PEPPERDINE UNIVERSITY

Pepperdine Dispute Resolution Law Journal

Volume 17 | Issue 2 Article 4

5-15-2017

Utility Function and Rational Choice as Support Mechanisms to Maximize Mediation and Legal Negotiation Settlement Output

Roberto Kuster

[Vol. 17: 263, 2017]

PEPPERDINE DISPUTE RESOLUTION LAW JOURNAL

UTILITY FUNCTION AND RATIONAL CHOICE AS SUPPORT MECHANISMS TO MAXIMIZE MEDIATION AND LEGAL NEGOTIATION SETTLEMENT OUTPUT

Roberto Kuster

ABSTRACT: This article provides a general negotiation background, establishing some basic definitions such as BATNA, interests, and "Shadow of Law." Then, it works with the two-step process of utility maximization and rational choice to achieve the optimal settlement output within mediation and legal negotiation processes. Lastly, it points out methods to support the theories in ways that a lawyer could understand and apply correctly. Thus, the article offers an idea for an optimal settlement in a legal negotiation/mediation. It takes the complementary views of recognized authors, from Fisher and Ury's "how to negotiate" manual, Raiffa's lucid explanation of applied game theory, to utility function—from Bentham to modern authors—, in order to optimize the settlement output in a legal negotiation/mediation.

INTRODUCTION

The etymology of the word negotiation descends from the Latin *negotiationem* (nominative negotiation), which means, "carry on business" or even "lack of leisure" (negotium).[1] A modern definition of negotiation has expanded to a "discussion aimed at reaching an agreement,"[2] or, "[A] process by which two or more parties conduct communications or conferences with the view to resolving differences between them."[3] Negotiation evolved from its primal origins to a post-modern, strategic, and rational negotiation.[4] Hence, I interpret modern

[1] *Negotiation*, ONLINE ETYMOLOGY DICTIONARY, http://www.etymonline.com/index.php?term=negotiation (last visited Feb. 15, 2015).

[2] *Negotiation*, OXFORD UNIVERSITY PRESS, http://www.oxforddictionaries.com/definition/english/negotiation (last visited Feb. 13, 2015); *Negotiation*, DICTIONARY.COM, http://dictionary.reference.com/browse/negotiation (last visited Feb. 13, 2015).

[3] Emilia Bellucci & John Zeleznikow, *Representations of Decision-making Support in Negotiation*, 10 J. OF DECISION SYSTEMS 449, 450 (2001).

[4] *See generally* Robert Benjamin, *The Natural History of Negotiation and Mediation: The Evolution of Negotiative Behaviors, Rituals, and Approaches*, MEDIATE.COM (June 2012), http://www.mediate.com/articles/NaturalHistory.cfm.

negotiation as an autonomous dispute resolution mechanism between two or more individuals with different wills on the same subject. A remarkable process that can avoid the costs and the time of a trial, it can also create more value (with utility function and discovering the interests behind parties' positions) for the parties involved. Mediation also provides similar advantages, and this article could apply to its resolutions.

In this paper, however, I choose not to portray negotiation as an alternative to trial or any other dispute resolution mechanism. Rather, I assess the optimal process, from the diagnosis of the difference of wills to the settlement,[5] in a legal negotiation with the use of advanced negotiation mechanisms (utility function and rational choice)—in an attempt to provide an approachable framework to reach maximum output when resolving a dispute.[6] Whilst economists and game theorists mostly use advanced negotiation mechanisms, lawyers usually solely rely on the "Shadow of the Law" to direct negotiations and, besides the cases settled out of court,[7] the "settlement process is typically very inefficient."[8]

The reasoning of this phenomenon, however, remains obscure. The inefficiency of legal providers on settlement outcome can be attributed to (1) irrationality of principals (clients) and agents (lawyers), especially when acting with overconfidence and bias to define its reservation and aspiration value; (2) number and calculation avoidance to use advanced negotiation formulas such as utility function, pare to efficiency, and neutrality;[9] (3) overuse of law, sense of justice, and intuition to predict the dispute result in an adversarial mode instead of a collaborative one; (4) acceptance of a worse settlement due to risk aversion of possible trial outcome; and (5) lack of academic effort to promote these mechanisms

---

[5] *See generally* GERALD R. WILLIAMS, LEGAL NEGOTIATION AND SETTLEMENT (3rd ed. 1983) (describing this process in some phases: (1) preparation stage, (2) preliminary stage, (3) information stage (value creation), and the (4) distributive/competitive stage of value claiming to reach a settlement).

[6] *See generally* P. H. Gulliver, *Negotiation as a Mode of Dispute Settlement: Towards a General Model*, 7 LAW & SOC'Y REV. 667, 667 (1973); Melvin Eisenberg, *Private Ordering Through Negotiation: Dispute Settlement and Rulemaking*, 89 HARV. L. REV. 637, 637 (attempting to provide a general theory to negotiation. However, due to the space given, it will be more effective to focus on inheritance, divorce, and pretrial negotiation).

[7] *See* WILLIAMS, *supra* note 5, at 70-89.

[8] ROBERT H. MNOOKIN, ET AL., BEYOND WINNING: NEGOTIATING TO CREATE VALUE IN DEALS AND DISPUTES 108 (2000).

[9] For an example, in my research I had to cope with formulas such as $M_(x) = max\lambda\in \_\{\lambda \cdot z(x)\} = max\lambda\in \_\{\lambda \cdot z(x)\pi\}$. M. A. Hinojosa & A. M. Mármol, *Egalitarianism and Utilitarianism in Multiple Criteria Decision Problems with Partial Information*, 20 GROUP DECISION NEGOT. 707, 719 (2009).

in legal negotiation, as the vast majority of current bibliography explore an economic mathematical point of view, and very few brought these formulas to a legal negotiation real life situation.

Hence, I will attempt to be among those few authors by providing three direct, simple, and extemporal frameworks for lawyers to reach an optimal outcome for parties willing to negotiate—for any society, culture, and set of legal rules and beliefs.[10] Thus, this paper asks you to start with the premise that negotiation (and mediation inevitably) as an important mechanism to solve disputes with significant advantages over other resolution mechanisms.

To achieve this goal, I will divide this essay into three sections. The first section will establish general negotiation background and simple guidelines to determine one's Zone of Possible Agreement (ZOPA) under the influence of the Shadow of the Law. This section will briefly assess how to create a reasonable and optimal bargaining zone while examining the influence of the sources of the law on a negotiation (Shadow of the Law). The importance of a solid preparation stage is that further steps, such as value creation and claiming, will be taken with greater certainty and within the limits of both parties.

The second section will take parties' ZOPA under the Shadow of Law and discuss rational choice and utility function mechanisms used to assess the bargaining zone. Thus, I will address Nash's equilibrium, Harsanyi's information asymmetry proposal, Raiffa's decision-analytic approach to negotiation, Bentham's utilitarianism, and the use of different utility functions to further optimize a negotiation value outcome in a two-step, relatively simplified process. Therefore, this section will provide some steps towards the creation of value for parties to improve the outcome of the "convergence of will."[11] Then, the third section will try to connect the previous sections by assessing dispute resolution frameworks and demonstrating how the concepts and definitions discussed can be used in practice.

---

[10] "Las normas son pautas de conducta, un marco de referencia que indica lo que el individuo debe hacer en casos concretos. Las normas cambian con la cultura, con el genero, con perturbaciones sociales, politicas y economicas, con cambios tecnologicos, etcetera." Juan C. Pavón, *Valores Normas y Teoria Económica*, 67 EL TRIMESTRE ECONÓMICO 579, 590 (2000).

[11] "The settlement is not strictly derived by some reference to outside factors but by the parties' power to choose the terms of their interaction. Agreement is, therefore, a matter of convergence of will for the negotiating parties, and not strictly a matter of convergence of belief or 'attitude alignment.' Consequently, negotiation can be defined as *an effort to resolve the divergence of will* among the negotiating parties". Alexios Arvanitis, *Agreement as the Convergence of Will: A Consensualistic Approach to Negotiation*, 37 NEW IDEAS IN PSYCHOL. 24, 25 (2015) (quoting Jody L. Davis & Caryl E Rusbult, *Attitude Alignment in Close Relationships*, 81 J. OF PERSONALITY AND SOC. PSYCHOL. 65, 77 (2001)).

I. GENERAL NEGOTIATION BACKGROUND AND BASIC DEFINITIONS PRE-NEGOTIATION

I.1 GENERAL NEGOTIATION BACKGROUND

The human race has its developed rationality,[12] which is a unique feature over the other known species. This distinction enables humankind to understand, diagnose, and act with awareness upon each interest.[13] Nonetheless, when positions resulting from these interests diverge,[14] civilizations throughout time developed institutions such as the state, law, jurisdictional power and our dispute resolution mechanisms, to modulate human behaviour. Undoubtedly, the lack of the mentioned institutions could lead our species back to an inharmonious state, or, less likely, to the "state of nature."[15] While some philosophers see this environment as true freedom,[16] others recognise it as *bellum omnium contra omnes*.[17] Notwithstanding these extreme standpoints, I agree with the theory of John Rawls that mankind under a veil of ignorance (in this case, ignorance of law and dispute resolution mechanisms) would not benefit entirely from society, as the disputes arising under a state of nature would cope with a vacuum of expectations and a foothill of unfairness and subjectivity.[18] On the other hand, a solid and predictable legal system generates certainty and enables individuals to foresee the consequences of an action.

Within this paradigm, it is of great importance to understand law and dispute resolution mechanisms as incessantly progressing devices to maintain sociological order in one's society. While litigation (judicial dispute resolution) remains as the government's core resolution system, extrajudicial instruments (alternative dispute resolution) have been

---

[12] From the Latin *rationalis*: "Of or belonging to reason, reasonable, rational, endowed with reason." Charles T. Lewis & Charles Short, *Rationalis*, PERSEUS DIGITAL LIBR, http://www.perseus.tufts.edu /hopper/searchresults?q=Rationalis (last visited May 20, 2015). "Rationality is sometimes understood in terms of acting for reasons." *Animal Cognition*, Stan. Encyclopaedia of Phil., http://plato.stanford.edu/entries/cognition-animal/ (last updated May 6, 2016).

[13] *Animal Cognition*, *supra* note 12.

[14] "Your position is something you have decided upon. Your interests are what caused you to so decide." ROGER FISHER & WILLIAM URY, GETTING TO YES: NEGOTIATING AN AGREEMENT WITHOUT GIVING IN 41 (William Ury & Bruce Patton eds., Revised ed. 2012).

[15] *See* JEAN-JACQUES ROUSSEAU, A DISCOURSE ON INEQUALITY (Penguin Books 1984).

[16] ROUSSEAU, *supra* note 15; JEAN-JACQUES ROUSSEAU, THE SOCIAL CONTRACT (Penguin Books 1968).

[17] *See* THOMAS HOBBES, LEVIATHAN (Penguin Books 2003); THOMAS HOBBES, DE CIVE (The Perfect Library 2015). "*Bellum omnium contra omnes*" translated from Latin means "the war of all against all."

[18] *See* JOHN RAWLS, A THEORY OF JUSTICE (Belknap Press 2d ed. 1999).

increasing in popularity as it gives parties more control[19] to choose the procedures for reaching an award, from arbitration (use of third parties to decide and instruct a dispute), mediation (use of third parties to assist a dispute) to negotiation (direct principal-principal, principal-agent or agent-agent resolution).[20] Indeed, despite its official character, "the principal institution of the law is not trial; it is the settlement out of court."[21] Following this reasoning, research has shown that courts handle only five percent of all disputes and merely one percent end with judicial decision-making.[22]

As stated above, this paper addresses negotiation as the optimal dispute resolution mechanism available for three main reasons. First, when parties can agree and design their enforceable award, they can create the most desirable outcome possible. Arbitration or litigation cannot achieve this result, as the judge/arbiter does not usually know parties' interests, only their positions (and these may not express parties' interests).[23] Second, judges and arbiters often tend to resolve a dispute within legal rules and with a distributive process ("divide the pie"),[24] whereas effective negotiators and mediators tend to create value/win-win situations ("expand the pie") first. Lastly, once submitted to litigation or arbitration, both parties need to quit for extinguishing the proceedings. In negotiation or mediation, nothing happens if one party does not want to settle, therefore, it is a first rational choice of dispute resolution.

Nonetheless, there are disadvantages of entering a negotiation process. As a consequence of negotiation's freedom to create value and its considerable distance from legal rules, negotiators and mediators always face some problems when entering a negotiation or mediation process: What is each party's reservation and aspiration value? What is the Zone of Possible Agreement[25] (ZOPA – commonly known as the

---

[19] *See* Maria Goltsman et al., *Mediation, Arbitration, and Negotiation*, 144 J. ECON. THEORY 1398 (2009).

[20] Goltsman et al., *supra* note 19.

[21] H. LAURENCE ROSS, SETTLED OUT OF COURT: THE SOCIAL PROCESS OF INSURANCE CLAIMS ADJUSTMENT 3 (Aldine De Gruyter, 2d ed. 1980).

[22] *See* GERALD R. WILLIAMS, LEGAL NEGOTIATION AND SETTLEMENT (West Pub. Co. 1983).

[23] Goltsman et al., *supra* note 19.

[24] MNOOKIN ET AL., *supra* note 8, at 108. "[S]ettlements reached in the litigation process typically ignore the possibility of finding value-creating trades other than saving transaction costs. Although the litigation game includes the evaluation of the legal opportunities and risks, it does not usually incorporate a broad consideration of the parties' interests, resources, and capabilities." *Id.*

[25] Brad Spangler, *Zone of Possible Agreement (ZOPA)*, BEYOND INTRACTABILITY (June 2003), http://peacestudies.beyondintractability.org/essay/zopa.

contract zone)?[26] How can legal rules and uncertainty adjust ZOPA for a particular dispute?

I.2 BATNA, INTERESTS AND ZOPA

The first factor you should clearly know when entering a negotiation is what you want and what you will accept. It is of extreme importance to outline your bargaining zone before you enter into a negotiation, to avoid any poor settlement or non-optimal outcome. Therefore, parties need to develop their walk-away point (reservation value) and discover their interests behind their positions (aspiration value).[27] Negotiators regularly use their bottom line as the walk-away point, which is usually a position one party set within a negotiation that they cannot change. It is ordinarily described as an amount you cannot go over to buy an item or cannot go under when selling one. Despite its usefulness to avoid a regretful agreement, Fisher and Ury challenged this term since it is immutable and neglects innovative alternatives. [28]

Hence, Fisher and Ury introduced BATNA–Best Alternative to a Negotiated Agreement.[29] BATNA focuses on the better alternatives you can have outside an agreement that can be superior to your bottom line.[30] It is constructed as a step in the negotiation procedure in which a party must invent all alternatives possible, improve the most promising ideas, adapt concrete alternatives, and find the best one to enter a negotiation.[31] Therefore, the best alternative to a negotiated agreement is by far a better principle to manage your reservation value since it focuses on options outside parties' potential agreement. "Alternatives to agreement may be certain, with a single attribute" or "they may be contingent and multi-attributed."[32] At any rate, "the better your BATNA, the greater your ability to improve the terms of any negotiated agreement."[33]

For instance, let's say you want to sell your used care for £10,000, its market value, because you are going to commute to work by bike. With the bottom line approach, you set your reservation value to £8,000, because you need this exact amount to pay off your bank loan and buy a

---

[26] Don L. Coursey & Linda R. Stanley, *Pretrial Bargaining Behavior within the Shadow of the Law: Theory and Experimental Evidence*, 8 INT'L REV. L. & ECON. 161, 162 (1988).

[27] *See generally* FISHER & URY, *supra* note 14,

[28] FISHER & URY, *supra* note 14, at 101.

[29] FISHER & URY, *supra* note 14, at 101.

[30] FISHER & URY, *supra* note 14, at 102.

[31] FISHER & URY, *supra* note 14, at 105.

[32] James K. Sebenius, *Negotiation Analysis: Between Decisions & Games*, *in* ADVANCES IN DECISION ANALYSIS: FROM FOUNDATIONS TO APPLICATIONS 469, 474 (Ward Edwards et al. ed., Cambridge Uni. Press 2007).

[33] FISHER & URY, *supra* note 14, at 104.

new bicycle. Your bottom line is rigid–if the buyer fails to offer the amount desired, there is no deal and you will have a car, a loan, and no bike in your possession. Under the BATNA approach, one must consider all possibilities available outside negotiation itself.[34] Thus, you could: (1) find another buyer, who is willing to pay more than £8,000; (2) trade your car for a less valuable one, so buy a bicycle and pay a fraction of your loan; or even (3) rent your car to a friend and renegotiate your loan. After due research, you may find that your best alternative is a £9,500 bid from your neighbour. Thus, you would enter a negotiation, not with a bottom line of £8,000, but with a BATNA of £9,500 as your reservation value.

On the other hand, it is equally advantageous to enter a negotiation with a clear understanding of your aspiration value. Often parties set their aspiration value as a position–a price or an item–and initiate what experts call positional bargaining: they start arguing about what they want, assuming, naturally, a position until they converge their wills, making concessions to achieve a compromise.[35] Reviewing the example above, say you have a reservation value of £8,000 when selling your car. However, as its market value is £10,000, you may set that as your aspiration value and fix that amount as your position. You may try to keep the price closer to £10,000 (or more), as the buyer will try to lower the cost as far as possible, using both basic tactics as haggling and anchoring, with offers and counter-offers.

While most dispute resolution processes regard parties' positions, an actual benefit arises if interests are taken as primary factors to an aspiration value.[36] Often these positions are a representation of underlying divergent interest. As Sebenius suggests, "it is often useful to distinguish the full set of parties' underlying *interests* under negotiation, on which *positions* or stands are taken . . . In virtually all cases, however, an important first analytic step is to probe deeply for interests, distinguish them from issues and positions, and to carefully assess tradeoffs."[37]

Going back to the example, say you set your aspiration value as £10,000, and when negotiating, this is the only info you give to the buyer. Nevertheless, asking why you want the position you have assumed will require knowing your interests underlying that position. In this case, you want to (1) pay your loan; (2) buy yourself a bicycle; and

---

[34] FISHER & URY, *supra* note 14, at 105-06.

[35] FISHER & URY, *supra* note 14, at 3. "[P]eople routinely engage in positional bargaining. Each side takes a position, argues for it, and makes concessions to reach a compromise." *Id*.

[36] FISHER & URY, *supra* note 14, at 42.

[37] Sebenius, *supra* note 32, at 473.

(3) receive £10,000 as it is the market price for your vehicle and spare money would be enjoyable. After sharing this information, you may discover your buyer has (1) a better credit check in the bank and can take your loan and pay £3,000 extra for the car; or (2) has a £2,000 bicycle to trade in and would pay £9,000 for your car. This undertaking was an example of £1,000 of value creation with the simple task of identification of interests and sharing them.

Other examples can come from modest negotiations or even nation-to-nation war-starting issues.[38] Therefore, for one interest there can be multiple positions to satisfy it and, consequently, behind supposedly opposing positions you could have compatible interests. Also, interests can be relativized with desirability and utility functions, which can, therefore, proportionate trade-offs and better value output in a multi-issue negotiation. With a proper development of reservation and aspiration values, you can have the most accurate zone of possible agreement to start negotiations.

I.3 SHADOW OF THE LAW

Unsophisticated negotiations, such as daily transactions like the example above, are suitable for explaining concepts such as BATNA, ZOPA, and interests. Nonetheless, in legal negotiations, which are the primary aim and focus of this essay, our Zone of Possible Agreement is heavily subsidized in some extent by the "Shadow of the Law."[39] The "Shadow of the Law" is the psychological influence of legal rules, uncertainty, and litigation costs to pretrial negotiation.[40] In simple words, the "Shadow of the Law" is the supposition that the legal system *ope juris* affects all negotiations and transactions before they can even be enforceable with its precedents and rules.

It is an expression widely known due to the work of Robert H. Mnookin and Lewis Kornhauser in the article "Bargaining in the Shadow of the Law: The Case of Divorce."[41] The paper endeavored to demonstrate the role of law at the time of divorce outside the courtroom on negotiations occurring before trial.[42] As described by Mnookin and Kornhauser, "the legal system affects when a divorce may occur, how a divorce must be procured, and what the consequences of divorce will

[38] An example of nation-to-nation negotiation is given on section II.2 (Camp David negotiation between Israel and Egypt.)

[39] Robert H. Mnookin & Lewis Kornhauser, *Bargaining in the Shadow of the Law: The Case of Divorce*, 88 YALE L.J. 950, 968-70 (1979).

[40] Mnookin & Kornhauser, *supra* note 39, 968-70..

[41] Mnookin & Kornhauser, *supra* note 39, at 951.

[42] Mnookin & Kornhauser, *supra* note 39, at 951.

be."[43] Ultimately, the "Shadow of the Law" establishes also one of the party's alternatives to a negotiated agreement – and potentially it could be their best alternative.[44] Mnookin and Kornhauser identify some factors that are determinant to the outcomes of the negotiation when it comes to divorce, such as legal rules, degree of uncertainty in trial, emotional transaction costs, and the possibility to bear these costs as the "Shadow of the Law" in this article.[45]

Nevertheless, it is imperative to go beyond the conclusions of Mnookin and Kornhauser.[46] While being precursors to introduce rational expectations into pretrial negotiation and assuming "trial solution to the dispute always looms in the background,"[47] I believe their explanations for it are too simplistic since they tend to overlook the fact that the threat of trial is broader than legal rules, uncertainty, and transaction costs. The reality is that negotiation is an alternative dispute resolution to the judicial decision itself, and consequently every single aspect of the trial affects the decision analysis for a settlement. Hollander-Blumhoff,[48] Jacob,[49] Ellickson,[50] and Birks[51] are some of the authors that have tried to expand the study of Mnookin and Kornhauser with more assumptions as to financial costs and the allocation of them. As Birks suggests, "the shadow of the law, along with numerous other influences, can shape perceptions and expectations, with resulting implications for behaviour."[52] In addition to the "Shadow of the Law" studies, one must also consider Don Coursey and Linda Stanley,[53] as well as Robert Cooter and Stephen Marks[54] to further assess the remaining factors and determine the legal influence and its extent in a negotiation.

---

[43] Mnookin & Kornhauser, *supra* note 39, at 951.

[44] Mnookin & Kornhauser, *supra* note 39, at 951.

[45] Mnookin & Kornhauser, *supra* note 39, at 972-73.

[46] Mnookin & Kornhauser, *supra* note 39, at 966.

[47] Coursey & Stanley, *supra* note 26, at 161.

[48] Rebecca Hollander-Blumhoff, *Getting to Guilty: Plea Bargaining as Negotiation*, 2 HARV. NEGOT. L. REV. 115 (1997).

[49] Herbert Jacob, *The Elusive Shadow of the Law,* 26 LAW & SOC'Y REV. 565 (1992).

[50] ROBERT C. ELLICKSON, ORDER WITHOUT LAW: HOW NEIGHBOURS SETTLE DISPUTES (1991).

[51] Stuart Birks, *Why the Shadow of the Law is Important for Economists,* 46 NEW ZEALAND ECONOMIC PAPERS 79 (2012).

[52] Birks, *supra* note 51, at 81.

[53] Coursey & Stanley, *supra* note 26, at 176.

[54] Robert Cooter and Stephen Marks, *Bargaining in the Shadow of the Law: a Testable Model of Strategic Behavior*, 11 J. LEGAL STUD. 225, 238 (1982).

Nonetheless, merely mentioning the existence of the "Shadow of the Law" will not suffice the purpose of this paper, since it is the skill of negotiation that makes lawyers the best agents. Hene, in this sub-section, I will first provide the main aspects of the "Shadow of the Law" by Mnookin and Kornhauser (items a, b, and c), then further expand to the additional factors (item d) used when determining the influence trial has on settlement.[55] Unfortunately, due to the space given in this article, I am not going to address theories and studies of decision-making and making decision trees after the assessment of the extent of the "Shadow of the Law."

a) Legal Rules

Overall, there is no blackness in a negotiation. Parties habitually start negotiations under certain prerogatives and expectations to be met as provided by sources of the law. The more complex a negotiation is, the more it follows legal rules.[56] Thus, it is typical to have a source of the law to apply to most of the issues of the negotiating parties.[57] Despite varying from one jurisdiction to another, most influential legal rules are derived from binding legislation and persuasive precedents.[58] Lawyers regularly set these criteria since they have the experience and expertise to evaluate the probability of winning the case in court.[59] Simply assessing that legal rules influence the negotiation is a humble method of deduction, yet it is not easy to see how else to determine the extent of the influence of the legal rules to a negotiation. In this circumstance, one must assume that the precedents, acts, and sections play a substantial role in influencing the parties. Admittedly, parties respect legal rules and understand them as social paradigm behaviour.

The significance of this lies in the interference of judicial certainty as a directly proportional factor in a more concrete and predictable settlement between parties. The stronger the precedent, the more precise the prediction of what happens at trial. Consequently, this affects the assessment of the trial and resolution output value for the parties as the parties' best alternative. Borrowing the definition of Ronald Dworkin, 'soft cases' are more likely to have an influence in settlements and

---

[55] Mnookin & Kornhauser, *supra* note 39.

[56] Mnookin & Kornhauser, *supra* note 39.

[57] Mnookin & Kornhauser, *supra* note 39.

[58] "Precedente vinculante (binding precedent) e aquele cuja ratio decidendi possui autoridade vinculante, ou seja, e de seguimento obrigatorio, condiciona o aplicador futuro a fazer opcoes hermeneuticas similares as que fez o elaborador do precedente vinculante. Por sua vez, precedente persuasivo (persuasive precedent) e aquele cuja ratio decidendi e destituida de autoridade vinculante, presta-se apenas a influenciar psicologicamente o aplicador futuro a fazer opcoes hermeneuticas semelhantes as que fez o construtor do precedente persuasivo." YURI GUERZET TEIXEIRA, PRECEDENTES JUDICIAIS: ENTRE NORMAS E DECISÕES 136 (Jurua Editora, 1st ed. Curitiba 2015).

[59] Mnookin & Kornhauser, *supra* note 39, at 968.

creating a more objective zone of possible agreement.[60] A classic illustration often cited is the case of murder. Such cases have a tremendous amount of legal precedents, sentencing guidelines, and judicial behaviour, which defense lawyers can use and usually quantify in terms of how many years in prison the accused individual would face and, therefore, advise to take the prosecutor agreement or not.[61]

b) Uncertainty

However, most cases are not heavily subsided with legal rules,[62] but even when they are, the *ratio decidendi* is known.[63] However, the actual *obter dictum* for the present case when a judge will assess previous *ratio decidendi* remains uncertain and the parties face some uncertainty of the trial value when settling. This in turn means that negotiating individuals need to balance what are the outcomes possible from trial and customize their ZOPA. In this respect, it is important to note the extent of uncertainty in the negotiation process is extremely problematic to measure, since you need to apply the facts to individuals with a subjective perspective of the decision-tree available for the particular case. An overly optimistic person increases his aspiration value;[64] on the other hand, a high risk-taker overestimates her reservation value;[65] both of which decreases the common ZOPA and the chances of a settlement. The corollary of this is that vague legal standards also give an advantage to a more talented negotiator, since possible broad outcomes open more opportunities for bargaining skills and strategic behaviour.[66]

One measure to diminish uncertainty is from one approach a paradox: going to trial. The propensity of a judicial decision is not necessarily a disadvantage since this decision can lead to a legal precedent. The essential point is that litigation is unlikely to be the best option for the private dispute resolution in question, but could have greater social benefits. Therefore, "litigation is desirable from society's standpoint for its precedent-producing role" in some degree.[67]

---

[60] RONALD DWORKIN, TAKING RIGHTS SERIOUSLY (5th ed. 1978).

[61] Kevin Kwok-yin Cheng & Wing Hong Chui, *Beyond the Shadow-of-Trial: Decision-Making Behind Plea Bargaining in Hong Kong*, 43 INT'L J. OF L. CRIME, AND JUST. 1 (2014).

[62] Mnookin & Kornhauser, *supra* note 39, at 969.

[63] TEIXEIRA, *supra* note 58, at 94.

[64] John P. Gould, *The Economics of Legal Conflicts*, 2 J. LEGAL STUD. 279 (1973); Richard A. Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, 2 J. LEGAL STUD. 399 (1974).

[65] Mnookin & Kornhauser, *supra* note 39, at 970.

[66] Mnookin & Kornhauser, *supra* note 39, at 979.

[67] Coursey & Stanley, *supra* note 26, at 176.

Outstanding private interests – this is the social benefit of the shadow of the law.

a) Transaction Costs and Costs Allocation

Transaction costs can be financial or emotional.[68] Emotional costs are feelings one must face if pretrial negotiations break down: the psychological consequences of opening a personal issue/trauma to an open public, the agony to cope with an open dispute for years and face several judicial steps, the uncertainty to allow a third party to decide the final solution, and having to be bounded by the decision.[69] These are the reasons emotional costs are the stiffest to recognize the magnitude.[70] No accurate data can be withdrawn from a mental state, especially in sensitive subjects as divorce, child alimony and custody. Habitually, individuals show a constant change in relation to the subject and the other party (empathy). However, there are utility function mechanisms (discussed in Section III) to assess desirability and importance of each issue within a dispute, which can help negotiators to identify differences and increase an emotional settlement outcome.

On the other hand, financial costs are the costs of litigation (legal fees, lawyer and court costs).[71] The higher the costs, the bigger the negotiation output and, therefore, the chance of settlement.[72] However, more important than legal fees in general – which increases the chances of a settlement because of the value generated from its avoidance – are the studies from Don Coursey and Linda Stanley that have shown the extent of influence of cost allocation rules of these fees under the British, American and Californian (rule 68) systems.[73] In short, under the American rule, each party would bear their legal costs; under the British rule, the loser would pay both costs; under the Californian law (rule 68), if a party rejected a pretrial offer, they would endure the legal fees if the award were less advantageous than the proposal.[74]

Within this framework, results gave support to assume the threat of cost allocation if the negotiations have broken down would not only change the probabilities to reach a settlement, but also change the distribution of values inside negotiation itself (pretrial behaviour).[75] From equal numbers of possible solutions, the subjects under American

[68] Mnookin & Kornhauser, *supra* note 39, at 971-72.
[69] Mnookin & Kornhauser, *supra* note 39, at 972.
[70] Mnookin & Kornhauser, *supra* note 39, at 972.
[71] Mnookin & Kornhauser, *supra* note 39, at 972.
[72] Mnookin & Kornhauser, *supra* note 39, at 972.
[73] Coursey & Stanley, *supra* note 26, at 170.
[74] Coursey & Stanley, *supra* note 26, at 170.
[75] Coursey & Stanley, *supra* note 26, at 170.

rule settled twenty-five, under the British rule reached thirty-five and under the California rule thirty-six.[76] Despite Beckner and Katz's attempt to defend the American rule,[77] I do not comply with this assumption. Subjects under Californian law also made more suitable offers in order to avoid the risk of allocation costs: "[s]pecifically, under the assumption of rational expectations, the British rule and rule 68 appear to be superior to the American rule in inducing settlements."[78] Coursey and Stanley attributes this result to risk aversion since the costs were going to be worse under British and Californian rules.[79] On the other hand, if the possible outcome is rough to one party, British and Californian rules influence a better settlement to the defendant than the American rule.

b) Multiple factors influencing patterns in pre-trial negotiation

The studies shown above were quite limited in terms of different aspects of a parameter change. Therefore, besides being accurate – with few considerations from my standpoint – they do not portray the full extent of Law influences in negotiation. Nevertheless, Robert Cooter, Stephen Marks, and Robert Mnookin expanded the study to eight different parameters changing the probability of settlement,[80] differentiating them between increased chances of settlement/decreased time to reach an agreement – urgency of resolution, increase in transaction costs of negotiating, increase in transaction costs of trial,increase in familiarity of opponents (less uncertainty) improved value of trial (higher certain monetary equivalent of trial) for one litigant, increase in earnings per period contingent on no resolution of dispute, increase in spitefulness toward opponent (empathy) and less risk aversion.

Thus, "[a]n increase in the value of trial (threat value) will make trial more attractive, and the player will demand more. An increase in the value of settlement will make trial less attractive, and the player will demand less."[81] Moreover, the article discuss a learning process to describe the transformation of subjective probabilities ("Shadow of the Law") to objective frequencies – know the extent of uncertainty and

[76] Coursey & Stanley, *supra* note 26, at 170.

[77] Clinton F. Beckner III & Avery Katz, *The Incentive Effects of Litigation Fee Shifting When Legal Standards Are Uncertain*, 15 INT'L REV. of LAW & ECON. 205, 213 (1995).

[78] Coursey & Stanley, *supra* note 26, at 175.

[79] Coursey & Stanley, *supra* note 26, at 175.

[80] Coursey & Stanley, *supra* note 26, at 238.

[81] Cooter & Marks, *supra* note 54, at 237.

backdrop of litigation, until it reaches Bayesian Nash Equilibrium.[82] The concept of it will be discussed in the next section. In the sum of this subsection, it is vital to affirm the backdrop of litigation and its uncertainty significantly affect settlement in pre-trial negotiation. From my perspective, the "Shadow of the Law" is a social benefit to reduce uncertainty to a minimum and promote solutions.

II. THE TWO-STEP PROCESS – UTILITY MAXIMIZATION AND RATIONAL CHOICE

I have addressed how to establish reservation and aspiration values correctly. Most lawyers stop at this stage (or even before it) – I describe it as the intuitive stage since most lawyers can accomplish similar results with experience and intuition. As mentioned in the introduction of this article, number/calculation avoidance, lawyers' overconfidence, and the overuse of legal rules to set negotiation limits are some of the main reasons for legal providers to avoid further developments. Nonetheless, negotiation mayhap not reach its maximum output with the aid of this stage only. Thus, I will not be satisfied by these limitations and will try to simplify while getting the most out of the 2 theories below in order to promote them in a two-step process for legal providers to practise – I define it as the reasoned stage, as parties need to use rationality and escape from common sense to achieve optimal results. These are the utility function and rational choice.[83]

They are complementary, provide negotiation tactics, promote strategic behaviour and, even without any written stable framework (which I will provide in section III), this two-step process will aid any negotiator in reaching an optimal outcome agreement. "The basic approach (…) to choice under uncertainty involves a two-step process: first, form your best expectations about the likelihood of each possible outcome from acting; and, second, calculate your optimal move. The two-step process is called expected utility maximization with Bayesian probabilities."[84]

II.1 FIRST STEP: UTILITY FUNCTIONS/EXPECTED-UTILITY THEORY

[82] Cooter & Marks *supra* note 54, at 233; John C Harsanyi, *Games with Incomplete Information Played by "Bayesian" Players*, 14 MGMT. SCI. 159, 167 (1968).

[83] With inevitable definitions of Nash equilibrium, information asymmetry and debiasing.

[84] Cooter & Marks *supra* note 54, at 233.

Utility functions are modern descendants from the utilitarianism theory propounded by the great philosopher Jeremy Bentham.[85] In sum, utilitarianism defended the concept of action reasoning for the greatest happiness of citizenry on the aggregate[86] – alias most significant amount of pleasure-satisfaction. Moreover, utility functions are based on the same principle, applying utilitarianism, in their turn, in game theory or rational choice between parties. The utility function can base itself on expectancy, acquisition price or transactional value. While "expected-utility theory suggests that each level of an outcome is associated with an expected degree of pleasure or net benefit, called utility,"[87] "acquisition utility describes the value you place on a commodity" and "transactional utility refers to the quality of the deal that you receive, evaluated in reference to "what the item should cost."[88] Utility function cannot be mistaken with egalitarianism and maximin solutions.[89]

People have different perceptions of the world and things around them, as they are sensible human beings. Thus, utility function utilizes this discrepancy to give each party what it values the most. An absurdly simple example is when two friends strolling around the park find an apple and a banana. While friend A found the banana prefers the apple, friend B found the apple but is eager for the banana. Instead of dividing both fruits and keeping 50% of each, A and B share the information and make an agreement for A to receive the apple in exchange of the banana for B. Therefore, the bigger the discrepancy, the better the outcome with utility function can be. Hence, some problems with the highest rate of positions disagreements could be the easiest ones to solve in principled negotiation with a utility function.[90]

Another illustration is the distinct case of Egypt and Israel in Camp David.[91] Countries were trying to discuss the control of the Sinai Peninsula, and a negative ZOPA was clear after rounds of negotiation.[92]

---

[85] JEREMY BENTHAM, AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION (1st ed. Clarendon Press, 1907).

[86] *See generally* BENTHAM, *supra* note 85; JOHN STUART MILL, UTILITARIANISM (Oxford University Press, 1998).

[87] MAX H. BAZERMAN & DON A. MOORE, JUDGMENT IN MANAGERIAL DECISION MAKING 63 (7th, Wiley, 2008).

[88] See Richard H. Thaler, Mental Accounting and Consumer Choice 4 (Summer) Marketing Science 199-214 (1985).

[89] "When using an additive value function to select a decision, an utilitarian principle is being applied, whereas egalitarianism is the motivation to the use of maximin solutions." Hinojosa & Mármol, *supra* note 9, at 708.

[90] FISHER & URY, *supra* note 14, at 75.

[91] DEAN PRUITT & JEFFREY RUBIN, SOCIAL CONFLICT: ESCALATION, STALEMATE, AND SETTLEMENT (1st ed., Random House, 1986).

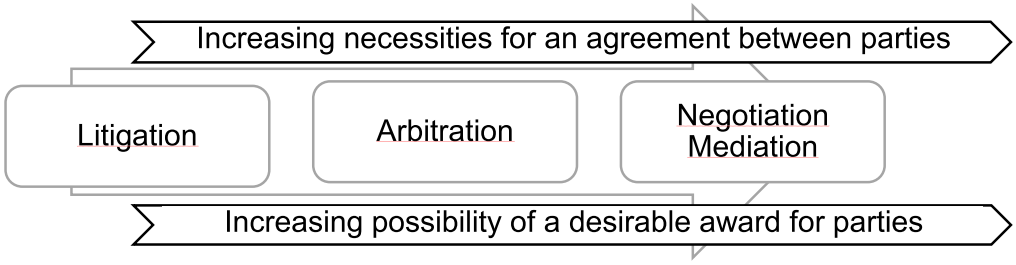
[92] PRUITT & RUBIN, *supra* note 91.

Israel had the Peninsula since 1967, and Egypt was claiming its land back. Splitting Sinai was not acceptable to both parties, and consequently their reservation values were incompatible in that sense as well[93]. However, by looking to their interests and applying utility function, parties identified that Israel appreciated more military protection while Egypt's maximum utility was to keep its sovereignty.[94] Thus, Israel settled to give back the Peninsula in exchange for a demilitarized zone and more Israeli military bases. Egypt agreed in return of the land.[95]

As you can see, utility function takes into account how much do you benefit from an item and compares with the other party attributed value for the same element. From my standpoint, individuals must evaluate all expected, acquisition and transactional utility when preparing a negotiation. Ultimately, this difference in utility can create trade-offs in negotiation. Despite not being exclusive in mediation/negotiation, the utility function is best used within these dispute methods since there are less rigid and explicit rules to follow than in arbitration and litigation (Table 1). Let me take an example: for one party to enter a valid litigation, it needs to have (1) capacity, (2) cause of action, and (3) a claim/disagreement; for arbitration, (1,2,3) and (4) an agreement to submit the (3) claim/disagreement to an extrajudicial method (i.e. an arbitral tribunal); for mediation/negotiation, (1,2,3,4) and (5) an agreement to converge will in (3) a claim/disagreement.[96] On the other hand, in litigation you can choose (1) when to make a claim and seldom (2) where to make a claim; in arbitration, you can choose (1,2) (3) the procedures towards an award and (4) who is going to produce the award; in mediation/negotiation, you can choose (1,2,3,4) and (5) the ratio decidendi and obter dictum of the award.[97]

Table 1

[93] PRUITT & RUBIN, *supra* note 91.
[94] PRUITT & RUBIN, *supra* note 91.
[95] PRUITT & RUBIN, *supra* note 91.
[96] Goltsman, *supra* note 19, at 1410.
[97] *See* Goltsman, *supra* note 19.



Therefore, one can reflect there is a directly proportional relation between the growth of agreement requirements between individuals and the possibility of a desirable award for parties. The more you can interfere with an award; more you can relate it to your interests, using the utility function to improve the value outcome of the settlement. The use of utility function in practice will be carefully discussed in the next section.

Nevertheless, utility function (as well as other benefits of negotiation) reduces its impact when there is information asymmetry. Going back to the example of friends A and B, if parties did not share their interests, there would be a considerable possibility in them both having 50% of each fruit. It would be fair, but not optimal. Further back, when you were selling your car, you would not get the opposing party to pay for your loan or trade-in a bicycle if you have not shared private information. This phenomenon is called information asymmetry.

Nobel-Prize winner John Harsanyi[98] was the first to describe information asymmetry within negotiation process while setting party's private information as an uncertainty[99] for the other as in a gambling model. Thus, he "developed a general model of strategic interaction that incorporated asymmetric information. He called this model a game of incomplete information."[100] Hence, to improve this "uncertainty" and generate more options to a deal, various authors[101] claim it would be

[98] Harsanyi, *supra* note 82.

[99] "If there is private information or various perceptions to the game, players other than the privately informed must perceive the private information uncertain. Referring to Savage (1954), this can be modelled as a player assigning a probability distribution over all privately known events that the player perceives possible." T. Miettinen, Pre-play Negotiations, Learning and Nash Equilibrium 69 (2006) (unpublished Ph.D. dissertation, University College London).

[100] Faruk Gul, *A Nobel Prize for Game Theorists: The Contributions of Harsanyi, Nash and Selten* 3:11 JOURNAL OF ECO PERSP 159, 167-68 (1997).

[101] Sebenius, *supra* note 32, at 28. *See also* PRUITT & RUBIN, *supra* note 91; HOWARD RAIFFA, THE ART AND SCIENCE OF NEGOTIATION (1982); RICHARD E. WALTON & ROBERT B. MCKERSIE, A BEHAVIORAL THEORY OF LABOR NEGOTIATIONS (1965).

helpful for parties to disclose information optimally. Fisher and Ury[102] demarcated it as one of the steps of a "Principled Negotiation" to create value. However, if not defined or achievable, a party should work with the Harsanyi model and use rational choice to further assess its possibilities in a "bounded rationality"[103] environment, "assuming that individuals were limited in their information about alternatives."[104] Due to the lack of space given, no further considerations will be taken in this essay regarding information asymmetry.

II.2 SECOND STEP: RATIONAL CHOICE AND NASH EQUILIBRIUM

After assuming your utilities for each issue and thinking in an optimal choice for you in a negotiation (with information asymmetry or not), you'll need to assess what the other party in the dispute thinks about the issues that they have and what utility they have for each item. As firstly addressed in chapter I.1 of this paper, human are rational beings and thereby make rational choices. However, rationality is not an absolute quality—it rather is quite a comparable one. While game theorists work on mathematical models to predict the outcome of a negotiation within a complete rationale and normative analysis with success to the extent that it "provides the most precise prescriptive advice available to negotiators,"[105] Raiffa revolutionized approaches to negotiation when even skilled negotiators are assumed to be "erring folks like you and me."[106] Accordingly, Raiffa provided a mixed method[107] as to a prescriptive approach (how people should behave towards dispute resolution) to the negotiator but a descriptive (how real people actually act) one for the competing party—the decision-analytic

---

[102] FISHER & URY, *supra* note 14, at 58.

[103] JAMES G. MARCH & HERBERT A. SIMON, ORGANIZATIONS (1st ed., Wiley, 1958); HERBERT A. SIMON, MODELS OF MAN (New York, 1957).

[104] Bijou Yang & David Lester, *Reflections on rational choice – The existence of systematic irrationality* 37 Journal of Behavioral and Experimental Econ. (formerly The Journal of Socio-Econ.) 1218, 1220 (2008).

[105] Bazerman & Moore, *supra* note 87, at 152.

[106] H. RAIFFA, NEGOTIATION ANALYSIS: THE SCIENCE AND ART OF COLLABORATIVE DECISION MAKING 1 (2007).

[107] "Unlike the 'symmetrically prescriptive' approach of game theory, wherein fully rational players are analyzedin terms of what each should optimally do given the other's optimal choices, a negotiation analyst typically seeks to generate prescriptive advice to one party given a (probabilistic) description of how others will behave; this is in line with the decision analytic approach (e.g., Raiffa 1968). In developing prescriptions for one side, negotiation analysts typically assume intelligent, goal-seeking action by the other parties, but not full game-theoretic (interactive) rationality." Sebenius, *supra* note 32, at 20.

approach to negotiations.[108] Therefore, when parties have this awareness, they should make a rational choice.[109]

This in turn means that while you should continually try to identify your problem, clarify your objectives, generate creative alternatives, evaluate the consequences and make tradeoffs (PrOACT[110]) when establishing your maximum utility reservation and aspiration value with an understanding of your interests behind your positions and your best alternative to an agreement, you should assume the competing party is, to some extent, biased[111] and could be influenced by: first impressions (anchoring trap), past (status quo and sunk-cost trap), overconfidence (moreover the confirming evidence trap) and how the problem is posed (framing trap).[112] As suggested by Bellucci and Zeleznikow, "negotiation is a vague and indeterminate process, so much so that as do the personalities of people differ, so too does the manner in which parties negotiate."[113] Therefore, assuming this supposition, you should predict the other party's reservation and aspiration value in other to try to adapt your negotiation in order to "maximize utility or as a rational Bayesian maximization of expected utility (…). The underlying assumption of this view is that knowledge results in optimal decision-making."[114]

Therefore, this mix of approaches enables parties to maximize utility within its options while predicting the competing party's ambitions with a presumption of reasonable emotional/irrational choices. For one to achieve PrOACT objectives, Raiffa suggests giving advice for the principal to understand its problems, to have confidence and justification of its decisions and, consequently, satisfaction with the outcome.[115] The question remains towards to how to quantify other party uncertainty of

---

[108] *See* RAIFFA, *supra* note 106.

[109] "A narrower definition of rationality has been proposed, namely that rational choice is one which maximizes expected utility (Von Neumann and Morgenstern, 1947), and this has become the operational definition used in empirical work because the broad rationality definition lacks specificity for applications." Yang, *supra* note 89, at 1219.

[110] RAIFFA, *supra* note 106, at 15.

[111] Bazerman and Moore summarize bias in 12: Ease of recall, retrievability, insensitivity to base rates and to sample size, misconceptions of chance, regression to the mean, the conjunction fallacy, the confirmation trap, anchoring, conjunctive and disjunctive-events bias, overconfidence, hindsight and the curse of knowledge. Bazerman & Moore, *supra* note 87, at 41.

[112] RAIFFA, *supra* note 106, at 51.

[113] Bellucci, *supra* note 3 at 450.

[114] Yang, *supra* note 89, at 1218.

[115] RAIFFA, *supra* note 101, at 9.

actions.[116] In response to that, Raiffa disclosed within his theory that a party should analyse the competing one regarding its interests, values, alternatives, trustworthiness, ethics and personality. This also applies to negotiators and in some extent mediators. Thus, with this framework, Raiffa suggests any party will make a rational choice – and named it as the rational choice theory.

However, even with all the effort to make rational choices, often parties with prescriptive advice accept worse settlements or make several irrational choices because of biases, IQ and skill limitation, lack of preparation and information asymmetry since they fundamentally have a dissimilar and usually less optimal view of the dispute, best alternative and interests. Thus, it is more uncertain to fix the parameters when negotiating with these agents.

Raiffa's rational choice theory has faced some criticism in the past decades. For example, as Ullen states,

Kahneman and Tversky called this odd result the 'framing effect.' (…) result of careful experiments that seem to discover behavior that is inconsistent with the predictions of rational choice theory (RCT). (…) these experiments do not find that behaviour is randomly distributed around a rational choice mean. They find, instead, that actual behavior is systematically different from that of rational choice and that it is predictable.[117]

In fact, Kahnenman and Tversky formalized a more complex process that gathers an accurate perception of the environment around the decision, the analysis of it, then distinguish the potential biases of decision and its makers, identify and make the appropriate logical adjustment for that decision.[118]

Nevertheless, besides being of great academic value, I do not consider this approach feasible and time-effective for the objective of this article. Thus, I strongly advise Bazerman and Moore's approach to diminish biases and achieve the most rational choice possible. Bazerman and Moore list some effective and simple measures to successfully change parties approach from descriptive to perspective analysis as (1) using a moral negotiator and mediator; (2) hiring a specialist the field of the discussion; (3) using bets (contingency

[116] "You should also think about the alternatives to a negotiated agreement available to the other side. The more you can learn of their alternatives, the better prepared you are for negotiation. Knowing their alternatives, you can realistically estimate what you can expect from the negotiation." FISHER & URY, *supra* note 14, at 107.

[117] Thomas S. Ullen, *Behavioral Law and Economics: Law, Policy, and Science* 1:21 SUP. CT. ECON. REV., 5, 7-8 (2013).

[118] Ullen, *supra* note 84, at 7-8.

contracts) to avoid needless disputes; and (4) using linear models and negotiation frameworks/software/templates (assessed in section III).[119]

When parties thrive through the steps of the utility function and rational choice in an acceptable manner, they can reach the nearest possibility of the Bayesian-Nash Equilibrium.[120] "The Nash and the Bayesian-Nash equilibrium suppose that players have correct conjectures about each other's strategy choices; and if exogenous randomness is involved, they have correct probability estimates about it, too. (…) the Nash equilibrium derives its strength from being the fixed point of the best reply correspondence."[121] Then, "an equilibrium point is a profile of strategies; that is, a strategy for each player, in which each agents' strategy is a best response to the strategies of the others. These equilibrium points are now called Nash equilibria."[122]

They are, besides the complexity of words, correct. In other lyrics, it works in this manner: in legal negotiation, there are offers and counteroffers based in uncertainty.[123] Each action is taken in a two-step process – a subjective definition of expectations and an optimal objective offer.[124] Thus, when a player maximizes expectations already thinking about the other player anticipations (step one) and make a reasonable offer regarding the "big picture" (step two), the negotiations reach an expected utility – alias "expected utility maximization with Bayesian probabilities" – and it touches an equilibrium, since each one knows the strategies and uncertainty that remain about the individuals.[125] After these steps, parties should be particularly primed to enter negotiations and use the negotiation templates provided in section III.

I. METHODS TO SUPPORT NEGOTIATION AND PROMOTE OPTIMAL SETTLEMENT

The theoretical share of this article is over and done. All the concepts and definitions provided can offer to a negotiator a steady support to enter a legal negotiation structure for "two parties single issue (zero-sum); two parties many issues (coordinative or cooperative games); and many parties, many issues (coalition games)"

---

[119] Bazerman & Moore, *supra* note 87, at 159, 195, 197.

[120] Gul, *supra* note 100, at 168.

[121] Miettinen, *supra* note 99, at 64.

[122] Gul, *supra* note 100, at 163-64.

[123] Robert Cooter, Stephen Marks, & Robert Mnookin, *Bargaining in the Shadow of the Law: A Testable Model of Strategic Behavior*, 11 J. LEGAL STUD. 225, 233 (1982).

[124] Cooter, Marks, & Mnookin, *supra* note 123, at 233.

[125] Cooter, Marks, & Mnookin, *supra* note 123, at 233.

negotiations.[126] Nonetheless, further steps can be straightforwardly made if negotiators take into consideration some frameworks already developed by intriguing authors, especially to inevitable win-lose legal negotiations such as divorce, inheritance and dissolving companies/partnerships.

These methods were established to put into practice a negotiator's knowledge of best alternative and interests' development while considering the competing party bargaining zone with rational choice, using principled negotiation[127] or FOTE[128] and maximizing a possible settlement output with utility function.[129] The first one is a simple expected monetary value optimal distribution.[130] The second is Raiffa's expected desirability value and allocation point system with a final adding point of Bellucci and Zeleznikow's Family_Winner software and the use of C-weights.[131] The last one is the expected trial value.[132]

III.1 SIMPLE COMPARISON OF EXPECTED MONETARY VALUES

There are numerous situations in which parties eventually need to face a win-lose (zero-sum) negotiation.[133] After trying to "expand the pie," find mutual interests and solve the problem without concessions or compromise, parties often must comply with a distributive process.[134] They can be facing legal issues such as dissolving a company, getting a divorce or sharing an inherited estate.[135] A good settlement would come from a "fair division."[136] However, how could parties achieve that, supposing we have 20 assets to share? How to achieve an optimal partition? There are exactly 1.048.576 possible settlements for a twenty-issues division. Some proposed solutions are sequential choice (parties choose one item alternatively), coin tossing (chance allocation for each

---

[126] Classification made by RAIFFA, *supra* note 101. *See* Carrie Menkel-Meadow, *Legal Negotiation: A Study of Strategies in Search of a Theory*, 8 AM. B. FOUND. RES. J. 905, 920 (1983).

[127] "There is a third way to negotiate, a way neither hard or soft, but rather hard *and* soft. The method of *principled negotiation* . . . ." FISHER & URY, *supra* note 14, at xviii.

[128] "Parties agree to negotiate in a FOTE manner – that is, with Full, Open, Truthful Exchange." RAIFFA, *supra* note 101, at 95.

[129] FISHER & URY, *supra* note 14, at xviii

[130] RAIFFA, *supra* note 101, at 85.

[131] RAIFFA, *supra* note 101, at 24-26, 32.

[132] RAIFFA, *supra* note 101, at 132-33.

[133] RAIFFA, *supra* note 101, at 96-97.

[134] RAIFFA, *supra* note 101, at 85, 97, 107.

[135] RAIFFA, *supra* note 101, at 314.

[136] RAIFFA, *supra* note 101, at 409, 413.

item) or dividing and choosing (one party divides the items into two piles for the other party to choose).[137] Nevertheless, despite being fair on the procedure, those processes can lead to a low-value settlement.[138] Value creation does not stop when distributing assets/issues/costs.[139] In fact, the usage of utility function enhances even more the value outcome of a settlement in this final stage.[140]

The first and simplest usage of the utility function in practice is the acquisition-utility based division. For example, you have to divide with a partner ten cars, paintings, intellectual properties, and trademarks. Each of the ten items has a market value of 100. However, despite having the same market value, those items have different values to parties A and B (Table 2), which can be drawn from (1) potential use of each item; (2) valuation approach; (3) knowledge of buyer/market; (4) emotional feelings towards the issue. This enables a potential expanded pie to a negotiation. Supposing that individuals have amounts valued with certainty or reached the expected monetary value (EMV) when uncertain,[141] a template of division of assets should look like this:

Table 2

ITEM	MARKET VALUE	VALUE TO A	VALUE TO B
1	100	80	140
2	100	70	110
3	100	110	90
4	100	90	130
5	100	60	120
6	100	120	60
7	100	130	90
8	100	90	110
9	100	110	70
10	100	140	80
Total	1000	1000	1000

[137] RAIFFA, *supra* note 101, at 232, 238, 244.

[138] RAIFFA, *supra* note 101, at 130-32.

[139] RAIFFA, *supra* note 101, at 85.

[140] RAIFFA, *supra* note 101, at 132.

[141] When multiplying the acquisition-utility of an item with the probabilities of each value we find the Expected Monetary Value of each issue for a party. So, if you have 80% to receive 150 and 20% to receive 100 for item 1 on the chart below, to find your EMV you should sum the results from 150x80% (120) and 100x20% (20), which is 140 (Value to B). *See also* RAIFFA, *supra* note 101, at 22.

Thus, without further formulas or extensive economics knowledge, parties fully sharing the EMV information would be able to optimally allocate assets to increase value, and shape the decision to come each one with 610 value (1220 combined value output). Items 3, 6, 7, 9 and 10 would be given to A while items 1, 2, 4, 5 and 8 would be given to B. For an example, if this dispute went to litigation or arbitration, the court/tribunal would probably use market value and percentage of ownership for each party to divide the assets. Therefore, if it were 50/50, the court could held items 1-5 to A (500 market value, 410 value for A) and items 6-10 to B (550 market value, 410 value for B).

III.2 EXPECTED DESIRABILITY VALUE AND POINT ALLOCATION SYSTEM

Going further from the example above, and enlightened by the belief of better settlements with the use of utility function, Raiffa suggests the usage of the point allocation system.[142] This mechanism attempts to introduce numbers and objective criteria for desirability (Expected Desirability Value – EDV) to items after parties' assessment of the value of each item (monetary, emotional, and potential use).[143] Thus, in this template each individual receives 100 points to allocate as they please within the issues they have identified.[144] Parties will have to make choices when giving more to an item than another, forcing them to demonstrate their interests in one dispute and be open with trade-offs.[145] If you prefer a house over an investment or a car over company shares, despite having similar values, this model can differentiate these preferences. Thus, the higher the discrepancy of value allocation (high desirability for one party and low desirability for the competing one), the easier it is to create trade-offs and maximize value output of a settlement.

After point allocating, an interest ratio (proportional difference of interests of A/B) should be calculated, and then parties would start negotiating trade-offs from the most discrepant issues.[146] It is important to state that the point allocation should be done carefully with the usage of rational choice when you face an uncertain opponent (and you do not

[142] RAIFFA, *supra* note 101, at 233-35.

[143] RAIFFA, *supra* note 101, at 24.

[144] *See generally* RAIFFA, *supra* note 101, at 232-36.

[145] *See generally* RAIFFA, *supra* note 101, at 232-35.

[146] *See generally* RAIFFA, *supra* note 101, at 234-35.

work with FOTE or Principled Negotiation approach).[147] Thus, if you believe the competing party is unethical and would increase an allocation to one issue you value more than him, you should use the two-step process describe in section II to adequate your allocation. Then, your negotiation chart should already give the general idea of the division (Table 3):[148]

Table 3

ITEM	VALUE TO JANET	VALUE TO MARTY	J/M
17	3	0.5	6.00
15	10	5	2.00
18	8	4	2.00
11	7	4	1.75
3	8	5	1.60
16	4.5	3	1.50
2	1.5	1	1.50
13	25	18	1.39
5	9	7	1.29
12	0.5	0.5	1.00
6	2	3	0.67
4	1.5	3	0.5
9	0.5	1	0.5
14	0.5	1	0.50

[147] *See generally* RAIFFA, *supra* note 101, at 234-35.

[148] RAIFFA, *supra* note 101, at 235 (looking at Table 13.4).

1	1	2	0.50
19	0.5	1	0.50
8	14	30	0.47
7	3	8	0.38
20	0.5	2	0.25
10	0	1	0.00
Total	100	100	1.00

In this example, there are 20 items to divide between Marty and Janet. From the chart, it is quite evident that, for example, item 10 should go to Marty and Janet should receive item 17. However, the sharing of the remaining items could prove themselves to be more difficult. If you give the most desirable items to Marty and Janet by its ratio and, when equal, give the item to the less advantaged one, Janet would get 76 and Marty 52.5 in a total of 128.5 points–not so good to Marty if they had an agreement to split the inheritance/divorce/company in half. Nonetheless, you can divide issues to individuals manually until you reach the fairest outcome or, as a number averse legal services provider, use the SOLVER software (works with Excel), as it has a function where parties can maximize the sum with desirability points by a click of a button.[149] Moreover, if parties want to have the same division, you could get the most similar desirable and dividable items and share a percentage of the party of fewer points.[150] For example, if you take item 13 and give 0.83 to Janet and 0.17 to Marty, both sides will have 62.64 out of 125.28 points.[151]

On the other hand, Raiffa's concept of C-weight applies if a party has more rights or power in a negotiation.[152] C-weight is a solution

[149] *See generally* A. Newell, J. C. Shaw & H. A. Simon, *Report on a general problem-solving program,* CARNEGIE INST. OF TECH. (1959), http://bitsavers.informatik.uni-stuttgart.de/pdf/rand/ipl/P-1584_Report_On_A_General_Problem-Solving_Program_Feb59.pdf. The author points out that this is a mathematical programme generally used in EXCEL, which is now is vastly spread on the internet. *Id*.

[150] *See generally* RAIFFA, *supra* note 101, at 234-35.

[151] RAIFFA, *supra* note 101, at 243 (looking at Table 13.8).

[152] *See generally* RAIFFA, *supra* note 101,, at 234-35.

when there exists a polarity of authority/rights to a negotiation.[153] For instance, in the case of Janet and Marty on the previous section, what should one do if Janet had 70% of the rights of the company/inheritance/assets? Raiffa suggests you should multiply the allocation value of Janet by a constant (in this case, roughly x2.35) and then use SOLVER mechanism to obtain a fair division.[154] From my standpoint, it would be simpler if, instead of 100 points, the parties divide 335 points–235 to Janet and 100 to Martin–in an "asymmetrical allocation," and continue the calculation with the same technique accordingly. Thus, shifting the template with C-weights or asymmetrical allocation is a proper response when having power/rights polarity.

In addition to Raiffa's mechanism, several authors contributed to the utility function negotiation roadmap. One worth mentioning in this subsection is the Family_Winner software by Bellucci, Schild, Mackenzie, and Zeleznikow to resolve divorce specifically.[155] The Family_Winner approach starts with advice for parties to establish their best alternative, use dialogue to resolve existing conflicts, and also take into account the "Shadow of the Law":

Of course whilst BATNAs inform disputants' decision making, other factors are also taken into account. These might include the cost of the trial (such as paying for lawyers, expert witnesses and in Australia the loser in a civil case pays the winner's costs) the length of the trial, the emotional stress that the trial might place on the litigants and the danger that a judicial verdict might set a negative precedent for one of the litigants.[156]

Therefore, with information input techniques (enter the issues in the dispute, the ratings of each and mutually exclusive points) and a "trade-off map" especially for divorce, individuals would allocate numbers to issues–the higher the number, the greater the value of the point for that party, and the total sum must be 100 for both sides. The system algorithm composes a focused hierarchy to break down the topics, distributes according to the value of each party and simultaneously compensates the loss of an individual with an upper value subject. Thus,

---

[153] *See generally* RAIFFA, *supra* note 101,,at 234-35.

[154] *See generally* RAIFFA, *supra* note 101, at 234-35.

[155] *See generally* E. Bellucci, J. Zeleznikow, U. J. Schild & G. Mackenzie, *Bargaining in the shadow of the Law–using utility functions to support legal negotiation in* ICAIL 2007: PROCE OF THE 11TH INT'L CONF. ON ARTIFICIAL INTELLIGENCE AND LAW, 237, 237-46 (ASS'N FOR COMPUTING MACHINERY, 2007), *https://dro.deakin.edu.au/eserv/DU:30032778/bellucci-bargaininginthe-post-2007.pdf*.

[156] Bellucci et al., *supra* note 155, at 238-39.

differently from Raiffa manual-based negotiation, Family_Winner already does the decomposition of issues to reach "the top level utility functions" while also "performing trade-offs."[157]

III.3 EXPECTED TRIAL VALUE

Occasionally, litigation seems inevitable. Issues with the agent (biased, irrational and non-collaborative agents often creates the appearance of a negative zone of possible agreement) or the problem (focus on positions or an actual negative ZOPA) force negotiators to advise principals to enter litigation to resolve their disputes. However, when facing aggressive agents or dealing with a wrong perception of the problem, negotiators could and should use strategic mechanisms of de-biasing and calculating an "expected trial value" to maintain rationalism in pre-trial negotiation such as a claim for moral and material indenisation due to a physical injury in the workplace, for instance.

As mentioned on item II.2 of this paper, hiring specialists, creating bets, using moral negotiators, and having linear frameworks (as discussed on items III.1 and III.2) are valid methods to debias parties to achieve an optimal settlement. Nonetheless, the threat of trial, the uncertainty of litigation outcome, and risk aversion makes parties accept a lower settlement or enter into litigation without further approaches to alternative dispute resolution. Therefore, to rationally quantify the possible outcome of a litigation, it would be of great importance to understand the extent of the "Shadow of the Law" in a particular dispute and achieve a better settlement by knowing a potential litigation award.

Let me make an example. Luiza works in "Cutties" meat factory and was constantly bullied and sexually harassed in her workplace. All the stress coming from her colleagues and boss made her lose her focus and patience, and one day she accidentally cut her hand. Unlike from examples given in previous items, we deal here with a latent claim from Luiza against Cutties, where there is apparently no market value or utility function to ponder. Luiza needs money since she will probably lose her job due to her disability, but she also has emotional costs to consider if going to trial. Her sexist boss is biased and thinks the accident was her mistake. Therefore, Cutties' CEO is not willing to pay moral damages for the moral and sexual harassment. The CEO offers £ 40.000 to settle, but Luiza needs at least £ 70.000 to repair damages and maintain herself until she graduates (negative bargaining zone).

In this scenario, legal service providers often advise clients to litigate. Nevertheless, it is critical to evaluate the role of the lawyer as an agent to find and advise the best solution possible to its client. As

[157] Bellucci et al., *supra* note 155, at 242.

stated in this paper, lawyers frequently settle ineffectively or litigate when there is a better possible outcome. Hence, it is also vital to convince lawyers to rely less on intuition and more on advanced techniques to improve settlement outcome. In order to achieve this goal, this article suggests the creation of a slightly changed expected monetary value formula—the expected trial value. In this formula, I suggest three "advisor components" of debiasing: experts on the field, specialized lawyers, and precedents. These factors could be altered according to each case, and C-weights could vary the importance of each item.

In Luiza x Cutties, for illustration, work accidents experts established the average indenisation for her case of £ 70.000. Lawyers, after calculating probabilities (80% to receive £ 70.000 and 20% to receive £ 110.000 is equal to £ 80.000 of expected monetary value) reached the average of 80.000. Similar precedents *obiter dictum* were of £ 65.000 and £ 85.000, with a £ 75.000 average. Therefore, if one gives the same weight for each advisor component, Luiza would have an expected trial value of £ 75.000.

Table 4

ITEM	EXPERTS	LAWYERS	PRECEDENTS
1	75.000	80.000	65.000
2	55.000	105.000	85.000
3	80.000	65.000	
4		70.000	
Average	70.000	80.000	75.000

What is captivating is the simplicity of the formula and the capacity to debias judgments since parties would allow different individuals, with diverse perceptions of the dispute to balance biases and achieve a better assessment of the trial threat value. In addition, since the formula and proposal was simplified in this essay, it is vital to encourage further studies to assess expected trial value in an appropriate and extended paper.

CONCLUSION

Economic researchers have provided extensive attention to negotiation techniques and approaches for a general negotiation theory in the XX century, with innovations such as utility function, game theory, and rational choice. Psychologists, anthropologists, and administration experts also contributed to approaches that are more feasible as the understanding of bias, ethics, and interests in a negotiation. However, legal academics tend to focus all of their effort in litigation as a dispute resolution mechanism, driving away from alternative dispute settlement systems, despite the fair, recent effort to promote these dispute resolution instruments. Hence, legal negotiation and mediation are urging efforts for more academic papers written by legal scholars, to encourage optimal settlements appropriately without having to go outside the science of law.[158]

Lawyers are the first recognizable choices as negotiators and mediators since they have the authority to delimitate the "Shadow of the Law" for the best alternative to a negotiated agreement and can shape up parties' interests according to legal rules. Nonetheless, these professionals diminish greater potential by relying more on intuition and justice by acting with overconfidence, bias, and the overuse of law. Therefore, this article will have no effect if lawyers do not reflect about how inefficient they are and their role as legal service providers (one being to work for the best interest of their clients). Problem quantification and number and calculation avoidance contribute to the underuse of formulas and advanced negotiation techniques.

The pessimistic prospect could change with the simplification of these formulas and a more accurate approach towards law professionals. Thus, this essay attempted to fill the hole described by mixing techniques from awarded authors in a succinct but thorough work. The effort is appreciated since legal negotiation and mediation promote access to justice as alternative dispute resolution mechanisms, especially when litigation fails to accomplish it (in some jurisdictions, access to justice is dreadfully limited by the extensive time to resolve a litigation, corruption and legal costs and fees).

In sum, to acheive an optimal settlement in a legal negotiation and mediation, as noted, negotiatiors should take from the best and complementary views of recognized authors. Thus, while "Fisher and Ury offer the best 'how to' manual, especially when supplemented by Raiffa's lucid explanation of applied game theory,"[159] utility function—

[158] "Legal scholars derive most of their positive theory from models developed outside the law. Even the normative theories owe much, and not infrequently everything, to these extralegal models. Hence, we legal academics have a rational interest in cutting-edge ideas developed by professors of philosophy, cognitive psychology, political science, economics, and so forth." William N. Eskridge Jr., *Rationality and Cognition*, 3 LEGAL THEORY 101 (1997).

[159] Menkel-Meadow, *supra* note 126, at 935.

from Bentham to modern authors—perfectly complements the preparation for a negotiation to optimize the settlement output.[160] In addition, studies have shown cooperative negotiators often perform better than aggressive ones,[161] which demonstrate how important it is to follow FOTE and principled negotiation techniques. For the future, I hope for the greater use of these linear frameworks for legal negotiation – or similar ones, with the optimal analogous value output.

[160] *See generally* Menkel-Meadow, *supra* note 126.

[161] "27% of cooperative negotiators are effective from 63%, 3% of aggressive are effective from 20%." Gerald R. Williams, *Negotiation as a Healing* Process, J. DISP. RES. 1-66 (1996). *See also* Andrea Kupfer Schneider, *Shattering Negotiation Myths: Empirical Evidence on the Effectiveness of Negotiation Style*, Harv. Negot. L. Rev. 143 (2002).