

Bounded Rationality and Optimal Jury Selection

David M. Caditz, Ph.D.

JuryScience

Introduction

Parties to litigation are commonly provided the opportunity to shape the composition of a jury through the exercise of peremptory challenges. However, the decision to exercise a challenge can become complex when one takes into account consequences such as the seating of an unfavorable replacement juror, adverse juror-juror interactions, or further challenges that might be made by opposing counsel. As a result, lawyers and trial consultants often find themselves in a 'judgment call' situation, where exercising a challenge is based on a best guess, gut feeling, or intuition. The art of jury selection, therefore, lies in striking a balance between a systematic, fact-based approach and the exercise of informed judgment. This is why jury selection has been characterized as a "highly tactical, yet always mysterious, exercise in which cases are often won or lost" [1]. My partners and I believe that jury selection can, and should, be made more tactical and less mysterious, through the application and implementation of strategic logic in the exercise of peremptory challenges during jury selection.

It is useful to focus on two important points when discussing peremptory challenges: 1) How to determine which prospective jurors are unfavorable (and to what degree), and 2) What strategies can be applied to remove these unfavorable jurors from the jury. The first point is addressed in a variety of ways, from 'gut feeling' to a more scientific analysis including mock trials, psychological profiling and demographic surveys. It is common practice for litigants to rate the favorability of prospective jurors according to some selected criteria on a numeric scale from one to ten, or from one to one hundred. A great deal of effort and expense can go into assigning such juror ratings, especially for high profile and high value trials.

The second point – how to prevent the seating of unfavorable jurors – may not receive the attention it deserves. For the 'Struck' jury selection system, where challenges are entered simultaneously by all parties, the answer is seemingly obvious: Challenge the lowest rated jurors up to the number of available peremptory challenges. There are, however, some subtleties to consider. For one, if two parties wish to challenge the same juror, then letting the other party do so will conserve a valuable challenge. However, if the opposing party, thinking the same way, also withholds their challenge, a juror which no party likes may be seated. Secondly, and perhaps more importantly, a simple numeric juror rating system itself may not capture litigants' true preferences over juries, especially when juror-juror interactions during deliberation are considered.

The 'Strike and Replace' selection system provides further interesting issues, since challenges are exercised sequentially and in turn by the opposing parties, and are often exercised before replacement jurors undergo voir dire. Litigators may therefore be faced with a decision to exercise a challenge knowing little about the potential replacement jurors and little about jurors who may be seated later in the selection sequence. They do, however, have the benefit of observing opposing party challenges

during the process, thereby learning something about the opposing parties' juror preferences. (A more detailed discussion of the exercise of peremptory challenges under the Strike and Replace system has been given previously [2].)

Because of the potential complexity of peremptory challenge process, litigators operating in fast-paced courtroom setting often make simplifying assumptions to facilitate decision making. Game theorists refer to the concept of 'bounded rationality' to describe such situations [3]. Bounded rationality describes the idea that decision makers have limited information, time and computational resources available to make optimal decisions. As a result, decision makers simplify their choices and accept an outcome that is 'good enough', rather than one that is theoretically optimal and based on all available information. Litigators using, for example, a system of juror ratings and jury pool averages, supplemented with intuition, judgment, and gut feeling, implement decision making under bounded rationality. Such simplified decisions can be made in a courtroom setting, typically with nothing more than pencil and paper. However, it should be noted that decision making under bounded rationality is rarely optimal, and there is typically room for improvement, albeit at the possible cost of added complexity.

In this article, using a series of examples, we investigate how jury selection might be improved over 'common practice', what complexities might arise when implementing new jury selection practices, and how these complexities can be overcome, potentially leading to more effective jury selection in the courtroom. In particular, we discuss some of the ways that litigants can think strategically about the use of peremptory challenges to obtain a most favorable jury.

Juror Ratings, Juror Characteristics, and Strategic Jury Selection

As mentioned above, it is common practice to rate individual jurors according to their perceived favorability toward our client's case. These ratings can be based on particular qualities or characteristics of each juror, as determined through jury questionnaires, voir dire questioning, background research, demeanor, courtroom behavior and the like. Examples of characteristics that litigators might be interested in include profession, education, personality type, political leanings, past experiences related to the trial circumstances, etc. Experience and judgment, together with the results of demographic surveys and mock trials, help in translating observed juror characteristics into numeric juror ratings. The ratings then serve to summarize the favorability of each juror and guide in the exercise of peremptory challenges.

While juror rating systems are commonly, if not universally, employed during jury selection, it is important to recognize that they do not provide a complete description of a litigant's preferences over juries, which is the ultimate goal of the selection process. For example, individual juror ratings lack the ability to account for juror-juror interactions, which undoubtedly will occur, and are in fact, the main purpose of juror deliberations. As an illustration, suppose that we give a high rating to a juror with a strong personality who favors our client and we give a low rating to a juror with strong personality who disfavors our client. What rating should we then give to an easily influenced or gullible juror? If the favorable influential juror is seated we might like to have the gullible one also seated, but if the unfavorable influential juror is seated, we might not want the gullible one seated on the jury. In this

case, a single rating value cannot be used to describe our preference for the gullible juror, since the rating would have to change depending on who else is seated.

One way to account for the shortcomings of numeric juror ratings is to simply not use them at all. We could instead base selection preferences directly on underlying juror characteristics and then examine the favorability of complete juries comprised of combinations of such juror characteristics [4]. Imagine selecting a two seat jury from four potential jurors, whom we will call A, B, C and D. Let's say that jurors A and B are politically conservative while jurors C and D are politically liberal. Our pre-trial analysis indicates that we do well with either an all conservative jury such as AB or an all liberal jury such as CD, since we can tailor arguments to suit either political temperament. We do not do well, however, with mixed juries such as AC, AD, BC or BD. Rather than attempting to assign ratings to the individual jurors, we would simply state our preferences over final juries: We are happy with either AB or CD, but we dislike other possible juror combinations. We would then exercise our available peremptory challenges in order to maximize the chances of obtaining one of the favorable juries.

If we accept the above line of reasoning and base our jury selection decisions on jury outcomes rather than individual juror ratings, then we must necessarily become strategic in our thinking. By 'strategic', I mean that we must account for the preferences and possible actions of opposing parties when making challenge choices. For the hypothetical two seat jury selection mentioned above, if the opponent challenges A, then we should challenge B. If the opponent challenges B, then we should challenge A. Otherwise, we should challenge neither A nor B. Our strike decisions therefore necessarily depend upon what we believe the opposing parties will do. For this reason, we will call jury selection using preferences over juries 'strategic jury selection.'

In the following, we give some relatively simple examples of strategic jury selection. While the examples use two-seat juries, they exhibit many of the features of strategic decision making necessary for real-world jury selection scenarios.

Example 1: Strike and Replace, Ordered Pool

For this example we use a Strike and Replace selection system with prosecution and defense each having a single challenge. Jurors A and B are seated in the jury box with jurors C and D comprising the jury pool. Replacement jurors, when needed, are selected in order from the pool. The parties alternate in challenge opportunities with the defense being the first to challenge, followed by the prosecution. We assume that the parties have the following preferences for possible juries (the symbol $>$ means 'prefers'):

Defense:	$DB > CD > AB > CB > AD > AC$
Prosecution:	$AC > AB > CD > CB > DB > AD$

State in words, a jury comprised of jurors D and B is the first choice of the defense, C and D the second choice, A and B the third choice, etc. For the prosecution, the jury comprised of jurors A and C is the first choice, A and B the second choice, C and D the third choice, and so on. Based on the above information, which jurors should the prosecution and defense challenge in order to obtain their most preferable juries?

Solution: For the first move, the defense can either accept or challenge juror A. We investigate which choice leads to a better outcome for the defense.

- 1) Accept A: If the defense accepts A, then the prosecution will also accept A, since challenging A would leave it worse off. The defense will then accept B for the same reason. The prosecution will then challenge B, resulting in the final jury AC.
- 2) Challenge A: If the defense challenges A, the prosecution will be faced with the jury CB. The prosecution will challenge B, since it prefers the jury CD to CB, resulting in the final jury CD.

Since the result of challenging A (the jury CD), is better for the defense than the result of accepting A (the jury AC), the best choice for the defense is to challenge A. The best choice for the prosecution is to then challenge B.

Example 2: Strike and Replace, Unordered Pool

We repeat example 1, however selecting replacement jurors at random from the jury pool. In this case, if the defense challenges A on their first move, then there is a 50% chance of obtaining the jury CB and a 50% chance of obtaining the jury DB. In either case the prosecution will challenge the appropriate juror to obtain a final outcome of CD.

If the defense accepts A on their first move, then the prosecution is faced with the jury AB having a single challenge. If the prosecution challenges A, then the defense will face a jury of either CB or DB, having one challenge. In either case, the defense will challenge the appropriate juror to arrive at the final jury DB. On the other hand, if the prosecution accepts A, then the defense will accept B. The prosecution is then faced with the decision to accept a final outcome of AB or challenge B with a 50% chance of obtaining AC, which is their first choice, and a 50% chance of obtaining AD, which is their last choice. Based on the preferences above, it is likely that the prosecution will prefer AB to a coin toss between AC and AD. In any case, the defense is worse off than the result CD, therefore the defense should challenge A on the first move resulting in the jury CD.

Example 3: An 'Irregular' Twist

Suppose that we repeat the above examples, but with the prosecution having no remaining challenges. In this case, any challenge by the defense will leave it worse off. Therefore, the defense will not exercise its challenge, resulting in the jury AB.

Comparing this outcome with the outcomes of the previous examples, we find the very surprising and counter-intuitive result that the prosecution does *better* having *no* challenges than having one challenge. Likewise, the defense is *worse off* when the prosecution has no challenges. In jury selection theory, we call this situation 'irregular.' It is closely related to what game theorists call a 'donation paradox', the paradox, in this case, being that a party obtains a better outcome having fewer challenges. In a real-world jury selection of six or twelve jurors, if the prosecution anticipates that an irregular situation will arise, it can freely use a challenge earlier in the selection process so that, later in the process, it would arrive at a situation similar to Example 3 rather than that of Examples 1 or 2.

Example 4: Struck Jury Selection

We now examine a two seat jury selected using the Struck system, each side having a single challenge. We investigate the scenario from the point of view of the defense, who, accounting for juror-juror interactions has the following preferences over juries:

$$\text{Defense: } DB > CD > AB > CB > AD > AC$$

In the Struck system, both sides announce their challenges simultaneously, and neither side can observe their opponent's initial challenges and thereby gain information regarding their opponent's jury preferences. We therefore assume that the defense has only limited knowledge of the prosecution's jury preferences and forms beliefs about the prosecution's preferences based on observations of voir dire, previous experience with the prosecution counsel, and what the defense would do were they in the prosecution's position.

All possible challenge choices and jury outcomes for this example are shown in Table 1. Which juror should the defense challenge to obtain the best possible jury? The answer depends on which juror the defense believes that the prosecution will challenge. However, regardless of what the prosecution does, we see, based on the above jury preferences, that the defense always does at least as well, and sometimes better, challenging C than it does challenging D or passing. In game theory terminology, we say that challenging C dominates challenging D or passing. However it is stated, it should be clear that regardless of the preferences of the prosecution, under no circumstances should the defense challenge juror D or pass.

		Prosecution				
		A	B	C	D	pass
Defense	A	BC	CD	BD	BC	BC
	B	CD	AC	AD	AC	AC
	C	BD	AD	AB	AB	AB
	D	BC	AC	AB	AB	AB
	pass	BC	AC	AB	AB	AB

Table 1. Strategic form game matrix for two-party Struck jury selection with each side having a single challenge. Row and column headings indicate which juror each respective party challenges. A dash in a column or row heading indicates that the party has chosen to pass. Table cells indicate the resulting jury composition.

Here we describe two scenarios from the viewpoint of the defense. The scenarios differ according to the beliefs that the defense has about the preferences held by the prosecution:

- 1) The defense believes that the prosecution is using juror ratings and will therefore strike their lowest rated juror. Suppose that the defense feels that the prosecution's least favorable juror is juror D. In this case, the defense will select the most favorable jury in the prosecution's 'D' column in Table 1, which is AB. The defense will therefore challenge juror C.

By the same logic, if the defense believes that the prosecution will challenge A, the defense should challenge C, resulting in the jury BD. If the defense believes that the prosecution will challenge B, the defense should challenge A, resulting in the jury CD. If the defense feels that the prosecution will challenge C, the defense should challenge A, resulting in the jury BD. If the defense believes that the prosecution will pass, the best choice would be to challenge C, resulting in the jury AB.

- 2) The defense believes that the prosecution is acting strategically and accounting for juror-juror interactions, however, the defense does not know the prosecution's jury preferences. In this case, the defense assumes a 'zero sum game', i.e., what is good for the defense is bad for the prosecution and vice-versa. In this case, the best approach for the defense (and for the prosecution) is to use the so called 'minmax' solution: to maximize the minimum possible outcome. Inspecting Table 1 and comparing outcomes with the defense's jury preferences, we see that the worst case that could be obtained by striking juror A is the jury BC. The worst case for every other row is AD which the defense finds less favorable than BC. Therefore, the defense will strike A to obtain the most favorable worst outcome.

Discussion

The above examples describe the application of various forms of strategic thinking, some of which are quite detailed and possibly counter-intuitive. A situation resulting in irregular selection, for example, would be difficult to anticipate, especially in a fast-paced courtroom setting. Nevertheless, a litigant who thinks in terms of preferences over juries, including the possible effects of juror-juror interactions, can potentially obtain a more favorable outcome than could otherwise be obtained using a simple, numerical juror rating system. However, this potential for better outcomes comes at the price of added complexity and detailed thinking. Real-world jury selection scenarios are likely to be even more complex than the two-seat, one challenge example cases. Much like a game of chess, it is difficult to anticipate all possible consequences of an action beyond a few moves into the future. A full analysis of selection scenarios for complete, twelve seat juries would be challenging, and would, no doubt, require computer software assistance.

Jury selection in the absence of computing technology is an example of 'bounded rationality'. Litigants have insufficient time, information, and computational resources to make optimal decisions, and as a result, accept outcomes that are 'good enough'. Litigators using a system of juror ratings, supplemented perhaps with intuition and gut feeling, can make quick, albeit non-optimal, decisions in a courtroom setting, typically with nothing more than pencil and paper. However, with new technologies such as computer software, litigators can overcome time, resource, and informational limitations, apply more

sophisticated decision optimization, and potentially improve decision making in courtroom jury selection.

References

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However, with new technologies, litigators may be able to overcome time and computational resource limitations, apply more sophisticated decision making processes, and potentially improve outcomes in courtroom jury selection.

It is important to understand, however, that numerical ratings represent a summary of juror characteristics and are not necessarily as accurate at predicting juror behavior as are the underlying characteristics themselves.