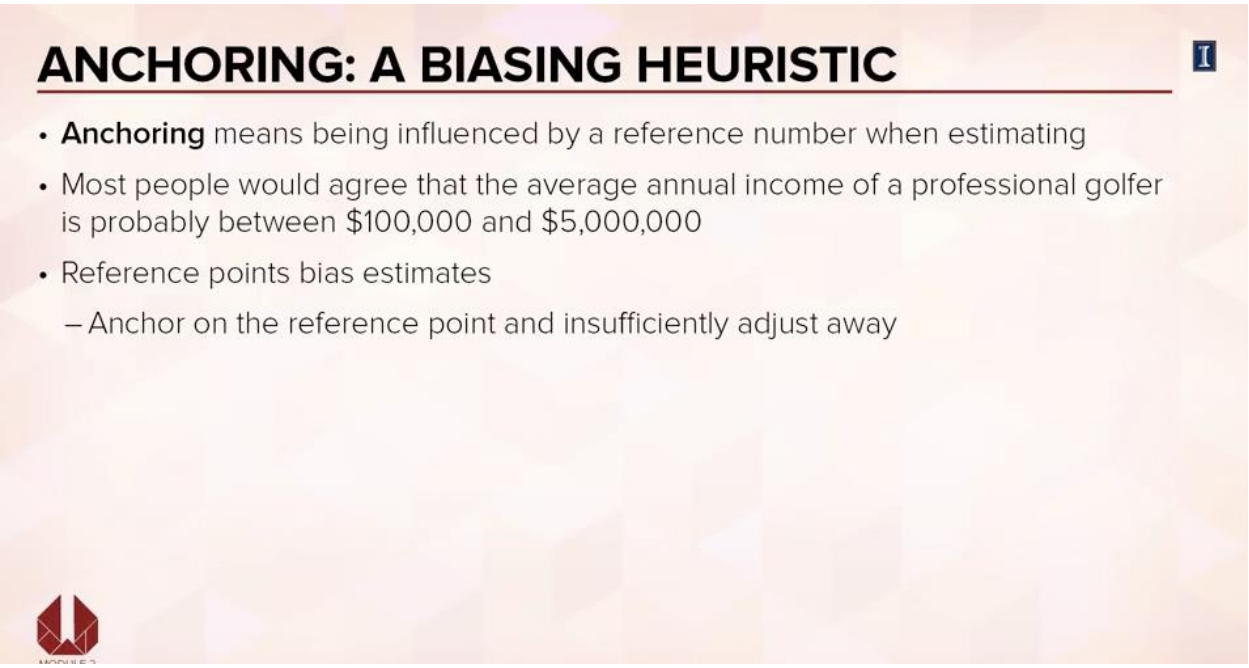


When we interject subjectivity in decisions we often rely on heuristics. Heuristics are cognitive shortcuts that help us fill in the blanks when there is too little information and they limit our search when there is too much information. Heuristics allow us to make decisions in the face of an infinite world, where there is way too much going on and way too much for us to consider to be exhaustively comprehensive decision makers. But in the process of using these heuristics, our subjectivity can create bias. Bias means not objective, not neutral, maybe something which reflects our own tendencies or prejudices, maybe something that is influenced one way or another without our even realizing it. So let's give a couple of examples of what these heuristics might look like. I'll give you a little thought experiment to think about, and this is about one heuristic that's called anchoring.

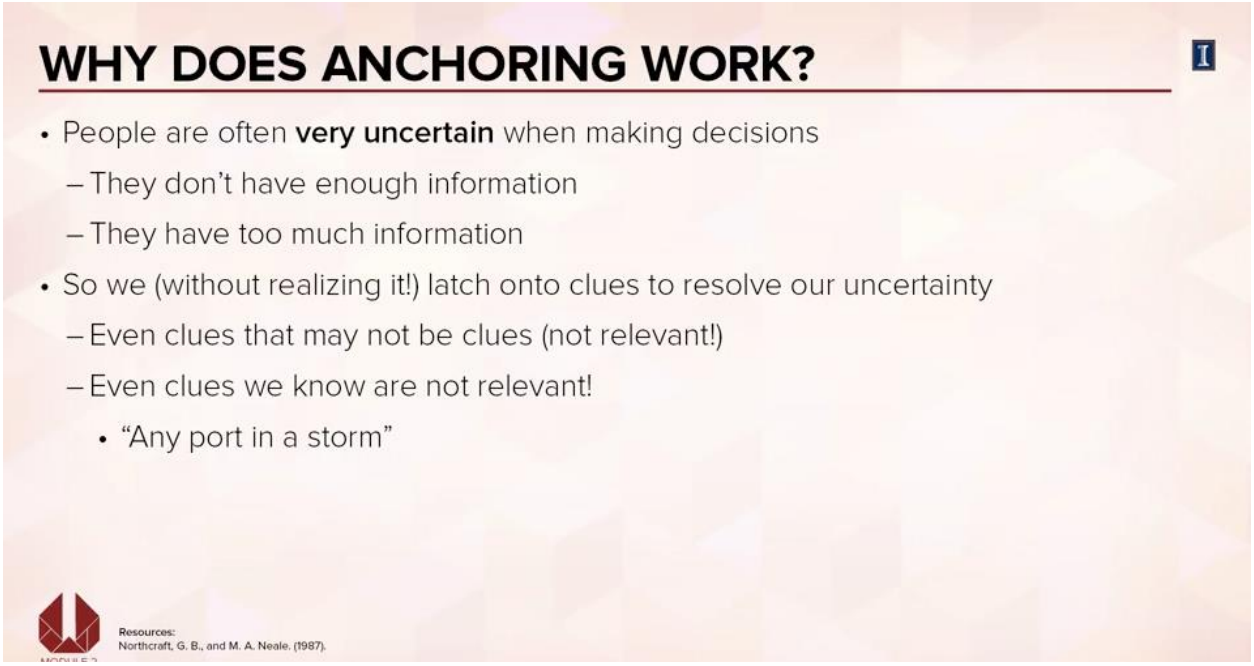


What I have on the screen now is the same question, but posed two different ways. We have the question, what do you think the average annual income is of professional golfers? But in this case, before you answer that question I want you to think about whether you think it´s more than $100,000 a year. And once you've thought about whether it's more than $100,000 a year, I want you to estimate what you believe to be the actual average annual income of a professional golfer. On the other side of the screen is exactly the same question, what do you think is the average annual income of a professional golfer? But before you answer the question, in this case I have a question. Do you think it is less than $5 million a year? And then of course, once again in the same question, estimate what you believe to be the actual average income of a professional golfer.

The only difference between these two is the anchor, that reference question that I gave you before you answer the real question. Do you think it's more than $100,000 a year? Do you think it's less than $5 million a year? It turns out that these reference questions anchor your perceptions, and they often create non-overlapping distributions of answers. The people who are asked whether it's more than $100,000 when they estimate the actual income are professional golfers. They may give you answers that are in the 4, 5, $600,000 a year range. Those individuals who were asked whether it's less than $5 million, they're going to say it's less than $5 million, but their answers maybe more like 4 million, or 3 million, or $2 million.

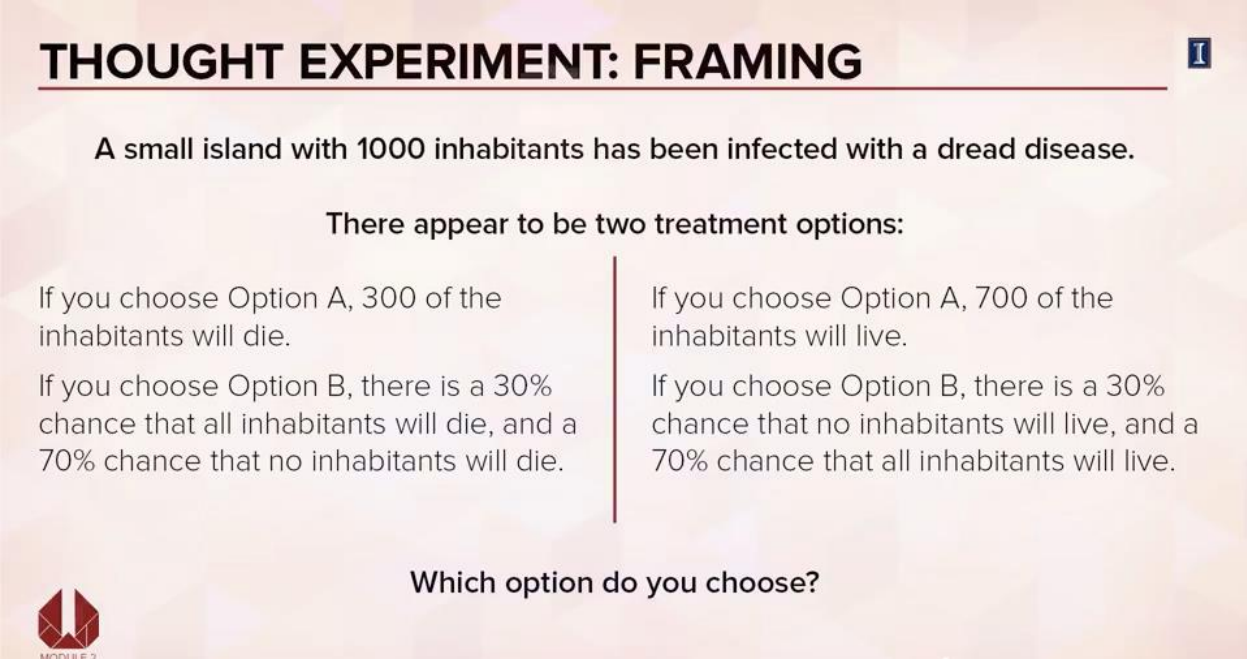


Anchoring is a biasing heuristic, and anchoring means being influenced by a reference number when estimating, and remember, when we make decisions, we often have to estimate information that we are not given. Most people would agree in this particular example that the average annual income of a professional golfer is probably between $100,000 and $5 million a year. But those reference points are going to bias their estimates. They're going to cause people to anchor on the reference point and then insufficiently adjust away from it.



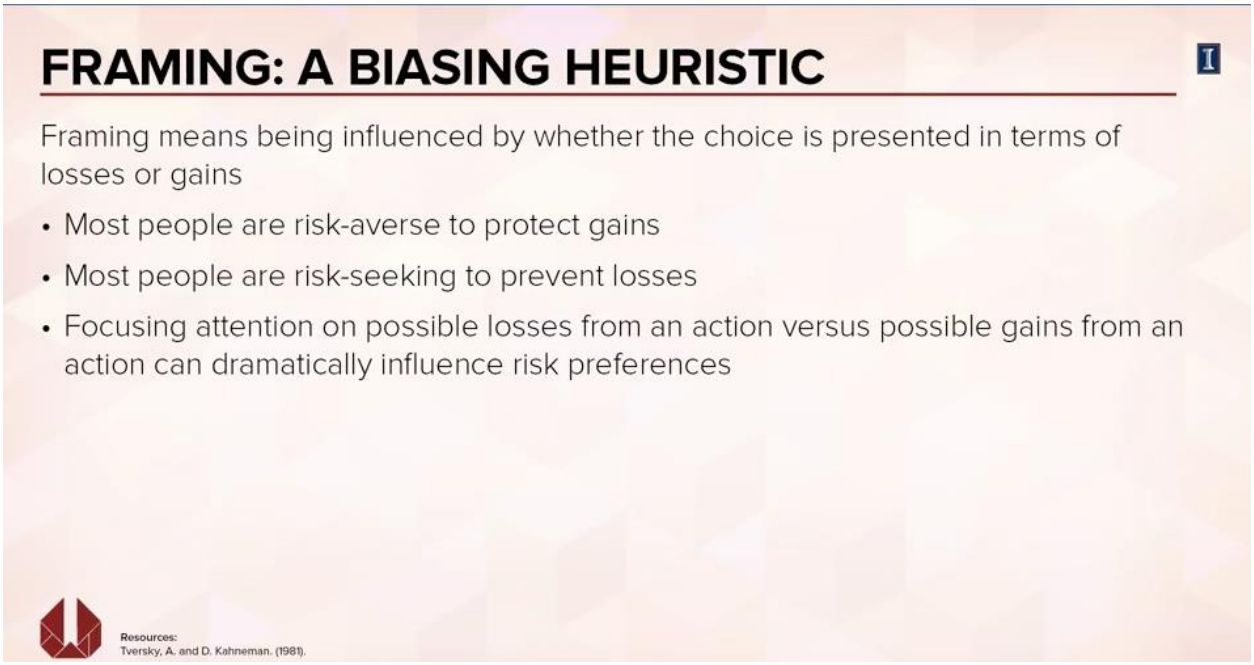
So why does anchoring work? People are often very uncertain when making decisions. After all that's why we have to make a decision. If we knew what to do there wouldn't be any decision to make. They don't have enough information, or in some cases, they have too much information, both of which create uncertainty. So without realizing it, we often latch onto clues to resolve our uncertainty, even clues that may not really be clues, that is, information that's not relevant, and in some cases, even clues we know are not relevant. It's almost as if we are looking for any informational port in a storm. As an example of this, a study was once done where they wanted the subject of the study to estimate the number of African nations represented in the United Nations. But the way they did this is they brought in a wheel of fortune, and on the wheel of fortune were a series of numbers.

And they would say we want you to estimate the number of African countries in the United Nations, but, before you do, we're going to spin this wheel of fortune. And whatever number it points at we want you to tell us whether it's more or less than the number pointed to on the wheel of fortune. Now obviously everyone in the study knew that the wheel of fortune wasn't diagnostic information. It wasn't going to tell them anything about how many countries there were from Africa in the United Nations. Nevertheless, the numbers that were generated by the wheel of fortune biased the estimates, and as a consequence, anchored people's judgments.

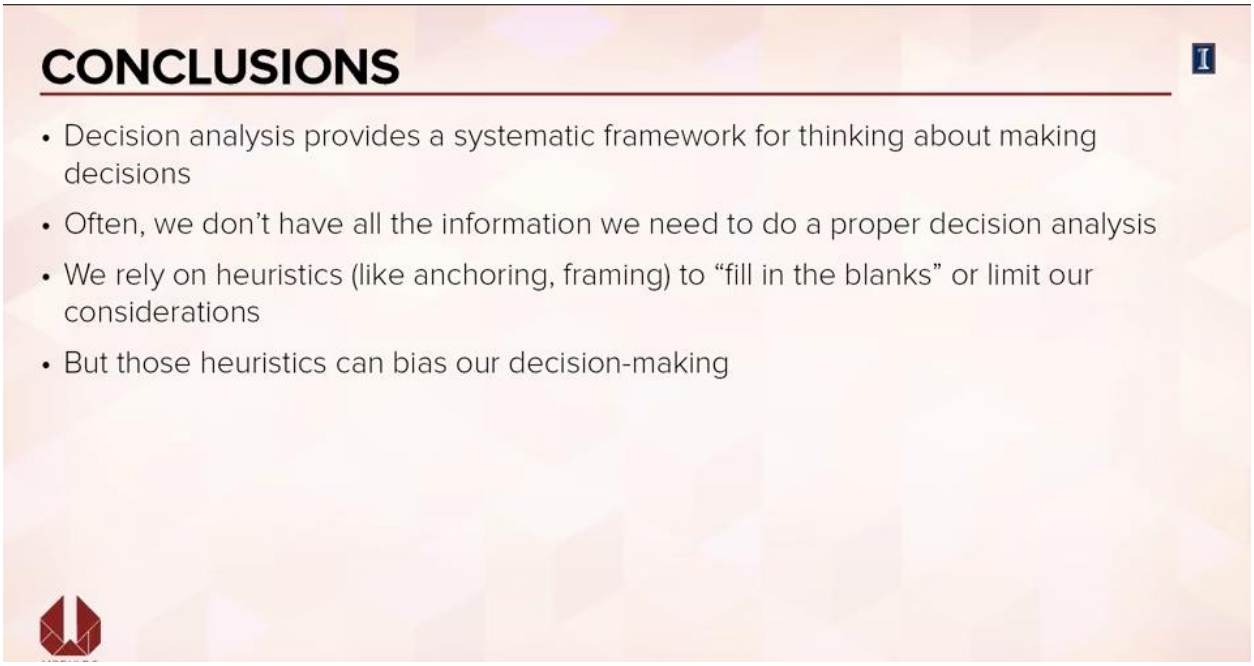


Let's try another thought experiment that provides a demonstration of another heuristic. This heuristic is called framing. And once again, I'm going to ask you to answer a couple of questions, but I have two versions of the question for you to answer. So let's take the first version. A small island with a thousand inhabitants has been infected with a dread disease. There appear to be two treatment options. If you choose option A 300 of island's inhabitants will die.

If you choose option B there is a 30% chance that all of the island's inhabitants will die and a 70% chance that no inhabitants of the island will die. Which option would you choose? So think about that for a second, then let's think about the other phrasing of exactly the same question. A small island with a thousand inhabitants has been infected with a dread disease. There appear to be two treatment options. If you choose option A, 700 of the inhabitants on the island will live. If you choose option B, there is a 30% chance that no inhabitants of the island will live and a 70% chance that all of the island's inhabitants will live. Which option do you choose? You might recognize that these are exactly equivalent questions. They are simply framed slightly differently. One is framed in terms of how many people are going to live, one is framed in terms of how many people are going to die. And it turns out that this simple framing around exactly the same question will completely change the way people answer this question.



Framing means being influenced by whether the choice presented to you is presented in terms of losses or gains, in our case, in terms of whether people are dying or whether people are living. Most people are very risk-averse to protect their gains. Most people, on the other hand, are very risk-seeking to prevent losses. So in our example, when you get people to think about the lives that are being saved they become risk-averse. They want to make sure that they don't give up any of the people that could be saved. On the other hand if you get them thinking about the lives that are going to be lost, that people are going to die, they tend to be risk-seeking to prevent anybody from dying. Focusing attention on possible losses from an action versus focusing attention on possible gains from an action can dramatically influence risk preferences. And at the end of the day this is also going to affect decision analysis because it's going to affect how we think about which options we choose.



So conclusions for today, we've talked about decision analysis as providing a systematic framework for thinking about how we make decisions. Unfortunately, often we don't have all the information we need to make a proper decision analysis. We may have to choose ourselves which action options we contemplate. We may have to assign probabilities to what outcomes might occur. We often rely on heuristics like anchoring and framing to fill in the blanks or maybe to limit our considerations to make decision analysis a little easier to manage, but those heuristics can bias our decision-making. So, in our next session, we're going to talk about how we can use other people. And more generally how we can use inclusiveness to try and head out that bias by overcoming some of the heuristics and some of the subjectivity we are likely to inject into our own decisions.

Module 2

Lesson 2-1.3 Fostering Creativity in Decision Making

Today we're going to be talking about creativity and why creativity is so important to effective leadership. In order to facilitate our discussion, I brought in one of our local experts here at the University of Illinois Professor Jeff Loewenstein. Jeff tell us a little bit about yourself and how you got interested in studying creativity.

I grew up painting and drawing really, really badly, and when I got a little bit older I was studying art and the creativity of art. So how could I actually do this well and it turn out I was more interested in the creativity than in the art itself. So how does a creativity scholar end up working in a business school?

Not just by accident, what I realized is that once we're talking about creativity, it's not about finger-painting, it's not about being colorful. It's about thinking differently, and

once you realize that, then every domain of activity, every domain of practice has to think differently to be creative. And when I looked at the range of activity we undergo, it hit me that the business world has some of the biggest impact on society. So, for me it was that combination of interest and how can I get people to think differently and where would that have the biggest impact on society, and business makes the most sense.

So why is creativity an important topic for effective leadership.

Creativity is important for a few main reasons. The first one is that leaders are dealing with the most complex problems you can face, and they don't have off the shelf answers. And as a result it's important to think flexibly and creatively to generate answers to incredibly complicated problems. The second thing is that it's very easy to fall into typical responses, typical answers, and so creativity is necessary to avoid getting locked in. I'm either going to do a or b, and maybe the answer is q, right? So, creativity is key to generating those additional options that otherwise you may never have considered and therefore you miss an opportunity. So those additional options might be important because over time you may habituate to a particular way of thinking about things and the world changes a little bit, maybe demands a new response.

So one of the most thoughtful quotes about problem solving in business and engineering and innovation generally, really, is a problem well stated is a problem half solved. And so the world changes, our environment changes, our needs change and we still need the same old thinking that we've used previously. And if we still used the same old thinking that we've used previously, you get the same old answer. And creativity is a way to break out of that and generate the new answer to the new problem.

So what are some barriers to creativity that leaders need to worry about?

We mentioned one already, a barrier to creativity is habit, so just doing what I do all the time. A second one is haste, it's the same kind of argument, really. If I'm forced under time pressure, I'll react with a typical response. And so I simply never notice an opportunity to be creative. A second reason that we think about is lack of interest. Creativity means you have to think about what it is you're working on and caring about. And if you're not interested in what you're doing, you're just trying to be done with it, you're not going to be creative. You're going to go with the simplest answer you can to get through it and get to the other side. This is often called intrinsic motivation, the desire to work on

something because you care a lot about it. The third reason we avoid creativity is sanctions or penalties. Doing something different, deviating from the norm, and if deviate from the norm, there may be penalties. That's bazaar, that's unusual, why would we ever think that? And people avoid being creative so they don't have to suffer those punishments of the new and the, I've never seen that before.

So what can a leader do to foster more creative decision making in their organization?

The first thing to do is not to rush to a solution, it's incredibly common when you encounter a decision or a problem to want to think immediately of answers. Yet the first thing you should do is immediately think about what is this decision. What is this problem that we are confronting? So rather than maybe problem solving, we move towards problem finding, if that's a useful way to think about it. The second issue we can do is, when we are thinking about that problem, or a decision, or even a solution some else's generated and given to us as a leader to consider. Is to think broadly about our goals. We often get locked into very specific criteria and evaluate new ideas on the basis of old criteria. So part of what we want to do is think broadly about our goals and objectives because maybe this new idea generates a solution. But the old criteria wouldn't really show that idea in it's best light.

So Jeff, what's the role of personality in creativity? Are some people born creative, or can anyone learn to be a creative person? There is a long history of study of personality and creativity, but the way I come at it is creativity is about thinking differently. And because we all think we can all think differently. So everyone needs to know how to do this, and all of us can actually improve. We don't have a fixed amount of creativity, in the world. And we've had people who are plumbers, people who are accountants, people who are dancers all talk about creativity. We've been interviewing people for a book actually that I'm writing on creativity and we find that if you strip out the talk of pipes or dances or tax forms or what have you. And get people thinking about how they think creatively, the words by the dancer, and the words by the plumber, and the words by the accountant all look exactly the same. They're all struggling with getting trapped in their own heads, and how can they get out of that box and think in new ways. So creativity is something for all of us, and we can all learn to do it more often and more effective.

So are there some sources you might recommend for people who want to learn more about creativity? Absolutely, its not hard for a professor to give reading assignments. So a few classic books, so Theresa Amabile has a lovely book on the intrinsic motivation aspects of creativity. And that's always a nice starting point for those thinking about whether, how much I care, how, what I'm motivated to do. And whether that will help us be more creative and what can enable you to help other people find that motivation to be more creative. Arthur Koestler has a classic book, The Art of Creation, which is a very stimulating ride and encourages you to think about many ways in which artists and engineers and business folk and scientists have been creative. And that's, I find, very stimulating for students to encounter if they've never seen it before. There are a few very contemporary readings as well that are just coming out on new ways of thinking about creative opportunities. Gary Klein has a lovely book recently, Stellen Olson also has a lovely book. So, these are nice resources to get to contemporary current cutting edge work on creativity.

Okay, well thanks Jeff for coming today and sharing with us your insights about creativity

And its importance to effective leadership.

Thanks for having me.