

LOGICAL PREMISES—FICTION, MEANING, METHOD, AND PRACTICE

Consider this old SHOE comic strip and its dialog between two characters:¹



Is that accurate? Are the odds of winning the lottery in fact 50/50? The answer, of course, is no. Assuming \$4.6 million tickets were sold at \$1 each, the odds are 1 in 4.6 million. But does it matter? Not really. After all, only a dollar is at stake. Plus, one could argue that the pleasure derived from anticipating a possible win—those lovely daydreams of what to do with millions of dollars—are worth more than the single dollar investment. The uncertainty is the fun.

Being a party to litigation is akin to having a lottery ticket. However, unlike lottery players, clients don't generally derive any pleasure from the process or the wait. The defense client's lottery is entirely negative; the question is whether his ticket will yield losses and, if so, how much. In litigation, decision tree analysis can be thought of as a method for assessing the discounted value of the client's ticket—in support of his decision to settle by selling or buying it.

To arrive at the ticket's overall discounted value, the method's basic logic—its mathematical operation—is to multiply possible outcomes (costs and gains) by the probabilities of their occurrence. Most of us already use this logic in large and small decisions. For example, we will pay more for a car that has a low risk of breaking down, and less for one with a high chance of significant repair costs. When choosing between two investments of equal price, we choose the one we believe more likely to rise in value, or we seek a price discount for the one we believe has greater risk of failure. If I enter a lottery

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limited to 100 tickets, for a \$100,000 prize, each ticket might fairly be priced at \$1,000 (\$100,000 x the 1% chance of a win).

If all cases were that simple, no tree structure would be necessary to organize and calculate the discount. Discounting the possible result by its probability would be a one-step operation: a single percentage multiplied by its chances. The problem, of course, is that we rarely, if ever, encounter a case so simple: one in which even a single probability assessment is absolutely accurate and the anticipated award amount is exactly right.

In litigation, decision analysis applies the same logic and method—discounting to each possibility by its probability along a litigation path. Its power is in teasing apart our analysis of the ways a case might unfold as it moves through a series of uncertainties. For example, decision analysis allows us to separately consider the probabilities of winning or losing motions to dismiss, motions for summary judgment (full or partial), motions *in limine*, adoption of distinct liability or damages theories, and different ranges of damages. The method then permits us to see the successive and cumulative impact of all of these risks in the form of a discounted value calculation—the weighted average of all possible outcomes at each stage of the analysis. The method’s ability to display the distribution of possible case outcomes and their likelihoods and to map the many different paths a case might take often proves more valuable for lawyers and clients than a discounted value calculation.

Situated in Fiction, But Not Alone in Our Imaginary Land

In reality, *I will win 4.6 million bucks or I won’t!*

And, in reality, your client will win or lose some amount, and the case will (usually) only be tried once.

It is just plain true that the method’s mathematical operation rests on a fictional premise: that the analyzed event will occur many, many times, and thus its average result matters. This fiction can be heard in the way we often phrase the questions: “*If this case were tried a hundred times, in how many of them do you think a jury would find liability? If a hundred juries found liability, how many times do you think they would be mad enough to award punitive damages?*”

Is there a world where it would only make sense to measure a settlement offer against your decision tree analysis’ discounted value number? Imagine a company client faced with defending a hundred virtually identical claims to be heard before a hundred different juries. At the outset, a decision tree analysis was performed using accurately predictive probabilities and damages figures, verified by the end results in each case. In other words, the lawyer predicted a 60% chance of liability finding, and indeed, sixty of the cases resulted in liability finding; the lawyer predicted that in 20% of the plaintiff’s verdicts, punitive damages would be awarded, and that is indeed what happened. For such an imaginary set of cases, the discounted value yielded by the initial decision analysis would equal the average of all of the verdicts.

If the defense client had offered that discounted value amount to each plaintiff, and each plaintiff had accepted the offer, the defense client would be in the same financial position as he would be after all of the claims were heard and decision rendered, EXCEPT for attorneys’ fees (if these were not included). In fact, if accurately estimated attorneys’ fees were included in each case’s cost figures, then the discounted value number—offered to each plaintiff—would equal the average of all case costs (fees and

damages award included). The defendant would fare better financially only to the extent that one or more plaintiffs would accept less than the case's discount value.

In truth, most cases will only be tried once. Your client will win or lose this one case only once. And the damages will be a single number, not a distributed range of numbers. In fact, it's almost certain that the one-time case result will be the discounted value number yielded by decision analysis.

Then why or why not use decision analysis in cases with real clients and real stakes?

First, at minimum, by requiring us to deconstruct the factors that may influence a case's eventual outcome, the method requires us to think carefully.

As Professor Howard Raiffa, a revered father of decision analysis, wrote:

*The spirit of decision analysis is divide and conquer: Decompose a complex problem into simpler problems, get one's thinking straight in these simpler problems, paste these analysis together with a logical glue, and come out with a program for action for the complex problem.*²

Commitment to this forced decomposition also forces lawyers to slow down, to carefully consider instincts, hunches, research, estimates, and conclusions. When a lawyer reviews and discusses with his client each branch of choice and uncertainty and each probability estimate, the black box quality of the lawyer's analysis and advice dissipates. Thus, the method offers a careful, clear, and effective way to communicate with a client. It can de-escalate client emotions. In fact, these benefits may be gained even without mention of discounted value or probability distributions. The decision tree has value as an analytical roadmap, more accessible in a visual, graphic form than via memorandum or oral presentation.

But this discussion dodges the question for mathematical calculations within decision analysis. Given its fictional premise, how legitimate is it to perform arithmetic to derive a discounted value—the weighted average of possible outcomes—or to calculate the probability of each possible outcome within a distribution range?

In fact, many clients *do* find meaning and welcome direction from these mathematically derived data points. They are comfortable with the idea that we decide to play or not, or to bet a certain amount or not, according to the odds, even if only betting on one race or one round of cards. We all understand that probabilities are just that: there's no certainty. And we regularly make decisions around single events based on probability judgments.

Some clients find an intellectually and emotionally comfortable resting place at the data point generated by decision analysis—the discounted value of the probabilities applied to net costs or gains. While the dollar amount may be higher or lower than hoped for, their comfort derives from the method's logical consistency with the way they generally make decisions.

Think of a case with terribly high exposure, but a relatively low chance of success due to a threshold legal issue, in addition to significant uncertainty as to a liability finding. Must the client pay (or only accept) \$3,000,000—a number all acknowledge as reasonable for the injuries—if liability were clear? Or should the client offer (or accept) \$50,000—the future costs of litigation only—because the chances of

² Raiffa, Howard, *Decision Analysis: Introductory Lectures on Choices Under Uncertainty*, (1968): 271. I am indebted to Professors Heavin and Keet for reminding me of that wonderful quote in their article "A Spectrum of Tools to Support Litigation Risk Assessment: Promise and Limitations," 15 *Canadian Journal of Law and Technology* 265, (2017): 270. See the bibliography for reference to a subset of relevant work.

a defense verdict on the threshold legal question or on liability are so high? We seek guidance on what might be a reasonable number, somewhere between \$50,000 and \$3,000,000. We want to feel that if we paid more or accepted less, it wasn't as a result of fear, powerlessness, grief, anger, or violating a duty to protect the company's coffers.

Finally, in defense of the method's mathematically generated single discounted value number and array of possible numerical outcomes: don't lawyers traditionally recommend a settlement value, and discuss the range of the client's exposure? The answer is yes. And when lawyers do so, aren't they essentially, roughly, translating prose analysis to unnamed numbers in their heads, lowering the recommendation for vulnerabilities, raising it for perceived strengths? Yes, again. But, when it's intuitive—all in our heads—our thought process is hidden. And it almost inevitably lacks thoroughness and rigor. We may gloss over significant sub-issues, and we aren't capable of reliably relating a complex set of issues to the whole value.

The decision analyst follows the same time-honored process of case evaluation, only more transparently and, I suggest, more rigorously. He identifies uncertainties to be encountered and decisions to be made along the way, puts in estimated probabilities for possible but uncertain branches along the tree's paths, and includes considered estimates of possible outcomes.

In short, unless we oppose lawyers suggesting any numerical settlement value or ranges of potential exposure, it makes no sense to oppose the use of decision analysis as one method of generating numbers for clients to consider.

Misconstrued Meaning and Misplaced Moral Imperatives

Meaning is never an intrinsic characteristic of its source; meaning is generated by humans. Given its fictional premise, a decision tree's calculated result does not "mean" the settlement value, unless and until we choose to make it so. There exists no moral imperative for a client to "accept" decision analysis' results as a normative settlement rule, no biblical or philosophical text references the notion that a decision-maker is obligated to be influenced by the weighted average of possible trial outcomes in a legal dispute. The decision-maker is entirely and rightfully free to accept or reject the idea that "reasonable settlement" is defined or even guided by the odds of desirable and less desirable fates.

Another equally legitimate approach might ignore the odds (even granting their accuracy) and choose to act in a manner that is consistent with one's identity—in a way that "feels right." So, a business owner is entitled to say: *I didn't discriminate, or commit fraud, or cause an injury, and I am not going to pay the party who has accused me of that. I don't care about odds or chances: they do not influence my decision.* It is, of course, the lawyer's obligation to ensure that his business owner client understands the risk and recognizes the potential consequences for his business and its other employees. Having done so, the lawyer (and if it has gone that far, the mediator), must respect the client's self-determination enough to accept his way of making a decision.

In too many mediations where decision analysis is used, mediators and lawyers assert that the clients or opposing counsel are "unreasonable" when they reject the settlement in a target range suggested by its mathematically generated value. Innumerable articles on the use of decision analysis in litigation and mediation do refer to it as "*the* settlement value." Admittedly, the decision analytic language convention names it the "Estimated Monetary Value,"—shortened to "EMV,"—or "the discounted value" of

the case, when used in a legal context. And, as a mediator, one reason I introduce decision analysis into settlement discussions is the hope that one or both parties will thereby feel comfortable settling in, or closer to, that range.

Just *offering* the mathematical results should cause no discomfort for the tree-builder or the client. Whether called the EMV, discounted value, or roll back number, it is no more and no less than the weighted average of the possible case outcomes. That's all. What's troubling is the tendency to ascribe greater or normative meaning to this number, as if it "should" determine settlement value. This number, as well as the distribution of outcomes and each of their associated probabilities, are nothing more and nothing less than data points.

The values of honesty, neutrality, and respect for self-determination prescribe against lawyer or mediator making any other claims regarding the meaning of those data-points. They are not entitled to push for settlement as "right" or "just" at or about the data point that is the EMV. If there is a moral imperative here, it is that no mediator or lawyer should judge harshly or pressure the client who ascribes it no greater meaning.

Where the Method is Meaningful, We're Obligated to Get it Right

The lawyer is obligated to bring the same level of legal knowledge, research, and experience to decision tree analysis as to a traditional, prose-form analysis of his client's case. The lawyer is also obligated to apply decision analytic methods soundly—in ways that do not violate fundamental axioms in probability and statistics—while fairly representing the case.

For that reason, this text is dedicated to enabling lawyers to become comfortable with technical elements for competent application of decision tree analysis in both simple and more complex legal cases. We begin with basic "How To's" that can also be found through various books, articles, and websites. However, I hope that readers who are less than comfortable with math and probability will appreciate this text's deliberate attention to explaining the concepts that underlie the method.

At the risk of revealing a punch line from the "How To's" chapter, the questions that need to be considered in formal decision analysis are quite repetitive and simple: *What is in your control at this stage, and what is not? If you make that decision, what immediate consequences would flow from that? What could happen next? Are those the only possibilities? Did we miss anything? And what might happen, or what might you decide to do after that?* Finally, you will reach questions at the anticipated end points about what the jury or judicial decision-maker might decide. In addition to thinking through the logical paths of possibilities and consequences, you must consider how likely each one is to become reality.

Thus, a commitment to mastering this method is not a paean to mathematical imperatives. Even the client who will accept his lawyer's advice on faith is entitled to believe that the lawyer's recommended settlement, expenditure for experts, and strategic litigation moves were derived from careful analysis of their costs, benefits, and risks. Business executives are called upon to analyze a product's market and to project revenues and costs as the basis for strategic business decisions. Why not lawyers?

Moving beyond the basics, my central purpose is to raise and address some more subtle but important questions that arise for the decision tree builder in a legal context. Sometimes, whether to add or subtract a tree branch or a layer of branches and the order in which uncertainties are accounted for can be difficult and consequential decisions. In some cases, simplifying or representing complexity (through

pruning or adding branches or layers of branches) can distort the results and diminish the power of the analysis. Based upon years of working with decision trees in legal disputes, I offer some insights into how to make those choices. Not surprisingly, my advice is rendered in the language of trees, branches, and nodes generally used in this analysis.

Value for clients entirely aside, decision tree analysis facilitates lawyers' greater rigor when it forces us to map and consider the possible paths along which a case may unfold. As I hope you will eventually agree, that makes it well worth the effort.