

## DECISION RULES WHEN DECIDING HOW MUCH TO BUILD OUT

It is true that a reasonably accurate map of reality can become mighty large and intricate. There is indeed a tension between seeking to represent complicated realities and making the tree comprehensible. Particularly where client communication is important, it may not be helpful to create and present a monster tree, scary in its profusion of branches and far-flung, wispy ends.<sup>1</sup>

The difficult question is: when to conflate or collapse branches or branch layers into one, and when to keep them separate? I recommend basing that decision on whether the results of a given uncertainty may significantly impact assessments along subsequent paths to the right on the tree. If the ruling on a motion for change of venue will significantly impact the applicable law or process or the nature of the jury pool in identifiable and significant ways, that motion deserves a chance node. If a motion to dismiss would eliminate claims that carry particular penalties or require costly expert and discovery expenditures, that motion also merits a chance node.

When deciding whether to create a chance node for an evidentiary motion or any other post-filing-but-before-trial motion, consider whether the ruling will significantly “change the movie” the jury will see at trial. If jurors learn of the company’s prior SEC infractions (even if unrelated) are they more likely to believe that apparent corporate collusion was mere coincidence? Won’t jurors who hear testimony about prior sexual harassment episodes in the company be more inclined to find corporate awareness of a hostile work environment? Imagine a suit brought by an ailing and aging plaintiff injured in a ceiling collapse case. If jurors learn that his much younger wife married him quite recently, and she is a former prostitute, aren’t they less likely to render a high award for loss of consortium to her or even high damages to the plaintiff? It seems fair to anticipate that this type of information would “change the movie”—the story in the case presented to the jury.

Extending a movie analogy: it’s true that, to some degree, small slices of dialog and panoramic screen shots all affect the audience response. Even if a screen shot is altered and the dialog adjusted in a scene or two, the pre-release and post-release audiences will have seen basically the same movie.

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<sup>1</sup> As discussed earlier as well as in later sections, in some high dollar, legally and factually complicated cases, the monster tree is a must. High stakes patent litigation is particularly prone to large trees due to numerous and distinct legal hurdles involved in many cases. The same may be said of much complex litigation. There, the wise choice is not to simplify the tree, but to present an overview and then to deconstruct and present its component parts with care. On the other hand, as suggested in the preceding note, at least starting with a visually complex tree may be an important part of communicating with your client.

However, if a critical scene is added, a major character dies early, and the plot changes, the two audiences have seen a much different movie and can be expected to react differently.

Back to the question of whether a particular uncertainty “deserves” its own chance node, or should just be folded into the mix, Ask yourself whether the resolution of that uncertainty, e.g., the ruling on the motion, means the jury will see a very different case presentation. If so, separate chance nodes and subsequent branch clusters are indeed warranted.

No doubt, adding chance nodes and branches toward the left hand side of a tree—near its beginning—almost inevitably means that the tree will become a large one. Think of a real tree in the forest with a large branch split near to the bottom of the trunk. Each branch will have sprouted its own set of more branches, and branches off of those; at the end of each we’ll see many twigs. Back to decision trees in legal cases that start with multiple chance nodes to the left of “liability/no-liability.” Each branch must trace a path through preliminary motions and other uncertainties to liability/no liability and beyond. Simplification by eliminating or ignoring a specific legal ruling or procedural twist is legitimate (indeed encouraged) *only* if it has little or no significant effect on probabilities and outcomes anticipated to follow down the line. Of course, strategies that don’t alter a reasonably and necessarily complicated tree but do simplify its presentation are to be applauded. (Some simplification suggestions can be found later in this chapter.)

### **Damages, More Complexity, More Branches, and More Arithmetic**

Often, the devil is in the damages.<sup>2</sup> You may remember that the tree-builder for our over-simplified tree (in Chapter Four) initially asked: “At the end of the day, what do you think would be the high, medium, and low numbers for damages, if there is a plaintiff’s verdict?” That’s not a bad question for a case where one might expect a damage award to fall anywhere on a continuous distribution range—where no separate, possible but uncertain factors would yield higher likelihoods of certain points, or clusters of points along the ranges. Thus, in a personal injury case, where liability is at issue, plaintiff’s medical treatment

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<sup>2</sup> Of course, some evidentiary motions may be inevitable at trial. I draw a distinction between pre-trial and during-trial evidentiary motions here primarily because settlement decisions are often made before trial. And, while it’s often true that a trial may include many evidentiary motions, a single such motion tends to be less significant than a motion brought before trial. Put more simply, when either party’s lawyer gets wind of the experts and evidence the other side will proffer at trial, and believes it critical to prevent them, pre-trial evidentiary motions are filed.

In the best of all possible worlds, from a settlement perspective, the court would hear and rule upon these motions well in advance of trial. Once having lost a critical evidentiary ruling before the trial date, the losing party could reassess their negotiating position, and reopen settlement discussions.

The unfortunate reality is that pre-trial motions are often ruled upon immediately pre-trial, when the witnesses are prepped and ready, the players committed to the trial process. Still, I gently suggest that, as a matter of intellectual clarity, these chance nodes should be separately reflected on the tree. After all, they lay bare the architecture of paths to more and less favorable outcomes, particularly in this case where defense success on the motion might entirely bar the plaintiff’s emotional damages claim. However, in a tree that is highly complex in structure without chance nodes for an evidentiary motion, ruled upon immediately pre-trial, or during trial, I can see the argument for folding that uncertainty into an overall probability of liability or no liability. One option would be to capture its effect in a sub analysis, deconstructing that probability assessment, as discussed later in this chapter.

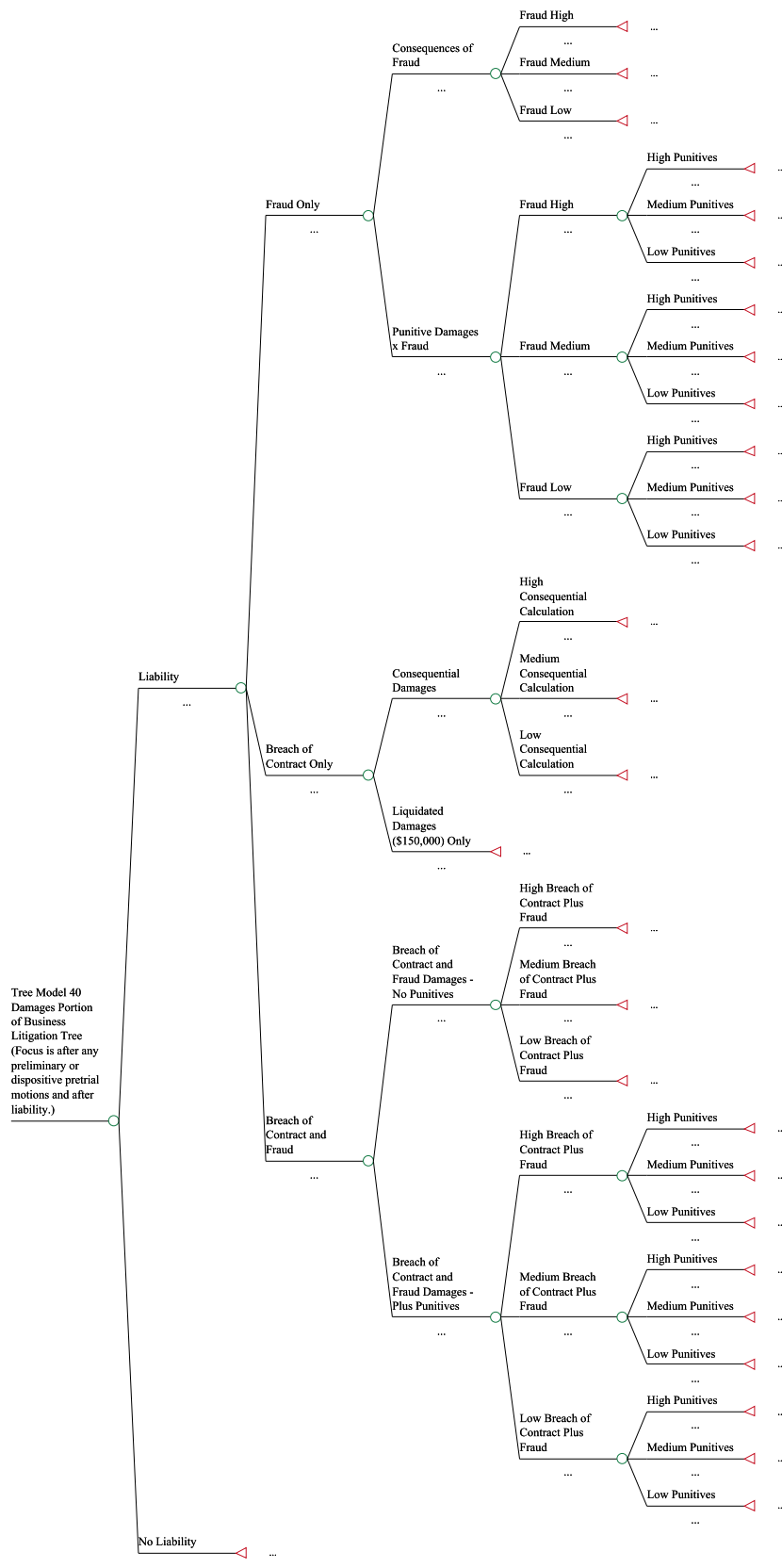
expenses and lost wages are known, there's been testimony about pain and suffering, and punitive damages aren't possible, damage award estimates may well fall along a continuous distribution range.<sup>3</sup>

However, in the employment case discussed earlier, the initial “high, medium, low” question was too simple. Really, there will be different damages ranges depending upon whether the jury finds intentional discrimination, whether the judge awards front pay (and for how long), and whether the jury awards liquidated damages. If the judge decides against front pay, and the jury awards back pay plus liquidated damages, that path will lead to an entirely different range than front pay, plus back pay, plus liquidated damages. The jury that learns of the plaintiff's emotional state and finds intentional discrimination is a different jury—a different set of actors, persuaded differently—than the jury that says back pay only and nothing more.

A way of thinking about when to break damages down further is to ask: is there something else—something specific—a binary, yes or no—that I could know about the jury's findings or logical path, that would greatly impact the damages outcome? If the answer is yes, then the tree-builder should consider separate damages branches. That is clearly true in an employment case where there's a separate actor-decision maker—the judge who will determine any front pay award. It's also true in other legal arenas. For example, in a business dispute alleging breach of contract as well as fraud, the possible fraud finding will require separate and different damages branches than the possible finding of breach of contract only. It may be that, under the breach of contract theory, there's some controversy over whether a liquidated damages provision should be enforced or consequential damages permitted. With this in mind, the portions of a tree depicting different legal theories and their damages in such a business dispute are shown next.

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<sup>3</sup> Guidance is provided in Chapter Eleven about the mathematics and a good set of questions for deriving a continuous distribution range in a case such as this.



This tree is based on entirely hypothetical law and fact. It assumes liquidated damages of a set amount. It assumes that breach of contract and fraud theories are not mutually exclusive; both could be proven. It assumes that one can identify a range of quantifiable damages resulting from fraud separate and apart from a range of consequential damages from breach of contract. It also assumes that punitive damages will fall along some range, but are not constrained to apply a multiplier of other damages.

Note, finally, to the far, far right, in most instances, we do see branch clusters “high, medium, and low”. That is because, at the end of these paths to damages (in some combination), there remains uncertainty—a distributed range of numbers along which a damages award might fall, with equal probability.<sup>4</sup> (The exception is the “liquidated damages only” path, where the damage amount would presumably be set in the contract.) In Chapter Nine, we will discuss techniques for setting and eliciting the range, consistent with principles of mathematics, probability and statistics, and psychology.

### Branches Prompt Dialog and Rigor

The process of building a realistically complex tree for a reasonably complex case raises questions at every potential chance node and cluster of branches. The dialogue prompted—whether internal or with a colleague or client—may be the method’s most important contribution. Mapping the case (via pencil or computer) forces you to consider: What are all of the possible uncertainties before trial? Which deserve a place on the tree? What might be their impact on the course of the trial? Are there only two possibilities at the dispositive motion stage: summary judgment granted or denied? Or could a judge grant partial summary judgment? If so, what claims would survive? How would the elimination of certain claims or theories impact case presentation? Would it eliminate or reduce the likelihood of an overall liability finding, of certain measures of damages? Or, would their elimination affect the damages range, and the probabilities of awards at extreme ends of the range.

Just as the act of structuring the tree prompts rigorous, thorough consideration of the possible paths of a case, it also reveals where strategic choices and resource allocation decisions will be made. We may have a choice of venue if we file suit: which would be optimal? If they file in state court, should we opt to file a motion for removal? Does it make sense for us to file preliminary dispositive motions? Is it worth retaining an expert on this issue? On damages? Does this depend upon their theory of the case?

The numerical probabilities for each branch at each juncture and net outcomes at each end point, if taken seriously, also requires careful consideration.<sup>5</sup> The lawyer must review the sources of uncertainty, the weights of arguments and facts predicted to tilt the probability scale in one direction or another. What are the strengths of the other side’s facts—smoking gun documents, likeable witnesses, close time sequence?

What case law supports their legal theories? On your side of the case: will the jury understand your highly credentialed expert? Is it worth investing more time to work with the expert, if he is a critical piece of your case? What really is the highest damages amount the jury could award that the judge would not reduce? On the defense side: have you considered how the jury might feel about our company if everything breaks its way at trial? On the plaintiff’s side: have you considered how a jury, unsure

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<sup>4</sup> It is arguable that the end node at back pay only, no emotional distress, and no punitive damages, should be a single calculable number—lost wages and benefits. Fair point, theoretically. But, in real life, there may be controversy about efforts to mitigate, about lost bonuses or overtime. We are still discussing structure and not numbers, but I can’t resist noting that defense attorney’s fees should be added as costs, as well as plaintiff’s attorney’s fees (owed by statute). They would impact the range and there would still be some uncertainty as to attorneys’ fees the court would find reasonable. This would most likely be resolved in a post-trial hearing. Note also that I have not included any reference to an appeal or its chances, etc.

<sup>5</sup> More detailed discussion of impediments to unbiased estimates are found in Chapter Nine and suggested best practices for the process of estimating and discussing probabilities are in Chapters Nine, Ten, and Eleven.

about liability or unimpressed by your client's mitigation efforts, might come up with a verdict much, much lower than what you're claiming?

In Chapters Nine and Eleven, we'll review best practices for estimating probabilities and damages in ways that minimize distortion by psychological biases. What should be clear is that the process of estimating probability and damages along each path on the tree demands thought and rigor.

### **Consider the Jury Verdict Form's Impact<sup>6</sup>**

If possible, before estimating the likelihood of a liability finding, the decision analyst should consider the jury verdict—the questions it will ask the jury to address. Let's assume the jury will understand the judge's formal instructions that, in order to find liability, both causation and negligence must be found. Where the jury will be given only a simple general verdict form, should the decision analyst assess the probabilities of each separately, and multiply them to get the cumulative probability of a liability finding? Probably not! After all, when jurors return verdicts on general verdict forms (without addressing specific questions), experience suggests that, despite the legal distinctions, the jurors act on a gut sense of what's right—of the justice they want to bring about. If you don't believe they will assess the negligence and causation issues separately, but rather, holistically, then your probability estimate should be holistic. It should reflect the way you believe the jury would approach the question.

In federal courts, it's common for juries to return their verdicts in the form of answers to special interrogatories. Special interrogatories are designed to cabin decision-making sloppiness by compelling juries to make separate findings about legally separable issues, e.g., to address separate components of multi-element claims or defenses one component or one element at a time. The jury is asked to determine, separately for each issue, whether the party bearing the burden of proof has met its burden. To assess probabilities, the decision analyst should ask the parallel questions: what is the likelihood of the jury answering yes, to each and every one of the questions required for a liability finding?

No binary advice is offered here. It depends on how you believe a jury, given separate interrogatories, will think about their answers. Most of us make decisions based on emotions, on what we want, and then justify our decisions with reasoning and argument. If that's true, then even the interrogatory jury form may not lead to perfect, open, *independent* deliberation on each question. Underlying favor or disfavor toward the plaintiff may color jury deliberations on each interrogatory.

### **Apply Gut Sense and Reality to Cumulative Probabilities**

#### ***When Path and Math Disconfirm Gut Sense—Insight or Distortion?***

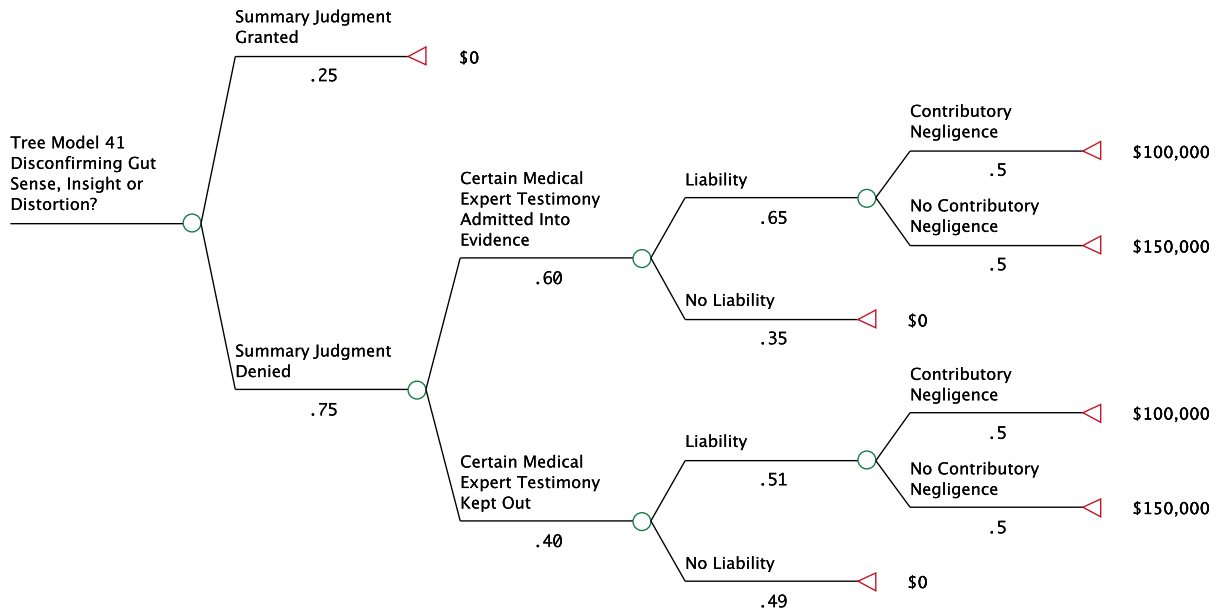
Imagine a discussion with plaintiff's counsel about a pending case. He begins by saying: "My gut tells me this case is a strong one! I think our chances are very good on that ridiculous summary judgment motion. We are also quite strong on getting the medical expert in, and that will help our chances on liability. And even without the expert, it's more likely than not that we win. And if we win, we clear \$150,000 with no contributory negligence; I'd say reduce it by a third if the jury finds contributory negligence."

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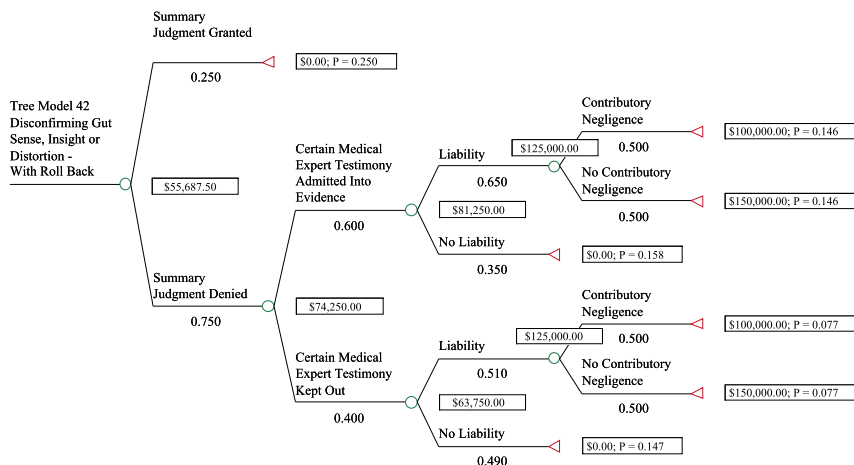
<sup>6</sup> This section is either excerpted or paraphrased from: Aaron, M. and Brazil, W., "Shaking Decision Trees for Risks and Rewards," *Dispute Resolution Magazine*, 22, no. 1 (2015): 12-18.

When pressed to think about the way these factors fit together and to provide estimates for a decision tree, plaintiff's counsel estimates: a 75% chance of surviving summary judgment, a 60% chance of the desired expert evidence being admitted. He acknowledges that whether the evidence is admitted would affect the chances of liability and estimates these as 65% if the evidence is admitted, 51% if it is not, and in either event, a 50% chance of the jury finding contributory negligence in the range of 1/3, or approximately 33%.

Here's the structure of the tree, reflecting the stated probabilities.



In fact, as you can see below, even though based on plaintiff's counsel's estimates, when the tree is rolled back and cumulative probabilities calculated, the results can be disappointing.



From the cumulative probabilities on the right side, we see an overall likelihood of any recovery by the plaintiff at 44.5%, and the chances of recovering the full \$150,000 at 22.3% (.077 + .146).



“Wait a minute,” protests the plaintiff’s lawyer, “according to your decision tree analysis and your cumulative probabilities, the total chance of my client winning \$150,000 is, give or take, 22%? And the overall chances of winning anything are 44%? My gut tells me our case is stronger than that! These numbers are too low!”

If the cumulative probability of a particularly important result—say, liability or a desirable damages award—ends up far, far from a lawyer’s gut sense, should we look to the gut or the math as the distortionist? The answer, of course, is that we should re-examine both, with some care.

In truth, one of the strongest reasons to use decision analysis is that our “gut” sense or the lawyer’s intuitive calculator is not capable of determining cumulative probabilities for each possible outcome in a reasonably complicated case, let alone one that is highly complex. Yet, we would all acknowledge that, in rare instances, everything or nothing will break our way, and reality is more often a dastardly combination of positive and negative breaks. And each time the cue ball encounters another ball in play, our point total heads up or down.

The decision tree should be structured to represent, as accurately as possible, a map of the paths along which the case might flow. Uncertainties should be estimated at critical junctures—particularly where a decision-maker or other actor will impact the path of the case. Where the tree fairly captures the lawyer’s informed analysis of the uncertainties and their probabilities and yet, the cumulative probabilities of desirable and undesirable outcomes contradict the lawyer’s gut sense; it’s time to silence the gut and consider arithmetic’s counsel.

Yet the gut should be a critical check on the structure of the tree. Sometimes, the tree-builder is seduced (or seeks to distort) by the lure of over-complexity—by deconstructing uncertainties in an unrealistic way. It is true that the more layers in a tree—the more branch clusters along its path—the more cumulative probabilities reduce the likelihood of each possible final result.

### ***Disavow Distortion Disguised as Greater Diligence***

An over-eager or disingenuously diligent decision analyst asks a savvy and appropriately skeptical lawyer:

“What is the likelihood of proving each of the four required elements of liability? That the jury will take seriously the defense claim of a waiver and use that against the plaintiff? Or, what is the likelihood your star witness will perform well? That the jury will have too many skeptics?” The analyst then multiplies these percentages to yield a suspiciously low cumulative probability of success. We are right to suspect this analyst is a shill for the defense!

Yes, all of these will have to fall into place for a liability finding: the elements must be proven, the waiver testimony discredited, the witness be credible, and the jury somewhat sympathetic. But if you break them down, and assign even a high probability to each one separately, the probability of a liability finding will be severely reduced when the multiplication is done. And the savvy lawyer would be right to favor his gut sense that a jury is highly likely to find liability. Many of these factors may influence a jury—the decision-maker—but it may be true that their decision will be made holistically. In this case, on the question of liability: clean and simple structure may be a more accurate map.

As always, our reference point is informed, thoughtful prose analysis of the case. Does the tree fit? Does it reflect our best judgments about how important uncertainties may break, in what directions,



and what impact these may have as the case unfolds over time? If not, then by all means, use good lawyerly instinct and wisdom to reshape the tree, and rethink the probabilities. If so, the wise lawyer may want to discuss that original tree and its cumulative results with his client.<sup>7</sup>

### **Choosing to Walk it Back: Resolving Realism, Complexity, and Confusion**

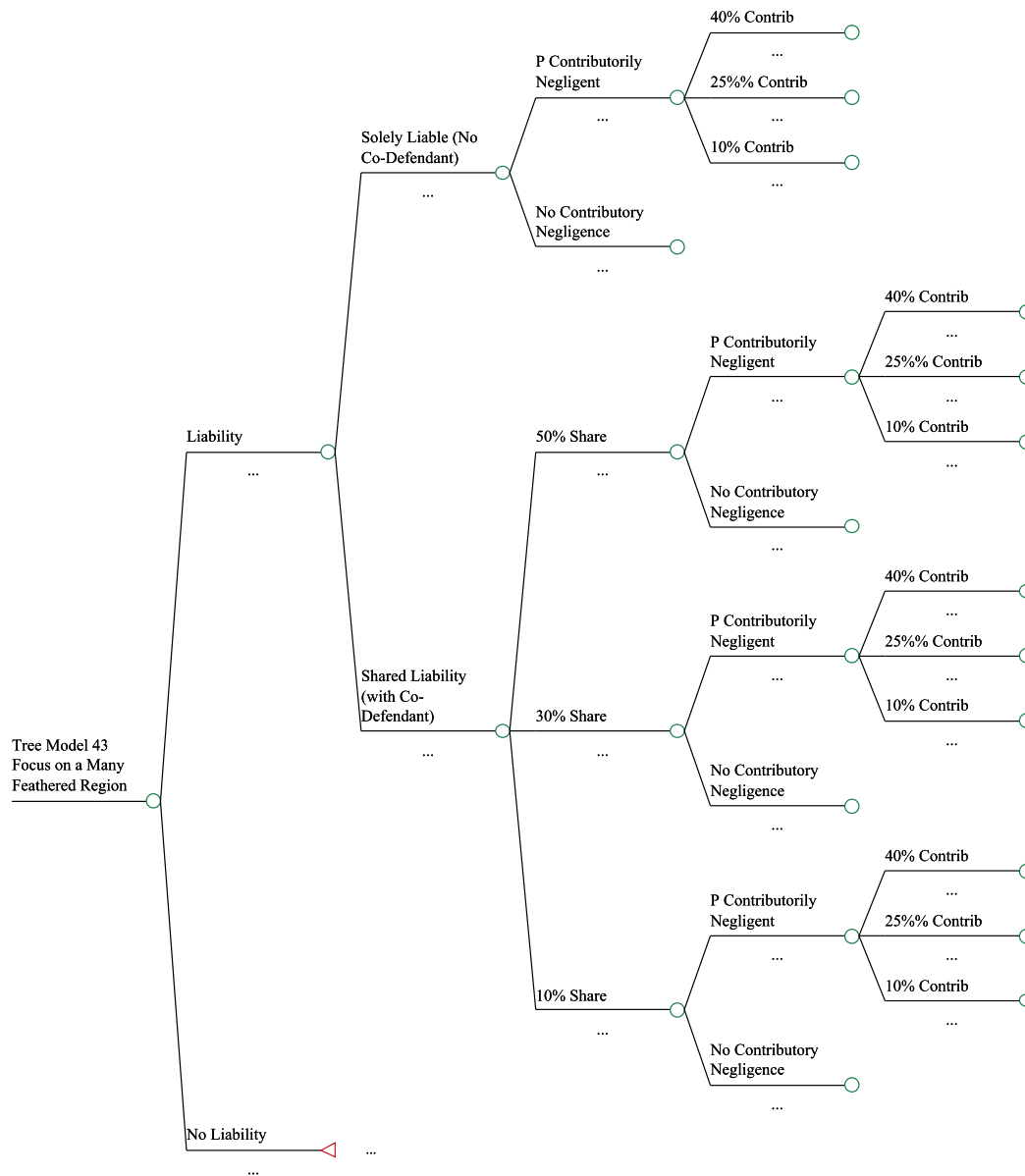
Having staked a righteous claim in the fully branched, fully developed tree school of decision analysis, I am amenable to compromise. Especially when compromise on complexity reduces confusion and insignificantly affects the outcome, compromise may be the favored choice. It is true, after all, that when a tree sprouts branches upon branches, twigs upon twigs, the whole thing just looks like feathers. Shamelessly continuing the analogy, we are tempted to brush the feathers away with a wave of the hand or a frustrated breath. Unreadable, the endlessly complex trees tease and annoy us with the idea that they might have value, but it's hard to pin them down, read, and gather what insight they might offer.

Here are a few ways to “slim down” the number of branches, without sacrificing accuracy.

Logically, while building the tree, I tend to think and then draw by asking “what could happen next”—supply binary (or three or more) answers—and “if that, then what?” ...and so on. For example, I might sketch branches reflecting the most basic uncertainty: will the jury find “some liability or no liability.” Then, assuming involvement of a co-defendant, on the “some liability” branch, I would next ask whether it would be a shared liability (with the co-defendant) vs. solely liable, and so forth. Here's what that portion might look like, including a similar approach to the question of contributory negligence: None or some? If so, how much? The attempt to think carefully, step by step, is shown by the way the branches are drawn.

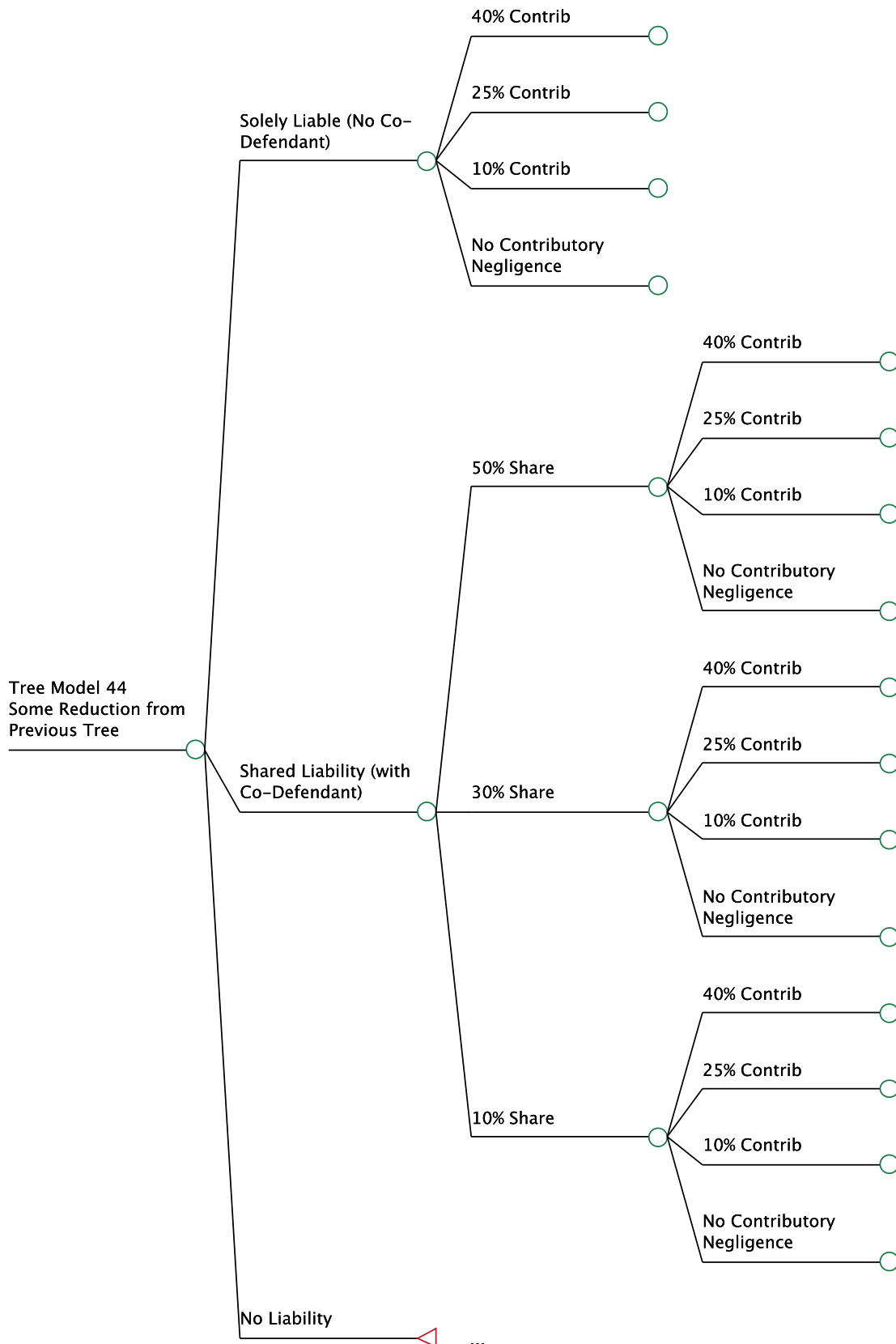
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<sup>7</sup> An affirming and elegant discussion of the need to balance “methodological rigour and intuition” can be found in Heavin, Heather and Keet, Michaela, “Litigation Risk Analysis: Using Rigorous Projections to Encourage and Inform Settlement,” *Journal of Arbitration and Mediation* (forthcoming):4-6.



Then shown below, the tree can be “pruned” by collapsing the branches to recognize that, really, I’ve concluded that three outcomes are possible on the question of liability: no liability, shared liability, and sole liability.<sup>8</sup> They can be represented by three branches emanating from a single chance node, instead of two successive chance nodes. A similar adjustment can be made on the question of contributory negligence: rather than two successive questions or nodes, we might line up all of the possibilities- various estimated levels of contributory negligence, starting with 0 (none).

<sup>8</sup> See Professor Howard Raiffa’s original discussion of how to think about pruning in Raiffa, Howard, *Decision Analysis: Introductory Lectures on Choices under Uncertainty*, Addison-Wesley, (1968): 242-243 and 267.



A note of caution is important here, and will be echoed in Chapter 11 regarding best practices for considering or eliciting subjective probability. That is because research shows people will assign probabilities differently, depending upon the way these questions are asked and depicted on a tree, even though theoretically, the probabilities should be the same.<sup>9</sup>

In other words, if one is asked: “What are the chances of a plaintiff’s verdict, and if so, what are the chances of shared or solo liability?”<sup>10</sup> they might estimate a 70% chance of liability and a 50% chance of shared liability vs. solo. This would mean that overall (after cumulating the probabilities), they estimate a 30% chance of no liability, a 35% chance of shared liability, and a 35% chance of solo liability. Yet, if the question is asked differently: “We know there are three possibilities: defense verdict (no liability), shared liability, or solo liability. What’s the probability of each?”, people will allocate the percentages differently.

Since we are in the realm of subjective probability, and we can’t test our probability estimates in repetitive jury trials, it’s an open question as to which method would prove more accurate. However, instinct tells me to favor the first, more deconstructed probabilities, as it forces the lawyer-estimator to walk forward from the world in which liability/no liability is undetermined, and only then consider how the jury might allocate the blame.

Best practice may be to try it both ways, and think carefully about which probability assignments seem “more right.” Given that our task is to simplify the tree, these “alternative sketches” are best done on a scratch pad. Once the tree builder is satisfied with the probability best assigned to each possibility, he can put it in the right place on our streamlined tree.

### For the Practical Arborist, Guidelines to Go By

Fair questions for the serious tree-builder lawyer are: “what are the guidelines?” And, “what’s a reasonable way to go about deciding where to prune layers, where to combine branches, and where to retain the original “true” depiction of the case within the tree structure?” The suggestion provided above is easy because, assuming care with probabilities, it doesn’t really affect the structure (beyond cosmetics) and shouldn’t change the outcome at all. Let’s consider some criteria for different ways of growing, pruning, and trimming trees:

- 1) If the original tree fits on a page, and your client can follow its logic and its paths, I see no reason to simplify for its own sake. If your client’s major concern is the distribution of outcomes, you can easily create a separate chart showing the probability for each outcome, or the cumulative probability of outcomes greater or lesser than certain dollar amounts.

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<sup>9</sup> It is also true that when people are asked to think and assess the separate probabilities about possible paths to an [unfavorable] outcome, the sum of these probabilities tends to be significantly higher than if asked for a simple aggregate estimate of the probability of that outcome. The original experimental work is presented in Fischhoff, Baruch; Slovic, Paul; and Lichtenstein, Sarah, “Fault trees: Sensitivity of estimated failure probabilities to problem representation,” *Journal of Experimental Psychology: Human Perception and Performance* 4 (1978): 330-334.

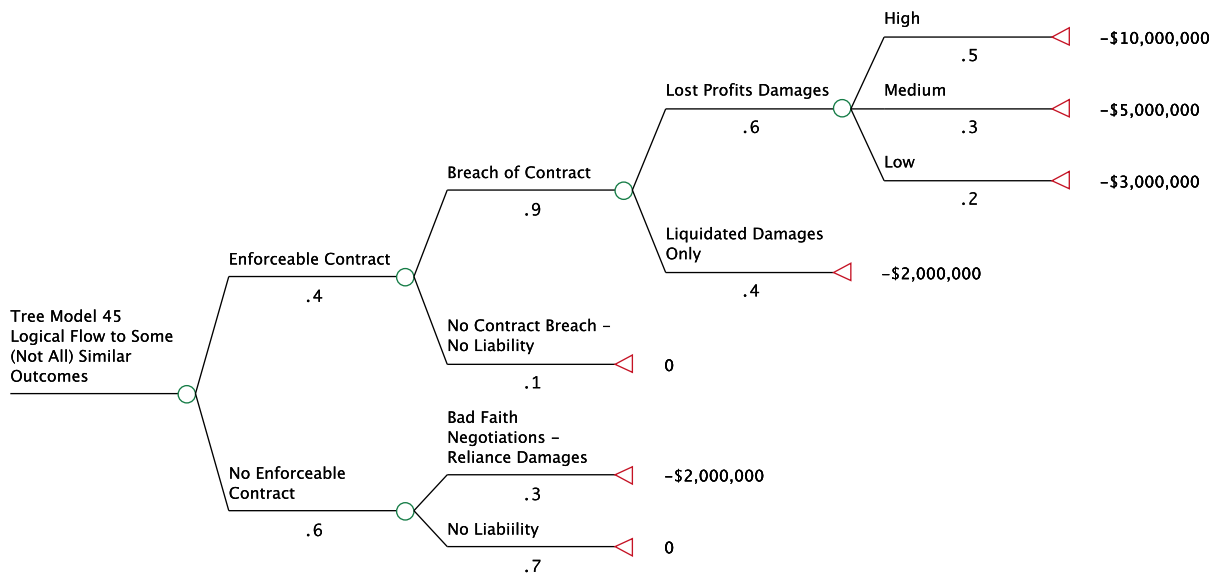
The consensus view that disaggregation leads to higher probability estimates, and collapsing components to lower estimates, is also summarized in Garthwaite, Paul H.; Kadane, Joseph B.; and O’Hagan, Anthony, “Statistical Methods for Eliciting Probability Distributions,” *Journal of the American Statistical Association* 100, no. 470 (2005): 680-701.

<sup>10</sup> For the purposes of simplifying this example, I am assuming that solo liability on the co-defendant is not a possibility.

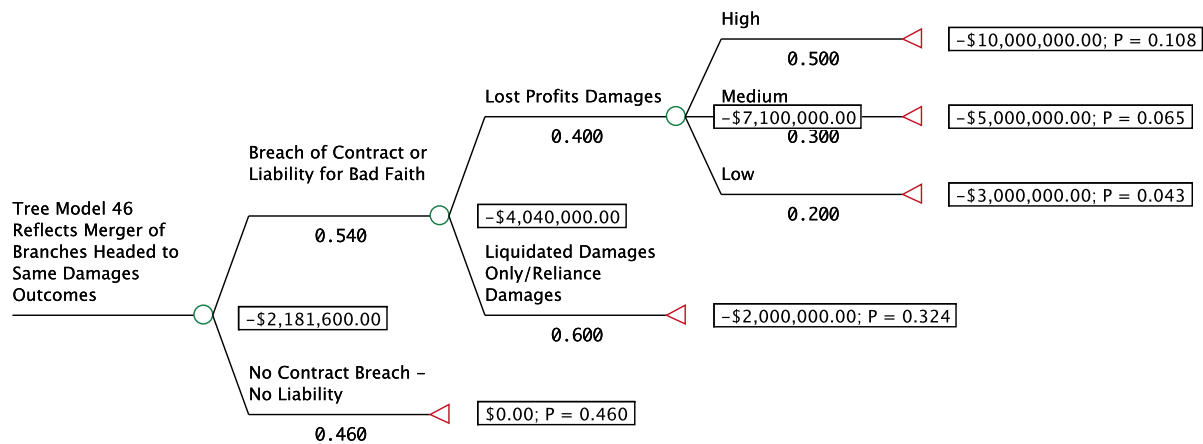
- 2) There may be some areas where you can see that much “feathering” (fine breakdowns of possible twists in the case), doesn’t yield significant differences at the end of each path.

Imagine that your client has been sued for breach of contract in a business dispute. The plaintiff claims that a merger agreement was in place (though the written document was never signed), and your client breached the agreement when they opted to pursue a different business opportunity. Although the agreement contained a \$2 million liquidated damages provision, the plaintiff argues that its language doesn’t apply and that they lost profits in the amount of \$10 million. The plaintiff also claims that, even if there was no contract, the defendant company was not acting in good faith during the negotiation phase, should have informed the plaintiff earlier of its decision not to go forward. As a result of the defendant’s actions, the Plaintiff incurred \$2 million dollars in reliance damages. Thus, there are disputes (and chance nodes) as to whether a jury would find there was a contract, and if so, whether a liquidated damages provision in the amount of \$2 million should apply? And even if the jury finds no enforceable contract, there’s a possibility of (hence a chance node for) \$2 million in reliance damages. Thus, it might theoretically be legitimate to conflate the sets of branches leading to \$2 million. Each probability would have to be added. I suggest the addition occur only after considering them separately.

Below is what the tree might look like before combining any branches.



Next is an adjusted tree, that combines the two paths leading to \$2 million in damages, and the two paths leading to a defense verdict.



Please accept my note of some disapproval and, at minimum, cautionary advice: the reason NOT to set the tree up in this simpler way is that conflating seems to reflect muddled thinking. If one purpose of this method is to clarify thinking, to reflect careful reasoning (even where reasoning has to account for an emotional jury), trimming the tree in this way defeats that purpose. As suggested earlier, my inclination is to include complexity and the number of chance nodes that reasonably reflect reality. If that creates a messy or illegible visual, you can break the tree into sub parts for separate review and discussion. However, if you must merge branches, then DO take care to add each probability you would have applied to each separate branch.

With all due respect for legal logic and careful thinking, the question of impact can reasonably inform the tree builder's initial draft of the tree structure. A lawyer-tree builder may be inclined to consider and create separate branches for alternative claims or theories of the case. In the event of a motion to dismiss or motion for summary judgment, he might consider and create branches for alternative ways the judge might allow some portions of the case to go forward. If these alternative claims or theories lead to little or no difference in the evidence introduced, the likelihood of liability, or the measure of damages, then you may safely merge them in a well-considered final tree structure.

- 3) Particularly with regard to multiple branches for different possible damages theories and ranges, the client may be indifferent above or below certain break points.

Imagine that your client's business will be bankrupted by a judgment over \$3 million. Assume that, if there were a fraud finding, it's at least 50% likely the damages award would be greater than \$3 million. To that client, whether it's more likely to be \$4 million, \$5 million, or \$8 million doesn't matter so much. But he does very much want to know the overall likelihood that it will end up at \$3 million or higher. Or imagine that your commercial plaintiff client's business recovery will not be significantly impacted by a judgment of less than \$300,000. He doesn't care to know at the low end, whether it could fall at a disappointing \$100,000 or \$200,000. But he might very much care about the upside: the probabilities of recovering an amount that would revive his business and its ability to move forward with credit and investment. In either case,

you are free to prune branches and combine probability estimates without guilt in areas of little significance for your client's decision.<sup>11</sup>

### **Strategies for Both—Simpler Presentation and Complex Support Structures**

Whether inside or outside corporate counsel, a lawyer representing a large company in an enormously consequential matter needs to be able to present a simple, compelling overview of a looming litigation so that the executive team and perhaps the board of directors are fully informed. The case will require commitment of resources; the marketing and PR departments may wish to undertake certain initiatives in anticipation of the litigation's impact (win or lose); research and development or the corporate acquisitions unit may want to seek alternative ways to produce the controversial product, free of patent claims. The corporate lawyers and compliance department will need to understand the case analysis for the purposes of SEC filings and shareholder notice.

Just as in a prospectus or shareholder's report, an executive summary makes sense when presenting decision analysis in oral or written form. For that, a readable single page tree (even enlarged) may be best. Or you might opt for a two-page presentation, one showing the structure of the tree leading up to liability determinations and one showing the structure of uncertainties regarding damages. If you want everyone on the same page, it has to be a page that all can understand.

Yet, in view of the stakes and resources that have been or should be expended to assess and improve risk at critical case junctures, thorough analysis is warranted. This is no time to give details short shrift. Thus, I strongly recommend that the tree-builder lawyer create subtrees for elements impacting liability and damages that could not be separately highlighted in the "executive" tree. These subtree analyses are what yield the probabilities or damages reflected in the executive tree.

### ***Proffering the Probability Subtree***

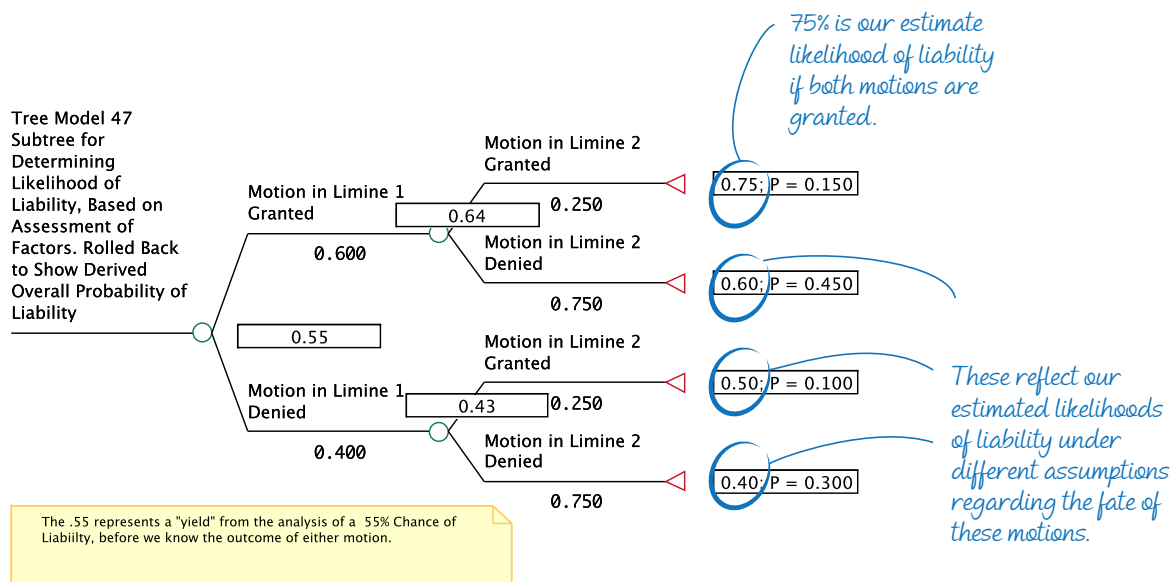
Consider a case in which the trial court's rulings on one or two critical and complicated motions *in limine* will significantly impact the likelihood of liability. To put that into the main tree, with all subsequent branches, would add a great deal of visual complexity. Remember, each of those initial "left side" branches must be followed by all of the case's possible paths toward liability and damages.

Instead of presenting the various motions *in limine* branch clusters on the main tree, you might create and provide a back-up in the form of a "probability subtree" showing the ruling's anticipated effect on the likelihood of liability, and the probabilities assigned to each ruling. This subtree serves to explain how you derived the probability estimate for liability in the summary tree. As shown on the next tree, it permits the elimination of a tangle of preliminary motions before two simple liability or no liability branches.

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<sup>11</sup> The TreeAge software includes a helpful "over under" feature for precisely this type of question. From the menu under "Analysis," you can "ask" the total probability of results under or over a given dollar amount.





It's important to recognize that the percentages at the end are estimated probability OUTCOMES. This subtree is intended to assist us in deriving the probability of liability that will appear on the main tree. Thus the top path along the branches reflects a judgment that IF the Motion in Limine #1 were granted, AND Motion in Limine #2 were granted, the likelihood of a liability finding would be .75 or 75%. The .6 below the "Motion in Limine #1" branch reflects someone's estimate of a 60% chance of that Motion in Limine #1 will in fact be granted, just as the .25 under the "Motion in Limine #2" branch reflects someone's estimate of a 25% chance that it will be granted, and so on.

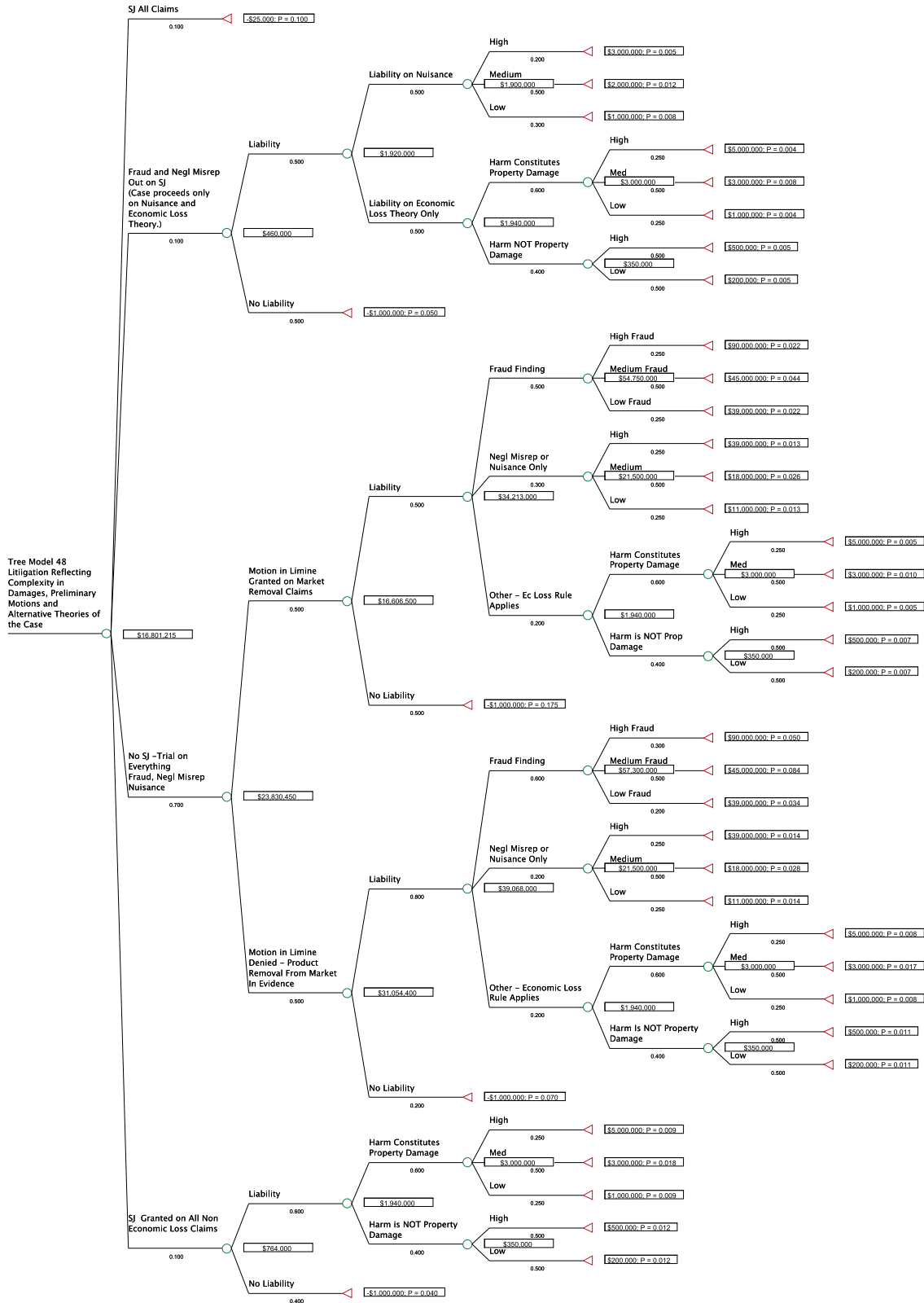
When these are rolled back, the probability "EMV" is the overall estimate of the chance of liability, derived from these separate assessments of uncertainties affecting the chance of liability. Thus, that 55% would be inserted in the summary or main tree as the chance of a liability finding.

## Damages Without Details

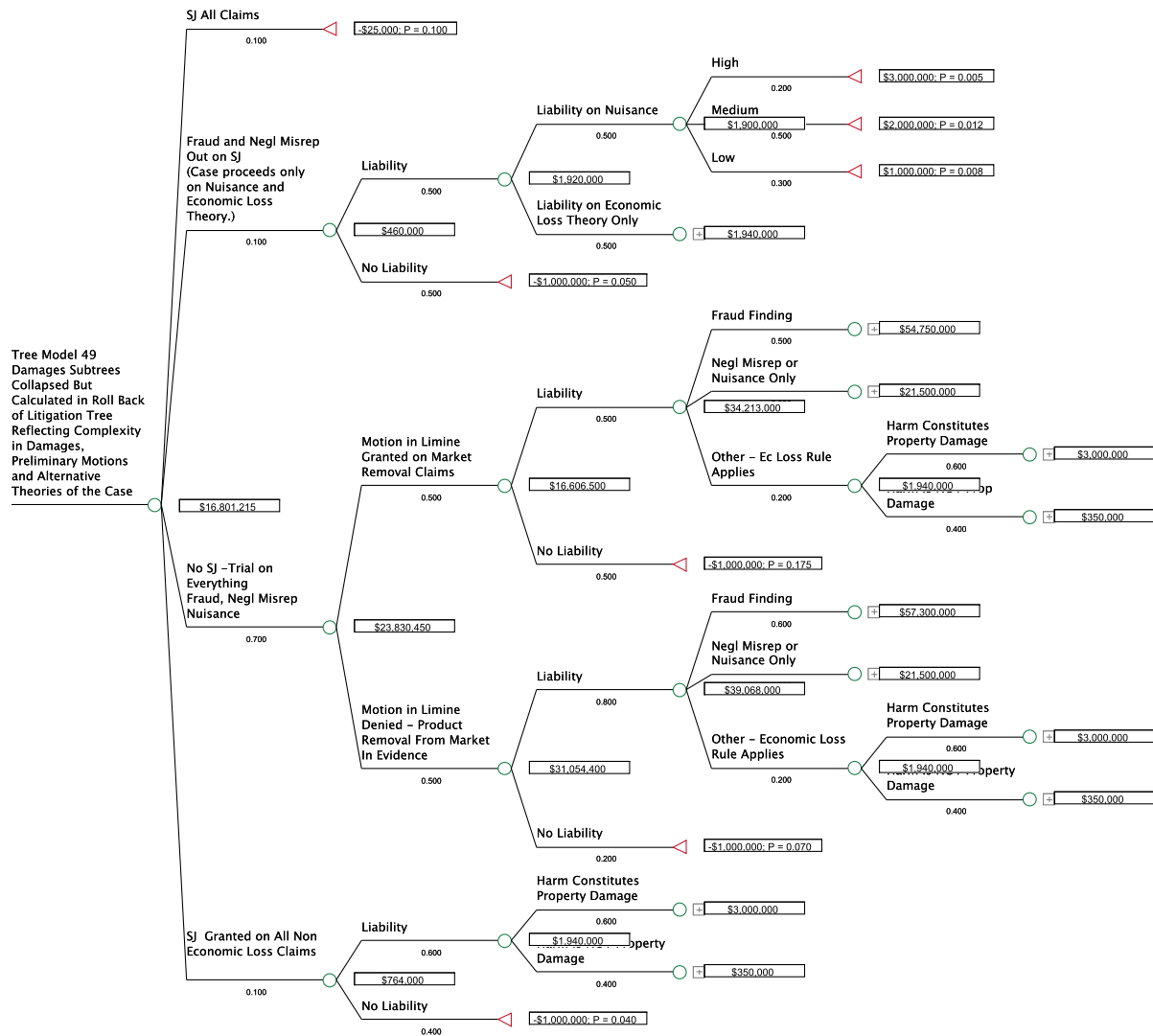
On the damages front, you might put all of the damages analysis into a separate tree, roll it back to an EMV for damages, and then plug that damages number into the executive tree.

The very real danger, of course, is that the executive tree would NOT reflect the highest or lowest estimated damages number, but a weighted average of the damages numbers.

First, here's a wonderfully complicated tree, rolled back and with all of the motions, theories and potential damages displayed. The reader will note that the case story—the facts and legal analysis—is not presented here, though that would explain the cryptic references and abbreviations on various branch labels. The case story doesn't matter for our purposes: to illustrate an admirably complex tree and then how that tree can be simplified by "collapsing" damages subtrees.

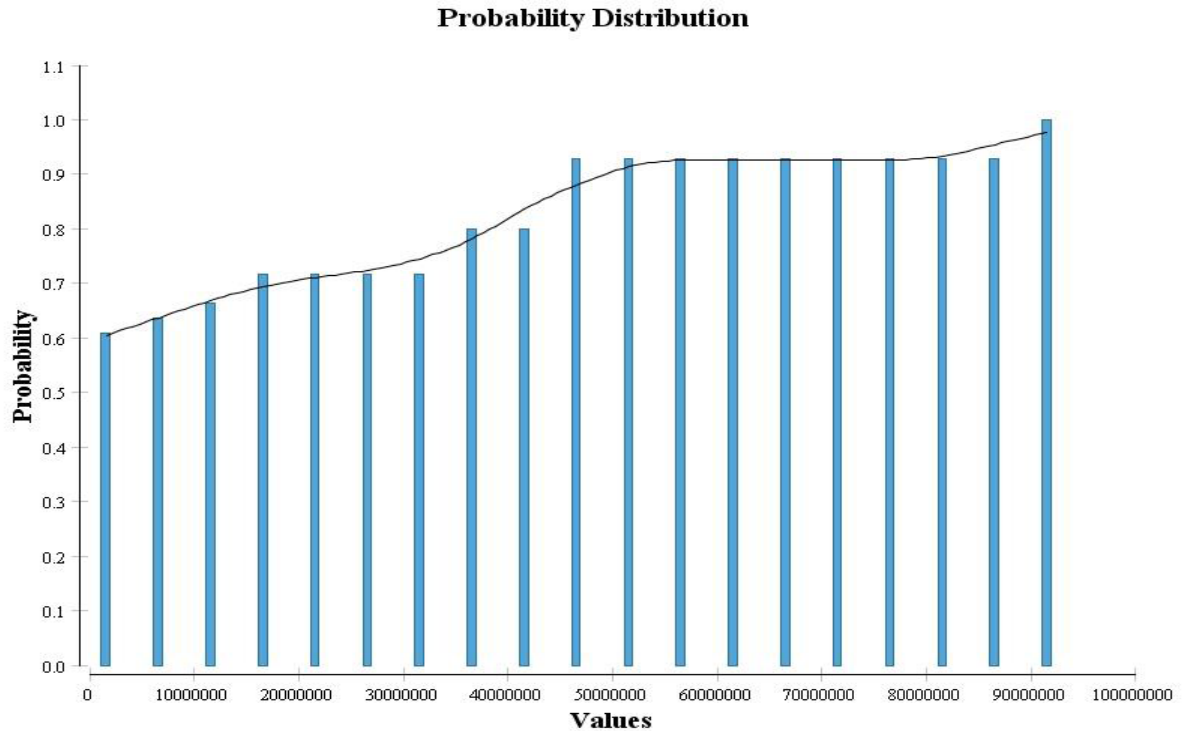


Now here's a simplified version of the tree, with various damages branch clusters "collapsed"—not showing. (The TreeAge software allows you to collapse subtrees at any point, but still rollback the tree to derive its overall EMV. The roll back is calculated using the damages numbers that were at the terminal nodes, even though they are not visible.)



The danger of focusing your client discussion on a visually simplified tree, with collapsed damages subtrees and branches is that it fails to alert the client to the full possible range of numbers. This is particularly dangerous where the range of possible damages is wide. After all, the damages range represents the outcomes that might indeed impact your client. Thus, a visually simplified tree, pruning back the damages ranges, makes sense for a discussion of procedural uncertainties and legal theories. However, that should be followed by a separate examination of the damages subtrees. Despite their invisibility, they form the basis for the rollback.

I'd also suggest a page that graphs or lists all of the possible outcomes and their likelihoods. Here's what a graph of the probability distributions might look like.



A more precise breakdown, derived from the full tree (Tree Model 48), might be helpful if presented to your client in this way. (This could also no doubt be generated on a spreadsheet.)

Possible outcomes	Total Probability	From these path probabilities
\$90,000,000	7.2%	.022, .050
\$45,000,000	12.8%	.044, .084
\$39,000,000	8.3%	.022, .034, .013, .014
\$18,000,000	5.4%	.028, .026
\$11,000,000	2.7%	.013, .014
\$5,000,000	2.6%	.009, .008, .005, .004
\$3,000,000	5.8%	.005, .008, .010, .017, .018
\$2,000,000	1.2%	.012
\$1,000,000	3.4%	.009, .008, .005, .004, .008
\$500,000	3.5%	.007, .011, .012, .005
\$200,000	3.5%	.007, .011, .012, .005
-\$25,000	10%	.10
-\$1,000,000	33.5%	.05, .175, .07, .04
TOTAL	99.9% (.1% under 100% due to rounding loss)	

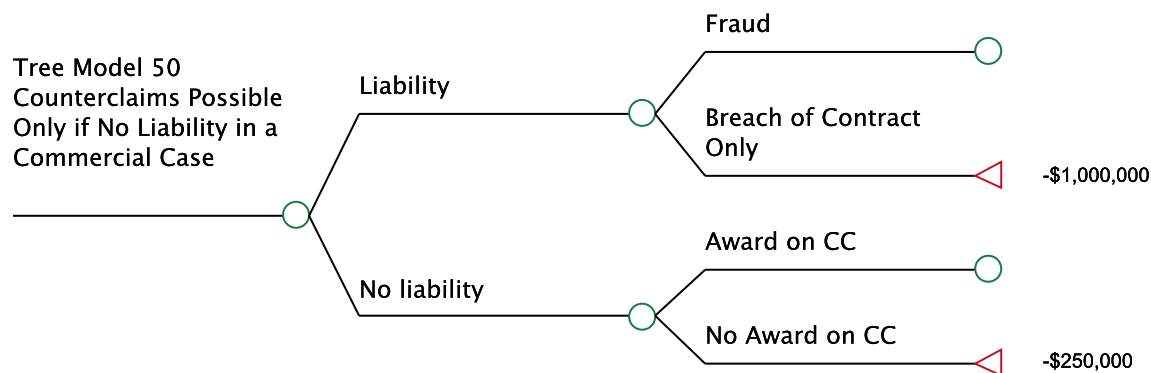
Another way of thinking about it is to highlight that your analysis reflects a 27.7% chance of a verdict between \$39,000,000 and \$90,000,000; an 8.3% chance of a verdict that is either \$18,000,000 or \$11,000,000 (or in between), an 11.3% of a verdict between \$1,000,000 and \$3,000,000, and so forth. On the other hand, there's a 43.5% chance that the verdict would result in \$0 recovery and significant attorney's fees and costs. The discussion with your client would focus on the numerical ranges of greatest significance to his business.

## Separate Confusion of Counterclaims

Counterclaims can be counted upon to present visual confusion, depending in part on how they fit logically and thus, where they should be placed in the tree structure. While you may wish to build the counterclaim's tree structure separately, the various probabilities for branches of the counterclaim will inevitably be impacted by events and evidence in the main case. In other words, given that the cases are related in real life, it makes sense to relate the two trees.

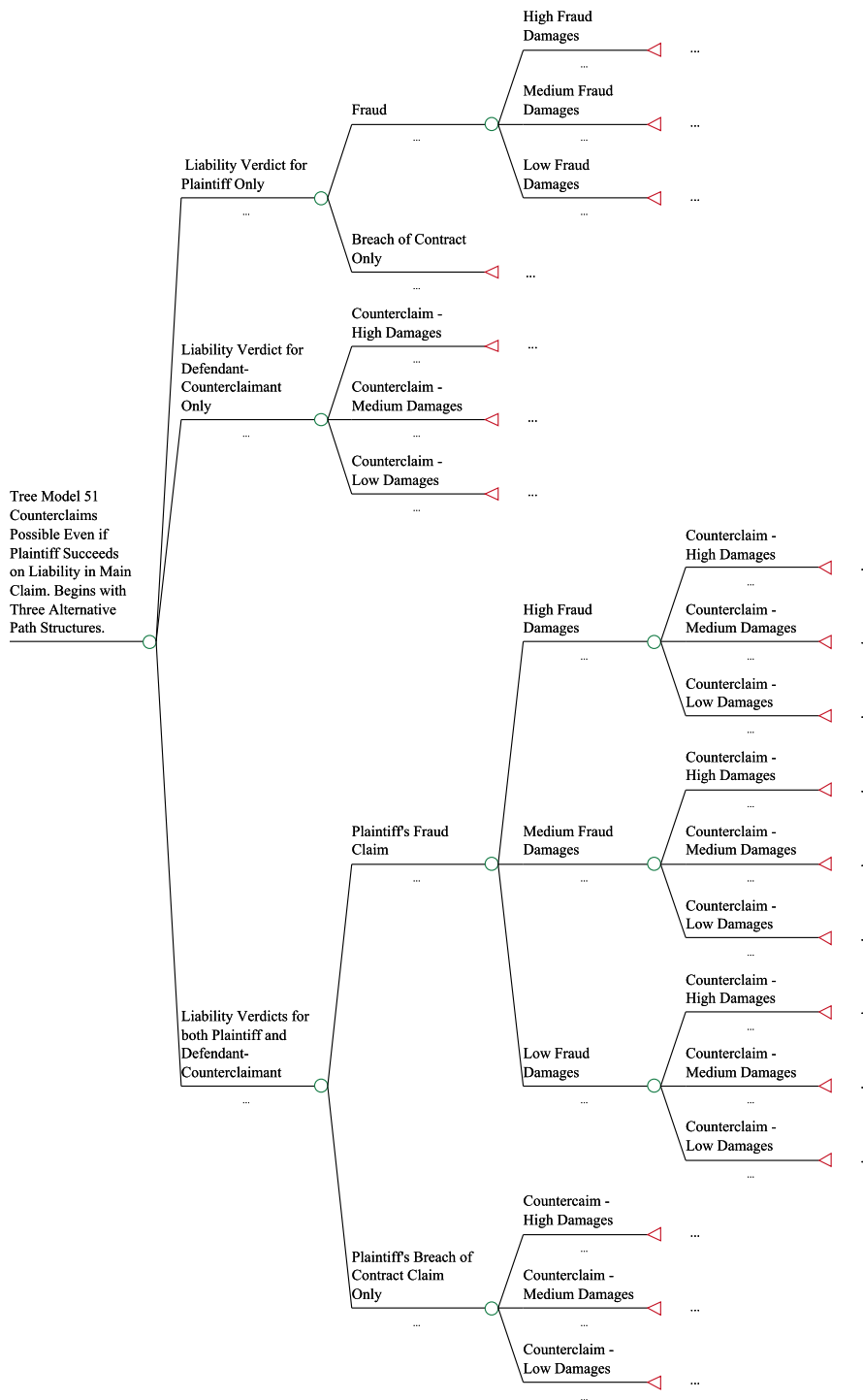
In some cases, there is a straightforward logical inconsistency between finding in favor of the plaintiff in the main claim and in favor of the defendant-claimant on the counterclaim. The jury can accept the narrative and case theory of one side or the other, not both. You can fashion a tree structure that is more manageable.

By way of example let's take a case between a custom software developer and a business client. Assume that no dispositive motions are filed: it appears clear that the trial will be fact intensive, and all material facts are hotly disputed between the parties. The structure of the tree toward the left side might look like this (branches relating to damages, which would be toward the right side are omitted for now):



Where a jury could logically rule in favor of the plaintiff on the main claim and also in favor of the defendant on its counterclaims, building this possibility into the tree is just plain more complicated. This should not be surprising, given that this type of counterclaim presents a more complicated thought problem for any lawyer, with or without formed tree analysis. The difficulty is thinking about whether to structure the tree in three main sections: the first branch would be “verdict for plaintiff only”; the second would be “verdict for defendant-counterclaimant only;” and the third would have to be “liability for each on each claim.”

It might look like this next one.

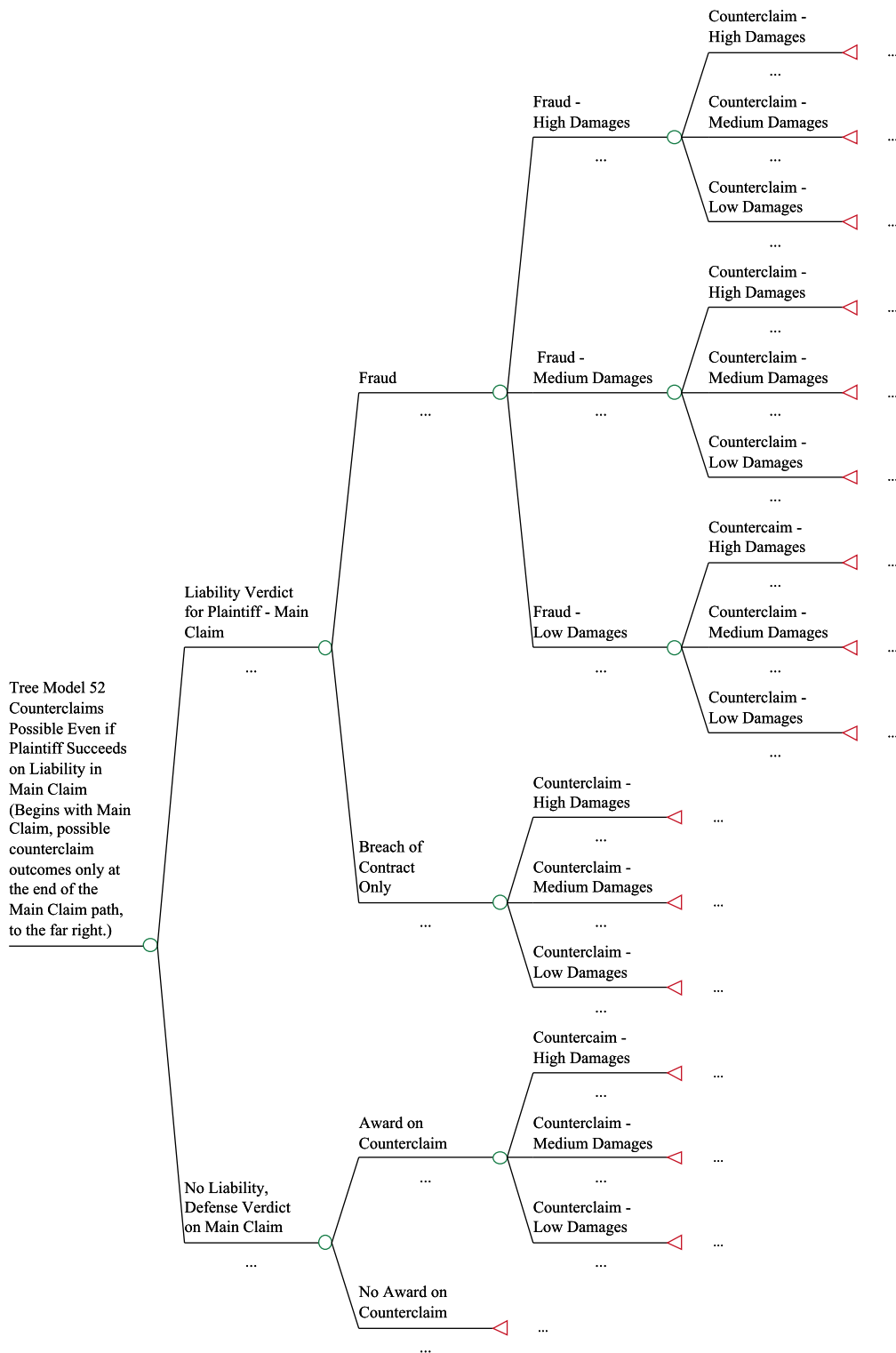


The problem with structuring the tree this way is that it may not capture the impact or reasoning along what we think of as the jury's path. To look at the three segments separately seems wrong. After all, the jury that would have heard evidence and experts and finds the defendant liable for breach is a very different jury from the one that does not. And those two hypothetical juries are likely to view the evidence on the counterclaim in entirely different ways.

For that reason, it would be logical to create the decision tree for the main case and at the far right side, after what would otherwise be the terminal nodes (where payoffs are calculated), to insert a series of branches representing the counterclaim. Then, as you follow the counterclaim branches, you would insert probabilities that make sense in light of what the jury decided with the main claims.

Imagine that the next tree reflects the structure of the counterclaim (deliberately somewhat simplified).





Again, this tree assumes an obvious, single amount of damages on a breach of contract theory alone, based on the contract terms and uncontroverted evidence.

Note that inserting this tree at the far right end of our main tree would VERY quickly create a feathery mess, unreadable without a magnifying glass, enlarged printing, or many pages put together. And, if the main tree has any complexity itself, the tree-builder lawyer will be stuck plugging in the subtree, over and over again, moving down the right-hand side. And he would be tasked with making sure that the probabilities and payoffs on each inserted subtree are consistent with its place along the path.

Assuming the tree builder is admirably patient, he will then have to manage pay-off figures that include the main claim and the counterclaim. One problem is that this will tend to obfuscate the separate distribution of possible outcomes from the main tree, and from the counterclaim.

Even if the tree-builder is indefatigable and enthusiastic about the exercise, the client is likely to glaze over. What does it all mean? One of the purposes of a decision tree approach is to map what might happen, so we can see possible paths to the end of the case. At some point, when the tree is overly complex, we lose the ability to see. The visual message that “it’s complicated” is clear, but what to do with that remains a mystery. We are lost in the forest.

Perhaps, then, the lawyer is wise to create a separate, simpler tree, with paths that are easy to see and understand, and probabilities confirmed by more detailed sub-analysis.