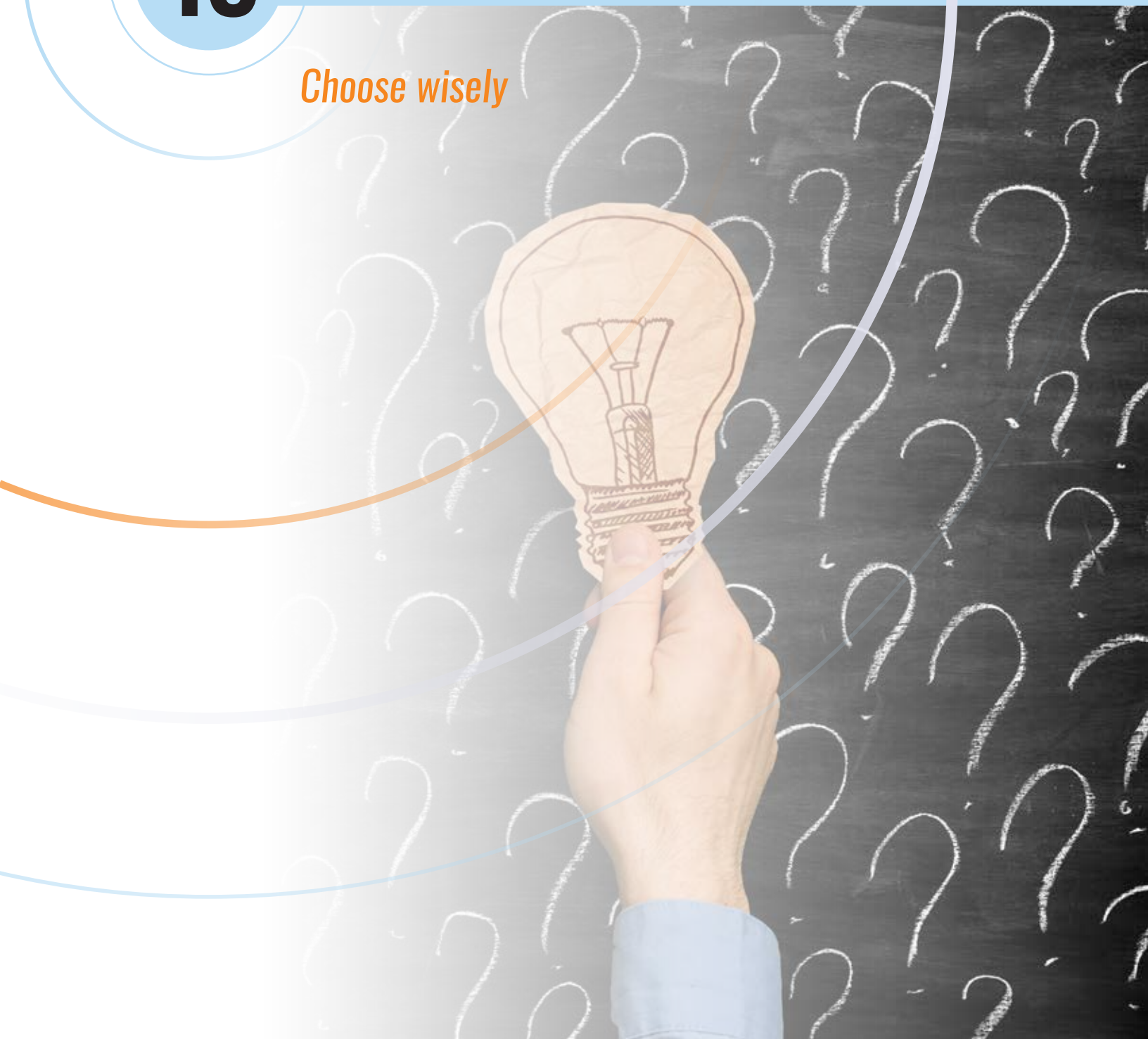
Decision Analysis Applied to Job Selection

13 CHAPTER 13

Choose wisely



Terence Reilly, Ph.D.

Professor Reilly co-authored *Making Hard Decisions with Decision Tools*, the leading textbook in the field of *Decision Analysis*, used at more than 60 colleges and universities. Since earning his doctorate from the University of Oregon, he has been teaching at Babson College in city and state. He teaches the art and science of decision making to graduate students and to company executives at Babson's Center for Executive Education.

CHAPTER AUTHOR

If opportunity doesn't knock, build a door.
– Milton Berle

In This Chapter

When we face a difficult decision with important ramifications for our life, it is key to have a solid understanding of our objectives and values. Our objectives and values are the very items that are important to us, such as spending time with family and friends or having a rewarding career. Without a deep understanding of these, making a hard decision is fraught with anxiety and confusion as we do not have a basis to choose one option over another; with a deep understanding, making a hard decision is empowering and fulfilling.

OUTLINE

1. Personal Values and Objectives
2. Scoring Each Job Offer Based On Objectives
3. Determining the Weight of Each Objective

GOALS

- Assess you and your family's values and objectives.
- Establish metrics that measure how well each job offer meets your priorities.
- Use decision analysis tools to analyze various components and elements of the compensation package, work environment, culture, leadership, etc. to determine which opportunities best align with your own vision, mission, and priorities.

LET'S GET STARTED

READ:

Personal Values and Objectives

When faced with a difficult decision, we tend to oversimplify and anchor on previously chosen alternatives and solutions. This natural tendency "to think as we have thought before" leads us to unimaginative and routine solutions getting us no further ahead. In medicine, we often lean on our routines in the learning environment; we are often told "repetition is a good thing." It is, to a point. Though practicing procedural skills helps you hone them and having a treatment algorithm in mind for most problems is useful, these routines can cause you to miss the devil that is often in the details of patient care. The same is true of our life decisions as well. How do we avoid these pitfalls (and many others) when we are deciding which job offer to accept? One way is by applying the science of decision making. For more than 50 years, scholars and practitioners have been working in the field of Decision Analysis for the express purpose of improving our decision making skills. As you progress through this chapter, you will be asked to think about and jot down various aspects of the different job proposals you are facing, and by chapter's end, you will not only discover which job opportunity you most prefer, but you will also know why.

Just as there is a method to making medical decisions, there are two sides to the process of Decision Analysis: descriptive - how does one make decisions, and prescriptive - how should one make a decision. From the descriptive side, we have learned that there are predictable decision-making mistakes that the majority of people make. From the prescriptive side, we have learned how to systematically and rigorously incorporate the decision maker's very own values and objectives into the decision process. In this chapter, we will go into some depth explaining how you, the reader, can incorporate your own values when choosing among a variety of job offers so that you choose the option that is best for you. The Decision Analysis process will guide you in discovering which job offer you most prefer.

We have one caveat before proceeding. There is no magic wand or app that is going to make a hard decision easy for you. As we often say in medicine, you can ask 20 physicians what they'd do in a difficult (or easy!) case….and you'll get 20 different answers, all valid and unique in their own way. Decision Analysis requires that we think through all the various aspects of the decision. It provides us with a structured methodology that helps us avoid certain mistakes (such as leaving something important out or counting something twice) but it requires us to carry out some self-reflection. If you have a family, then it makes the decision all the more complicated as you will have different sets of values that need to be accounted for. In short, to gain the confidence earned through a clear understanding of the issues, we must put in the work to gain insights into which option is the best for us.

Values and Objectives

Somewhat paradoxically, the first step of the Decision Analysis process is to take a step back from the actual decision you are currently facing. Momentarily, I want you to forget that you are trying to decide on which job offer to accept. Why? Because, a moment's refection reveals that before we can decide which particular job offer we prefer, we must first understand what our values and objectives are. Simply stated, we first determine what is important (our objectives) to us as individuals; only then do we know how to achieve our objectives. Think of this as how you clear your mind at a code: Your job is to be the calm person in the room. Clarity and peace comes from taking the 10,000 foot view and looking at the whole picture from a distance, then going back to your basic "ABCs" to bring order to what feels like a chaotic situation.

What exactly are our values and objectives and how exactly do we use them when making decisions? Values are what we care about in life. They help us evaluate the consequences of possible actions. The difference between values and objectives is that values are made explicit by objectives. For example, in the decision of buying a car, I value safety. My value of safety is made explicit by the objective of minimizing injury in a car crash. In choosing a job, I value compensation, which can be made explicit by the objectives maximizing salary, maximizing medical benefits, and maximizing retirement benefits. Note that objectives always have a direction, i.e., maximum or minimum.

It is not a stretch to say that we must know what we want before we can decide which job offer is the best, but how do we know what we want? Without explicit instructions that we can follow to determine our values and objectives, it is an empty promise that we can improve our decision making based on knowing our values. Thus, we now dive into a rigorous process that is designed to elicit and structure your values and objectives. The process can be broken down into two steps: Identifying Objectives and Structuring Objectives. Identifying objectives requires the decision maker to be creative and to think hard about the decision context. Structuring objectives requires the decision maker to determine the interrelationships among the objectives discovered when identifying objectives.

FIELD NOTES

Approximately 50% of physicians leave their first job within five years. Residents don't have a framework for diagnosing practice opportunities thoroughly and analytically because they have only been in a residency setting and don't have a frame of reference for what it is like to be in practice.

Therefore, residents are likely to select a practice based on its location or on a compensation offer that seems attractive rather than on what they need in a practice opportunity personally and professionally.

Residents need a game plan for what to ask, what to see, and who to meet to ensure they conduct a complete practice opportunity diagnosis.

– Phil Miller, Vice President, Communications
Merritt Hawkins and Staff Care

Identifying Objectives

This is the let-it-loose step. There is no concern about ordering the objectives or rating them in any way. In this step, the goal is to discover as many objectives as possible. Redundancy is to be expected. Wild ideas are just fine! Note: It greatly helps the elicitation process to have someone other than the decision maker lead the process (asking the questions) and write down the decision-maker's responses. Think of it as generating the biggest "zebra-filled" differential diagnosis possible: everything and anything is on the board at this morning report.

Though this step is unstructured, it is not a complete free-for-all. The main principle here is to discover the reasoning for each objective and its relationship to the other objectives. Yes, let the decision maker's imagination run, but keep asking questions to determine what the decision maker thinks are the desirable and undesirable consequences. Discovering why a consequence is desirable or undesirable is one of the principal ways of identifying an objective. Even the most outlandish diseases on that differential have to have some tie to the chief complaint.

The question you ask the decision maker most frequently is "Why?" You are to repeatedly ask why something is important or not important. At some point, the decision maker will answer "just because" it is. This means you have found a fundamental objective or a core objective of the decision maker. Consider the following exchange between the decision maker John and his friend Ann, who is writing down all of John's responses.

John: "It is important to me that I have a flexible work schedule."

Ann: "Why?"

John: "Because I want to spend time with my family and ride my bike at the times of my choosing."

(Here, we can ask about either family or cycling and Ann choose cycling.)

Ann: "Why is it important to ride you bike?"

John: "Because I like to."

Ann: "Okay, but why?

John: "Because of the exercise and comradery from riding with a group."

Ann: "Why is exercise important?"

John: "To be healthy."

Ann: "Why is being healthy important?"

John: "Because it is."

Not only has Ann found that maximizing health is a fundamental objective of John, she also established a connection between flex time, freedom of choice, cycling, comradery, and health. To John, these are all connected, which will be useful in the next step when we structure John's responses into something we can use in our decisions. Ann should return to the branch points in the above dialog to ask about family as opposed to cycling and comradery as opposed to exercise.

In addition to asking why over and over, here is a list of additional techniques and questions that can be used to nurture and develop creativity in the decision maker.

Wish List:

- If you had no limitations whatsoever, then what would your objectives be?
- Why?

Options:

- What makes one option better?
- Create real and hypothetical alternatives, e.g., ask the decision maker to describe a perfect alternative or a horrible one, real or imagined.
- What is the minimum acceptance level for an objective?
- Pursue all responses for reasons, i.e., ask why?

Shortcomings:

- What are the major problems facing the decision maker?
- Is there any way to improve the current situation? Specifically, how? If not, why?
- Why would this help improve the situation?

Consequences:

- Are there any unacceptable consequences?
- Are there any consequences outside your influence?
- Given many consequences, which is the worst? Which is the best? Why?

Goals:

- What are the goals and the objectives behind these goals?
- What are the constraints and the objectives behind these constraints?
- What are the guidelines and the objectives behind these guidelines?

Different Perspectives:

- Can you describe the decision from a different perspective? For example, from a different person's view? From a different point in time? From a different organization's point of view?

Generic Objectives:

- Break the decision problem into broad categories, e.g., economic, social, welfare, environmental impacts, and so on. Work within each category.
- Perhaps the decision maker's responses have all been within a broad category. Point this out and ask if there are impacts or consequences in any other category.

In addition, there are key words that signal implicit objectives. These are:

Impacts, trade-offs, consequences, concerns, fair, and balance.

For example, if the decision maker indicates that trade-offs are necessary, then ask trade-offs between what and whom? Why are trade-offs necessary?

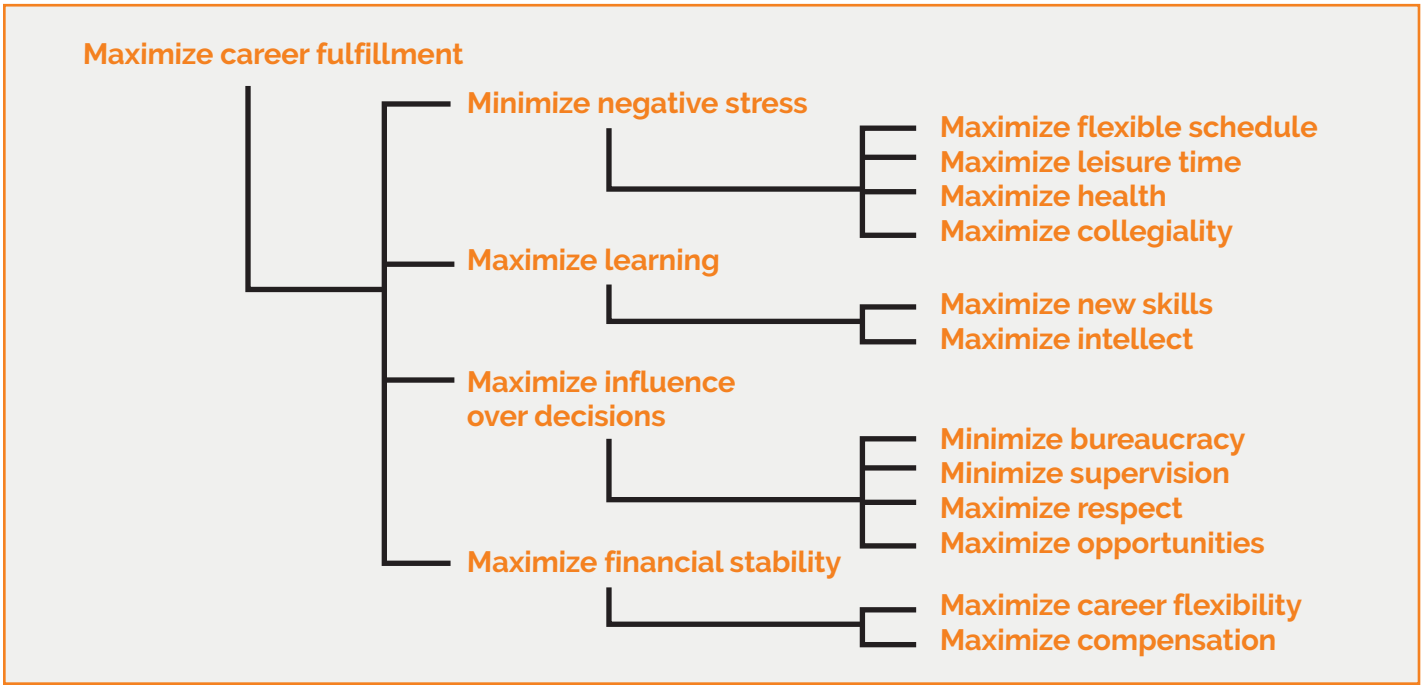
It often takes two to three elicitation sessions, each lasting a few hours, to fully obtain the decision maker's values and objectives. The end result is typically a stack of papers, often more than 20 pages, containing the responses to the above questions. Now, we turn to the second step; namely, we structure these objectives into a hierarchy that

we can easily use in making your decision of which job offer is best for you and your family.

Structuring Objectives

We now take the sheets of elicitation notes and make sense of them. We do this by building a **Fundamtental Objectives Hierarchy (FOH),** which forms the basis of how we decide which job offer is best. Figure 1 is John's personal FOH. The hieracrchy has levels with the top level being the most fundamental (basic) objective. Each level down is desgned to further explain, define, or give details of what is meant in the immediate upper level. From Figure 1, we see that the most fundamental objective of John is to maximize career fulfillment. The next level down further defines what this means. For John, it means he wants to minimize negative stess, maximize learning, maximize influence over decisions, and to maximize financial stability.

Figure 1: Fundamental Objectives Heirarch



We are now ready to build the fundamental objective hierarchy by following the steps given below. It is important to note that there is not one correct FOH. Decision making is personal, and the construction detailed below allows the decision maker the freedom to fully express his or her individuality.

Step 1: Organize Into Categories

Organize the objectives into broad subject categories, such as compensation, job type (academic vs clinical medicine), location, etc.

Step 2: Choose Overall Fundamental Objective

Write down the overall fundamental objective. Usually this is clearly known, for it is the essential reason the decision maker is interested in the decision problem.

Step 3: Generate the Lower Level Objectives

Determine which of the objectives are important to the higher-level objective or which further define the higher-level objective. What aspects of the higher-level are important? This will result in a list of potential lower-level objectives. In essence, determine how the higher-level objective is operationalized. During this step it is common for the decision maker to identify new objectives. This is because the problem is presented in a new setting. Like working through a complex differential diagnosis, you sometimes identify less obvious but crucial pieces of a patient's history that make or break your treatment plan.

Note that when moving downward in the FOH, you are answering the question: What exactly do you mean by this? When moving upward in the FOH, you are answering the question: Of what more-general objective is this a component?

Step 4: Check If Lower Level Objectives Are Mutually Exclusive

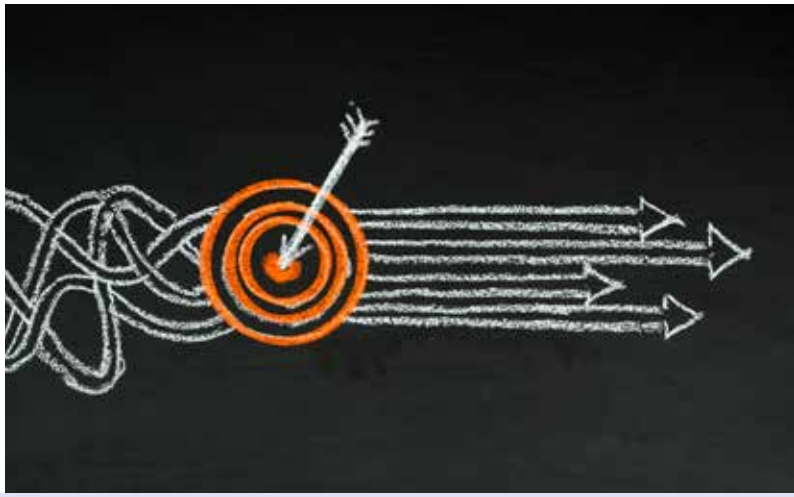
Are the objectives in this list of potential lower-level objectives mutually exclusive? If so, proceed to the next step. If not, then determine the overlap and adjust. Either you can redefine the given objectives so there will be no overlap or you can bring in new objectives. The problem with overlap is that you will be double counting.

Step 5: Check If Lower Level Objectives Are Collectively Exhaustive

Are the objectives in this list of lower-level objectives collectively exhaustive? If so, proceed to the next step. If not, then determine what is missing and add an objective. The problem here is that you are forgetting to include something.

Step 6: Repeat

Choose a lower-level objective from the list just constructed. This now becomes a higher-level objective. Cycle through Step 3-5 until the decision maker feels they have sufficient clarity. Usually, people go down three to four levels.



READ:

Congratulations!

You have built your Fundamental Objectives Hierarchy. It took quite a bit of self-reflection and thought about what is important to you and why it is important. The question is - now what? Now, you reap the rewards of your hard work! There are three ways to use the FOH to guide us in our decision making. The simplest one, which occurs quite often, is that the decision maker now knows which job offer is best. The process of constructing the FOH has added sufficient clarity that no further thought is required; it is clear to the decision maker their best course of action.

The second way to use your FOH to choose among various job offers is to, more or less, ignore the actual offers and create your perfect job. The FOH tells you explicitly what is important to you. Using it as a template, you can define what job you would really like. *How does this help you?* First, it focuses your search on those possibilities that most fulfill your desires. Second, it forms the basis of any negotiations. As a matter of fact, modern negotiation theory borrows from Decision Analysis techniques to determine win-win situations. Having an intimate knowledge of what is important to you greatly aides in any negotiation.

The third way to use the FOH is to numerically score each job offer. The scores will represent how much you value each job offer. For example, if you have four offers and their scores were 50, 53, 85, and 90 out of 100, then you know that the two lowest scores represent positions that are not attractive to you, especially in comparison to the offers with the highest scores. Unless you can negotiate these lower offers up, you would not be interested in them. Think of this step as using your objective data to help guide you in patient care decisions; compare your gut feeling to the hard information you have in front of you. What do the numbers/labs say? Having data to back you up in an uncomfortable setting always makes a complex decision more clear.

How exactly do we compute these numerical scores? The score for any job offer will be a weighted average of the form:

weight_1 value_1+weight_2 value_2++weight_n value_n

where the values are determined by how well the job offer meets an objective. In this case, we have N objectives. The weights determine the relative importance of the objectives to one another and need to be carefully determined. Below, we discuss how to determine the score or value for each objective, then we turn to a rigorous procedure to determine the weights. Once completed, you will be able to score each job offer on how attractive it is to you personally.

Recommended Tool

Decision-Making Worksheet

Make a better-informed career decision by ranking each of your personal values and work priorities, evaluating the probability of each organization being able to fulfill your needs, and deciding which search criteria you are willing to sacrifice.

http://md.careers/E-26

READ:

Scoring Each Job Offer Based On Objectives

The goal here is for you to determine a score for the objectives in your FOH. Because the lowest level in the hierarchy is the most specific, this is the level for which we want scores. We can demonstrate scoring with an example. Suppose the objective we are scoring is to maximize salary and John has four job offers at salaries of $100K, $145K, $175K, and $200K. The rules for scoring are: each score is between 0 and 100; the worst actual value is scored at 0; and the best actual value is scored at 100. What we mean by actual value is an *actual job offer.* In John's case, he has four salary offers. Thus, for the objective to maximize salary, he would score the $100K job offer at 0. He would score the $200K job offer at 100. The last rule is to use proportional scaling for the values between the worst and best. Thus, John would score the $125K job offer at 25 because (125 – 100)/(200 – 100) = 25% and he would score the $175K job offer at 75 because (175 – 100)/(200 – 100) = 75%. In this way, work through the lower objectives, one by one, scoring each objective by assigning 0 to the worst case, 100 to the best case, and proportionally score the in-between cases.

The above works great when we have naturally quantitative objectives, such as salary or working hours, but how do we score objectives which are not readily measurable, such as maximizing collegiality? In these situations, we need to construct a scale from 0 to 100 and fully describe what different levels in this scale mean. Typically, we detail what a score of 20, 40, 60, and 80 means leaving 0 and 100 for the worst and best actual cases. In developing this scale be as specific and detailed as possible for each level.

Recommended Tool

Prioritizing Offers

This exercise will help evaluate your offers in a side-by-side analysis.

http://md.careers/E-24

READ:

Determining the Weights of the Objectives

We now determine each objective's relative importance. We codify their importance using the concepts of weights, which are values between 0 and 1 and which always sum to 1.00. For example, if you have just two objectives: Maximize Compensation and Minimize Stress with weights 0.75 and 0.25 respectively, then Maximizing Compensation is three times more important than Minimizing Stress because 0.75 is three times 0.25.

We will be using the method called Swing Weighting to determine the weights and demonstrate with an example. First, we show how to determine the weights of John's second-level objectives in Figure 1. The weights for the lower levels are calculated in a similar fashion.

Swing weighting starts with creating a table as shown in Table 1. In the first column, start with "Benchmark," explained below, and then list all the objectives for which we are determining weights. In the second column, we create hypothetical job offers for John to consider. The first hypothetical offer is called the Benchmark and is defined as the worst value for each objective among your actual job offers. As shown in Table 1, the Benchmark is a job with the worst Stress, worst Learning, worst Influence over Decisions, and worst Financial Stability. Next, move down one row to Neg Stress. Here we create a second hypothetical example that exactly matches the Benchmark, except for Neg Stress, which we now define to be the best value among our actual job offers. By allowing Neg Stress to swing from worst to best while keeping everything else fixed, we can accurately determine the relative importance to John of Neg Stress. Finish the second column off by allowing each objective to swing from its current worst to its current best value. See Table 1.

Table 1: Swing Weighting Set Up

Attribute Swung from Worst to Best	Consequence to Compare (Neg Stress; Learning; Influence; Financial Stability)	Ranking	Rating	Weight
Benchmark	High Stress, Low Learning, No Influence, Low Stability	5		
Neg. Stress	Low Stress, Low Learning, No Influence, Low Stability			
Learning	High Stress, High Learning, No Influence, Low Stability			
Influence	High Stress, Low Learning, High Influence, High Stability			
Financial Stability	High Stress, Low Learning, No Influence, High Stability			

With the table constructed, the next step is to rank order the outcomes from 1 (being the best) to 5 (being the worst). Clearly, the Benchmark earns a "5". Next, we compare the four other hypothetical job offers to the benchmark and to each other to determine their rank. If you had to choose among only these four offers, which would be your first choice? Your second choice? And so on. Suppose that after some thought, John concludes he most prefers going from Low Stability to High Stability over the three other objectives. Thus, he would rank Financial Stability "1." After more reflection, John fills in Table 2 with the ranks.

Table 2: Swing Weighting with Rankings

Attribute Swung from Worst to Best	Consequence to Compare (Neg Stress; Learning; Influence; Financial Stability)	Ranking	Rating	Weight
Benchmark	High Stress, Low Learning, No Influence, Low Stability	5		
Neg. Stress	Low Stress, Low Learning, No Influence, Low Stability	3		
Learning	High Stress, High Learning, No Influence, Low Stability	4		
Influence	High Stress, Low Learning, High Influence, High Stability	2		
Financial Stability	High Stress, Low Learning, No Influence, High Stability	1		

The next step is to fill in the "Rating" column in the table. We always start with the lowest ranked item being rated "0" and greatest ranked item being "100." The ratings for the other three hypothetical job offers must fall between 0 and 100. The comparison is relatively straightforward to make; how much less satisfaction do you get by swinging Influence from Low to High as compared to swinging Financial Stability from Low to High? Suppose that after careful thought, John assigns 75 points to Influence, 60 points to Neg Stress, and 20 points to Learning. See Table 3. Essentially, this means that John thinks improving Influence from worst to best is worth 75% of the value he gets by improving Financial Stability from Low to High.

FIELD NOTES

"We begin to see, therefore, the importance of selecting our environment with the greatest of care, because environment is the mental feeding ground out of which the food that goes into our minds is extracted".

– *Napoleon Hill, Author of Keys to Success: The 17 Principles of Personal Achievement*

Table 3: Swing Weights with Ratings

Attribute Swung from Worst to Best	Consequence to Compare (Neg Stress; Learning; Influence; Financial Stability)	Ranking	Rating	Weight
Benchmark	High Stress, Low Learning, No Influence, Low Stability	5	0	
Neg. Stress	Low Stress, Low Learning, No Influence, Low Stability	3	60	
Learning	High Stress, High Learning, No Influence, Low Stability	4	20	
Influence	High Stress, Low Learning, High Influence, High Stability	2	75	
Financial Stability	High Stress, Low Learning, No Influence, High Stability	1	100	

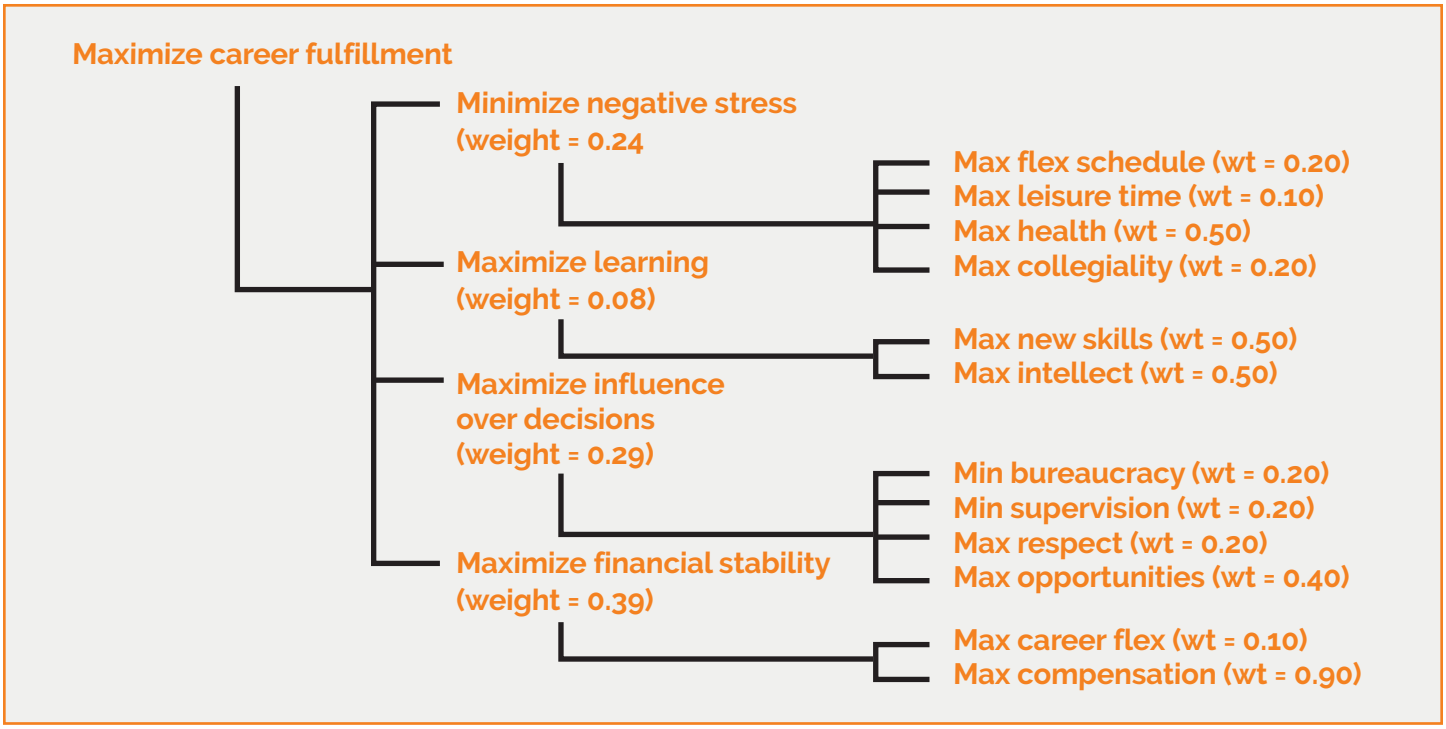
We are now ready to determine the weights of each objective. We start by summing the values in the Rating column. In our case, they sum to 255. Next, we calculate each attribute's contribution to the sum. Neg Stress contributes 60 to the sum of 255, so Neg Stress' weight is 60/255 = 0.24. Learning contributes only 20 to the 255, so its weight is only 0.08. Note this method guarantees the weights sum to 1.00. See Table 4.

Table 4: Swing Weights

Attribute Swung from Worst to Best	Consequence to Compare (Neg Stress; Learning; Influence; Financial Stability)	Ranking	Rating	Weight
Benchmark	High Stress, Low Learning, No Influence, Low Stability	5	0	0
Neg. Stress	Low Stress, Low Learning, No Influence, Low Stability	3	60	0.24
Learning	High Stress, High Learning, No Influence, Low Stability	4	20	0.08
Influence	High Stress, Low Learning, High Influence, High Stability	2	75	0.29
Financial Stability	High Stress, Low Learning, No Influence, High Stability	1	100	0.39

As shown in Figure 2, we repeat this exercise of calculating the swing weights for any level in the FOH. The above walked us through the weights for the second level. We can now move down to the third level, and for each second level objective, we compute the swing weights for its sub objectives. For example, the weights for the four sub objectives of minimizing negative stress are given in Figure 2. Note that the weights associated to a set of sub objectives will also always sum to 1.00.

Figure 2: FOH with Importance Weights



We conclude by noting that based on John's FOH and his imporantance weights shown in Figure 2, he can now score each actual job offer he is facing. For example, to compute the Financial Stability portion of his score, he would use:

0.39*(0.10*Career Flex score + 0.90*Compensation score)

Notice how we mutliplied the second level weight (0.39) with the third level weights (0.10 & 0.90). Doing this guarantees our weights will always sum to 1.00.

Decision analysis is a rich and diverse field that includes various aspects of pyschology, mathematics, and statistics that is used across a wide variety of disciplines from management to medicine. There is even a journal, called *Medical Decision Making*, devoted to applying decision analysis to medical decisions. My objective was to demonstrate how decision analysis can lead you to choose the best job offer based on your own preferences. Remember to draw on the tools you have spent years honing as a physician: take a step back, be the calm person in the room, lean on both your gut and the objective data. Applying those tools will help whittle that complex differential diagnosis to something that is clear, manageable, and headed for a good outcome!

FIELD NOTES

"Once you decide, WAIT 24-48 hours, or at least one night's sleep, before you communicating your decision"

– Anonymous

Chapter Tool Box

The **CHAPTER TOOL BOX** consists of **RECOMMENDED TOOLS** featured throughout the chapter, along with additional resources and recommended links.

These tools will help you gain valuable insight about **Decision Analysis Applied to Job Selection** to help ease your transition from training into your life and career.

EVALUATING WORK ENVIRONMENT
http://md.careers/E-12

EVALUATING PRACTICE SETTINGS
http://md.careers/E-11

EVALUATING DAILY WORK
http://md.careers/E-10

EVALUATING COMPENSATION
http://md.careers/E-09

EVALUATING COMMUNITY
http://md.careers/E-08

EVALUATING GEOGRAPHIC LOCATION
http://md.careers/E-07

DECISION MAKING WORKSHEET
http://md.careers/E-26

REVISITING PHYSICIAN LEADERSHIP COMPETENCIES
http://md.careers/E-25

PRIORITIZING OFFERS
http://md.careers/E-24

JOB SELECTION
http://md.careers/ST-07

Chapter Bibliography

CHAPTER WORKBOOK ENGAGEMENT

This chapter is editorial in nature with anecdotal evidence based on the experience of healthcare professionals willing to share their personal experiences to support and inform the decision of those new to the field. Therefore, no specific research is referenced for this chapter.

Congratulations on reading Decision Analysis Applied to Job Selection!

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This step-by-step action plan consisting of reading assignments, exercises, checklists, assessments and additional resources to help you transition from training into your work/life by making good sound decisions.

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