1

Deciding with Clarity Before Climbing Trees

Decision Analysis—Definitions and Distinctions with Trees and Risk

Far outside of legal contexts, a field of study and practice known as "decision analysis" has existed for quite some time. There are textbooks on decision analysis directed primarily at business and policy students; universities now offer degrees in "decision science,"[1] a field that includes formal "decision analysis." In simplest terms, decision analysis applies accepted logical and analytical methods to decision-making tasks that involve choice, information, uncertainty, prediction, and various types of quantitative and qualitative data. It draws upon (and seeks not to violate) rules of probability within the field of statistics.

"Decision *Tree* Analysis" represents decision analysis using a graphic tree structure, with branches and more branches splitting off from these, eventually leading to end points. These branches are constructed to depict a sequential and logical flow from decisions, to their possible consequences, including the myriad of paths these may follow, and their eventual results. Mathematical probability assessments and values are assigned; paths of consequences, risk, cost, and gain flow down each branch of the tree.

In fact, decision analysis can be accomplished without building a visual tree structure, but using a spreadsheet or scratch pad format instead. The thought process and results should be the same. However, the visual aspect of the tree itself is an important benefit for most clients and lawyers.[2] As will

---

[1] A celebration of the "Golden Anniversary of Decision Analysis," dated the field's origin to 1964 and attributes it to two professors, Howard Raiffa from Harvard, who made great advances in applying statistical decision theory to real-world problems, and Ronald Howard from Stanford (then on Sabbatical from MIT), who created an engineering approach to complex decision problems and called it "Decision Analysis."

See the archived blog article and interview at www.smartorg.com/golden-anniversary-decision-analysis-raiffa-howard-award-organizational-decision-quality/ and Raiffa, Howard, "Decision Analysis: A Personal Account of How It Got Started and Evolved," *Operations Research* 50, no. 1 (2002):10. Numerous works by Professor Raiffa and Howard are included in the reference bibliography. The method was introduced into the business community and business schools in the 1960s and 1970s, and into the public policy arena in the 1970s. Gold, David. *Valuing Litigation*. Unpublished manuscript.

Most writing on decision analysis in law practice has been in article form, with Marc Victor heading the field of writers and practitioners. Some law school texts on analytical methods include a chapter on basic and simplified discussion of topic. For additional published works on decision analysis in legal practice, see the reference bibliography.

[2] See Daniel G. Goldstein and David Rothchild's research paper titled "Lay Understanding of Probability Distributions," which found that laypeople's statistical intuitions are affected by the type of elicitation method used. Specifically, the authors found that eliciting an entire distribution from a respondent using a graphical interface,

be discussed later, without a tree, the method's communicative power is diminished. The lawyer who fails to use a tree format may also be at greater risk of failing to incorporate a significant element or to recognize certain interdependencies (irony intended). Indeed, the tree structure alone offers many of the method's benefits, without any mathematical calculations. Thus, this text primarily discusses and presents examples of the method using the decision *tree* form.

Within this domain, *risk analysis* focuses solely on assessing uncertainties and consequences that may flow from a decision. Particularly in litigation, risk analysis is the main show. Once a grievance occurs, the client is typically faced with at least two decisions: first, whether to sue or not and, second, whether to send a demand letter and seek negotiation. Once a lawsuit or an enforcement action commences, the major decisions may be relatively few: file a counter claim or don't, settle (for how much) or don't settle.[3] At this point, very little control remains with the lawyer.

Once on a litigation path, the repeated questions are: *What might happen next?* and, *What are the possible consequences?* When litigation involves visible strategic choices—whether to file in a certain forum or seek removal, whether to retain experts or call particular witnesses—and we map these on a tree, it is accurately called decision analysis. However, perhaps more commonly, litigation offers few major process choices. Lawyers use the method solely to identify uncertainties, assess risks, and estimate losses or gains they face but do not control. The term "risk analysis" is sometimes used to reflect this focus on uncertainty and risk. It seems safe to assume this was the reason Marc Victor, the first attorney well-known for applying (and writing about) formal decision analysis in the legal context, named his company "Litigation Risk Analysis, Inc."[4]

Within this piece, "decision analysis" includes risk analysis; it refers to the general method of analyzing decisions through logical and linked mathematical consideration of their certain or uncertain consequences. So as not to forget that the method can guide strategic decisions as well as risk assessments, "decision tree analysis" is often my phrase of choice when discussing how to build a tree that fairly represents a legal case, as well as how to understand, interpret, and communicate using the tree structure.

The Perils of Lawyering in Prose Alone

It's fair to ask: WHY decision analysis, decision tree analysis, or risk analysis at all? Haven't generations of fine lawyers assessed cases and counseled their clients without it?

It is of course true that, in high stakes commercial transactions or disputes, lawyers have long been called upon to write formal opinion letters or lengthy memoranda analyzing legal issues, dispositive or critical evidentiary motions, trial and settlement strategies, as well as expenditures, risks, and conse-

---

and then computing simple statistics on the graphical interface leads to greater accuracy. Goldstein, Daniel G. and Rothchild, David. "Lay Understanding of Probability Distributions" *Judgment and Decision Making* 9, no. 1: 1-14 (2014).

[3] This may be an over-statement. In fact, within litigation there are often decisions regarding choice of venue, whether to retain certain types of experts or to pursue certain avenues of discovery. As discussed in later portions of this text, the method can be helpful for such decisions.

[4] You can find downloadable copies of Marc Victor's many terrific articles at his company website: www.litigation-risk.com/.

quences.[5] At minimum, lawyers review and discuss with their clients the case's legal issues and possible twists and turns along a litigation or transactional path.

Rigorous lawyering has always required us to carefully consider questions such as: In what direction are the courts moving on this issue? Will the expert's findings support our theory of the case? Will a jury find the expert persuasive? Is our CEO likely to be an effective witness, or will his arrogance alienate a jury? If everything breaks our way, how high might the damages be? How likely are punitive damages and emotional distress? What if everything doesn't break our way? Which claim is more vulnerable? How much does it matter whether we file in state or federal court? Would it be better for our client to sue pre-emptively, or wait it out, on the chance the opposition might take no action? If we sue, what counter-claims can we anticipate?

It's hard to argue that a lawyer should not carefully consider such questions. They flow from critical concerns more generically categorized as: What are my client's rights and interests? What actions might we take, given those rights and interests? What might happen, if we decide to do this? What might happen next? Are those the only possibilities? What might be the consequences for the litigation, dealings with regulators, business revenues, or professional interests? What might the ultimate financial, personal, professional, or business impact be? What recourse would we have then?

Imagine a five or ten-page lawyer's memorandum to a client, or perhaps a fifteen to twenty-minute oral presentation to a client, that covers critical procedural and substantive legal issues, litigation decision points, potential rulings, critical evidence and experts, damages theories, and potential outcomes, as well as appeals. Imagine the lawyer diligently walks the client through questions he has considered, his analysis and conclusions.

Assume the analysis is clear, persuasive, and the client understands it all. The lawyer might explain: *The initial question is whether to file suit, and if so, in which venue. The first hurdle will be their statute of limitations defense. While we should defeat that, a recent ruling within this circuit is concerning.… We also need to consider whether the court will admit some crucial evidence on the fraud claim. If they are able to block that evidence, our damages upside is impacted. In any event, we will face a battle of the experts on this econometric causation question. Then the damages are a tricky call. Under our best theory, the damages could range from.… It's also possible that the jury could find for us, but on a different theory. That will depend on how convincing the data and the witness are. On the other theory, the jury could return an award of only.…* [and so on].

After listening to the presentation or reading the memorandum, even if the client has absorbed every predicted twist and every logical thread (and that's a big if), he will of course still want to know: *"So what should we do? What's it all worth? What are we looking at here? Should we make a settlement demand? What's the lowest we should take? What are the chances of a home run, of having everything break my way?"*

In most cases, our legal system is tasked with connecting legal claims and defenses to monetary amounts. Yet, there's a strong black box quality to the labyrinth of reason, law, credibility, exclusion,

[5] See Heavin, Heather and Keet, Michaela, "The Path of Lawyers: Enhancing Predictive Ability Through Risk Assessment Methods," *Canadian Institute for the Administration of Justice* (2016): 2, noting that "a perception inside the legal profession that lawyers are not undertaking risk assessment for their client may impede lawyer from adopting new techniques and acquiring new skills that will help them improve their role s as accurate predictors of risk."

inclusion, and legal rulings that may or may not occur before a judge or jury arrive at the question of damages. For the client contemplating settlement in light of that labyrinth, what it's all worth in settlement is complicated. A wise settlement decision must incorporate law, logic, prediction, risk, emotion, tangibles and intangibles.

The most painstaking and comprehensive prose analysis review fails to yield a logically and transparently derived numerical estimate of settlement value because no math was involved. Thus, the lawyer can only answer the client's question—*What's it all worth?*—by pulling a number out of thin air, perhaps with a sigh, regretful shrug, or a wave of the arms. A worrisome disconnect between narrative and numerical advice seems unavoidable. But is it?

Mortal Mind As Measure of Tree-Worthy Complexity

When a case is relatively simple—procedurally, legally, and on the damages side—informal decision analysis occurs naturally. Imagine the simplest contract case: your client will win or lose; what's due (or not) under the contract is clear, and no procedural or evidentiary motions are anticipated. It's easy math; most of us can visualize and assess this one pretty clearly.[6] We all know that if the defendant's deposition yields his admission of a meeting of the minds on contract terms, the case value will go up. But, if his deposition testimony is problematic, case value will go down.

Most cases are not that simple.[7] In litigation, procedural and evidentiary uncertainties are the norm; damages are complicated due to the array of legal theories, anticipated evidentiary challenges, and eventual judicial rulings. Lawyer and client must make strategic decisions that impact a litigation's possible paths and outcomes in uncertain but estimable ways. In the regulatory arena, attorneys are called upon to assess regulators' attitudes, rulemaking processes and outcomes, and legislative initiatives and emendations. In transactional work, we negotiate terms allocating risks and benefits—environmental liability, subrogation, force majeure, third party breaches, and penalty provisions—leading to future positive or negative value for the client.[8]

---

[6] I am sometimes surprised at how helpful it is for the client to see even the simplest case as drawn in a decision tree. Many years ago, attorney Elayne Greenburg (now a professor at St. John's University School of Law), reported its usefulness for her divorce clients. I was recently struck by the way the simplest two-branch tree helped an unsophisticated plaintiff to think through his decision during mediation of his employment case.

[7] See the insightful discussion and further references on this point in Heavin, Heather and Keet, Michaela, "The Path of Lawyers: Enhancing Predictive Ability through Risk Assessment Methods," *Canadian Institute for the Administration of Justice* (2016): 7-8. They draw the link to Kahneman and Twersky's earlier, seminal research and Kahneman's System 1 and System 2 thinking in his recent and popular book, Kahneman, Daniel, *Thinking, Fast and Slow* (2011). That book characterizes System 1 thinking as automatic and effective for certain types of decisions, but System 2 or slow thinking, as requiring greater cognitive effort and attention and observes that System 2 thinking is required for more complex computations and decisions. As Heavin and Keet observe, [at page 8]: "Understanding when quick, intuitive thinking may be influencing behavior and resulting in inaccurate predictions is important for lawyers and their clients as techniques and tools can be developed to counteract these intuitive responses. Accordingly, if a lawyer's advice to a client is based on intuitive thinking, rather than a cognitively based risk assessment, the ability of the client make a truly informed decision is compromised."

[8] Even though litigation examples are prevalent both here and in most writing on decision analysis in legal contexts, it can be used in other areas of practice. In fact, business attorneys may be pleased to learn that their business clients may use this method to evaluate business risk and opportunities. It is commonly taught in business schools, at least within MBA programs.

Once a case involves more than just a few procedural, legal, or evidentiary uncertainties or strategic decisions, we mortals lose the ability to assess their individual and cumulative impact on the case. We can't keep track of all possible twists, turns, and probabilities, nor can we relate our descriptions of what might happen to cogent advice about case valuation.

When the circumstances and uncertainties are many and the stakes high, shouldn't lawyers aspire to counsel clients based on more careful and systematic analysis of possible paths to success or failure? Not surprisingly, the balance of this text is dedicated to that aspriation—rigor in legal practice and fully informated clients.