

Game Theory and Mediation: Adding Real Value?

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John Sturrock (Core Solutions Group)

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John and David Sturrock

1. Introduction

Several years ago, while travelling back with my son David to Oxford where he was studying as an undergraduate, we discussed my work as a mediator and his study of economics, particularly the learning for us both from Game Theory.

I (John) had been familiar with The Prisoners' Dilemma for a number of years, probably dating back to the Oil Pricing Exercise with which I recall commencing Harvard's Program on Negotiation course many years previously (1996!). We use a developed version of The Prisoners' Dilemma ('The Gain Game') in our training courses. Over the years, that Gain Game has become more sophisticated as we have uncovered new dimensions. We have reflected on the work of Robert Axelrod (The Evolution of Cooperation) and Martin Nowak (Super Cooperators) and my own awareness of Game Theory has expanded. David presented me one birthday with the book Game Theory and the Humanities: Bridging Two Worlds, by Steven Brams.

My particular interest is in how we might show that mediation adds value in an economically measurable way. We know that mediators can help protagonists to reach resolution in disputes which have reached impasse. That is, in itself, a form of added value. But is there more? If we can demonstrate that there is, the arguments in favour of using mediation would be strengthened for those who might otherwise be sceptical or resistant.

Our conversations continued over the years. David's academic study of economics has developed to a more rarefied, Masters, level. My (John's) experience has increased. In mid-2015, I invited David to lead a short session at a seminar I had organised on the theme of Collaborating for a Better Scotland. David's title was straightforward: "Game Theory and Mediation".

I also recall an earlier blog celebrating the life of John Nash, one of the founding fathers of game theory, in which I trailed this discussion in some detail. And just recently another pioneer of game theory passed away: Thomas Schelling, who was awarded the 2005 Nobel Prize in Economic Sciences (with Robert Aumann) for "having enhanced our understanding of conflict and cooperation through game-theory analysis" - and who is known for the focal point (also called the Schelling point), a solution that people will tend to use in the absence of communication.

This paper, started back in 2015, is an attempt to bring some of our thinking together, in a very provisional way. It is designed to provoke responses and further thought. We are aware that there are many books and articles written about game theory and conflict and that we will be traversing ground which may be more familiar to some others. It will be good to view this as the start of a discussion.

2. Simply by way of introduction, **mediation** is a process in which an impartial third party seeks to help two or more disputants or negotiating parties to reach agreement. This is usually done by hosting a meeting or meetings, with combinations of discussions to explore the real underlying issues between them, to build proper understanding and to encourage the exchange of information between them. After that, the parties can identify and assess their options and alternative courses of action before reaching a mutually acceptable agreement - or ending negotiations. Experienced negotiators will help parties to measure options and consider proposals for reaching agreement against objective standards, often called best (or worst) alternatives to negotiated agreement (BATNAS or WATNAS).

Mediation tends to be a speedy and relatively cost effective process for those involved, certainly in commercial matters. The process is usually confidential and the mediator may not without permission disclose to one party information given to him or her by another party. The whole process is usually designed to be private and "without prejudice" so that, in principle, no-one may use in another forum information received within mediation and no rights or remedies are varied or waived unless and until the parties agree to do so, usually in writing.

3. **Game theory** is an area of study that deals with interactions where the choices of one 'agent' influence the outcome for the other, and vice versa, according to some fixed rules. Game theory attempts to predict, understand and explain activities as diverse as pricing strategies of firms, lobbying of political parties, and a couple's choice of evening entertainment. Applied initially to economics, but now prevalent throughout the social sciences and in evolutionary biology, work in this field is characterised by its abstract and mathematical approaches and its emphasis on finding common structures among diverse social phenomena.

4. Discussion

We believe that the focus of much analysis of the value of mediation is on the ability of the mediator, and the mediation process, to enable parties to come closer to what a calm, reflective, 'rational', negotiator would achieve. That is, the process helps parties (for example) to separate people from the problem and to overcome cognitive biases such as reactive devaluation and attribution error which so often plague, and may be unavoidable in, traditional negotiation, where parties are motivated to protect positions and reduce the risk of making unnecessary concessions. (In mediations with a largely monetary focus, I (John) will often say that my job is to help a party be sure that it is not paying a penny more than it needs to and, conversely, in another room, not to accept a penny less than it can get.) Doubtless, mediation adds a huge amount of value in this dimension by helping parties communicate more effectively, avoid protracted negotiations or costly court procedures, and maintain (or even enhance) personal and commercial relationships in the process.

However, game theory suggests that mediation could add value compared to pure negotiation, even when the parties are supremely rational, wholly self-interested agents, subject to none of the cognitive biases and other such psychological (or apparently irrational) impediments to negotiation that permeate everyday life. We believe that this aspect of mediation's value is relatively underplayed and under-discussed, at least in some forums. We think it is a fruitful area for mediators and those interested in mediation to explore. The experiences of mediators could be brought together with more theoretical approaches to give richer understanding of this side of mediation.

A range of literature in the rational-actor paradigm of traditional game theory has asked the question: 'How is it that mediation can add value?'. To many, this would appear to be an odd question to ask. But to the game theorist, it is natural. In this context of supreme rationality, why couldn't any offer that a mediator communicates on behalf of a party be equally well communicated by the party directly? And, if there is no role for the mediator to help the super-rational parties explore all the options, weigh costs and benefits, and avoid cognitive traps, what then can the mediator add? Why not dispense with the mediator altogether?

The answer to this question has proved to be more complex than some game theorists first supposed. Actually, research predicts that a mediator can add value relative to a pure negotiation process between rational actors by helping parties to overcome one of the fundamental challenges in negotiation: generally, by applying the 'BATNA' yardstick, parties know what they would be willing to settle on, but they don't know what the 'BATNA' is for their negotiating counterpart. This is the origin of the incentive to disguise one's own true negotiating position and to resist making concessions as far as possible. This can lead to the parties failing to reach a settlement, even when there are potential agreements that would give both a better outcome than their 'BATNA'.

One way mediators can, in theory, help disputants overcome this possible barrier is by taking some information from parties but transmitting only some of this to the 'other side'. For example, if a mediator commits to using his or her first exchanges with parties to establish only whether agreement might be possible (i.e. the fact that a 'zone of agreement' exists between the parties) and to break-off negotiation if it is not, but not to tell the parties the specifics of what has been disclosed to the mediator, the incentive for parties to be strategic and 'bid up' or 'down' their offers is much reduced as they risk losing a deal by overplaying their respective hands.

A mediator can also help by administering a pre-agreed process to which parties could not rationally adhere, if negotiating on their own. For example, an arrangement could be made to place a time limit on the mediation process. A mediator who stands neither to gain nor lose by implementing this arrangement would be committed to doing so (and the parties would know this) even when one or both negotiating parties (negotiating on their own) might be prepared to modify the time limit in order to try to drive a harder bargain.^[fn]For analysis see: Brown, J.G., and Ayres, I. (1994), Economic Rationales for Mediation. *Virginia Law Review* ^[fn]

Professional mediators see dynamics of this sort playing out regularly in reality. First hand, I (John) have seen that when parties know the mediator will place limits on unhelpful engagement and threaten not to continue if the parties seek to game play, this can act as a deterrent to apparently 'selfish' behaviour. In a sense, the parties 'perform' for the mediator and act more reasonably by virtue of his or her presence.

5. Conclusion

We think that game theory can help us better analyse aspects of the role of mediator, hitherto perhaps understood tacitly and pursued on instinct and experience. As theory and practical experience accumulate, there is surely much to gain from bringing together the findings of the game theoretic literature and the insights of practitioners of mediation.

We confess that we would rather have carried out more research before publishing this. But the quest for betterment has already kept this on the unpublished stocks for months. It's time to open up a conversation!

(Postscript from John: I understand that one of the great thinkers in our field, Ken Cloke, may publish some thoughts on the use of mathematics in our understanding of conflict. That will be interesting!)

(Postscript from David: in addition to the personal experiences of mediators, some broad-scale analysis of the value of mediation corroborates theoretical predictions. In 2009, for example, three judicial areas in Florida trialled a programme of mandatory mediation of mortgage foreclosures. Compared to cases where mediation was not mandated, lenders and borrowers were more likely to reach a re-negotiation of the terms of the mortgage, and subsequent default rates were reduced.^[fn]Collins, J. M., and Urban, C. (2015), Mandatory Mediation and the Renegotiation of Mortgage Contracts. *The Economic Journal* ^[fn] This analysis presents encouraging evidence of the potential fruits of greater use of mediation. But it also takes us to a more controversial and challenging point. Theory (and practice) suggests that mediation can, in many cases, increase the size of the economic pie by helping parties create value and reach agreements where otherwise they would not. But sometimes those in a strong bargaining position will do better in traditional negotiation because it allows them to take a larger share of the pie, even if that pie is smaller. This could lead to a conclusion that mediation, on one measurement, may only be at its most effective when it is mandatory, and that is an interesting point to ponder!)

Opening up a conversation

Charlie Woods, mediator and economist, responds:

This blog aims to build on John and David Sturrock's recent post. I'm particularly interested in the interplay in what has become known as System 1 thinking and System 2 thinking. It provides enormous insights in to how people make judgements and reach decisions, so it is very relevant to mediation, but it's influence reaches into all corners of human endeavour. System 1 thinking is the fast, unconscious, low energy thought process that dominates our thinking, System 2 is the slower, more rational, energy intensive process that we would

typically assume is what thinking is all about.

System 1 and 2 were terms developed by the psychologist Daniel Kahneman in his book "Thinking Fast and Slow", in which he describes the rational System 2 as 'a secondary character who thinks he's the hero'. The dominance of System 1 in our thinking has led to the recognition of a whole series of cognitive biases, which have a profound and significant impact on what we think and what we do.

The biases are many and varied and being added to all the time so it would be impossible to list them all. By way of example here are a few. We are 'loss averse' - much more concerned by what we might lose than what we might gain. On the flip side we are over optimistic in assessing proposals, underestimating the costs and over estimating the benefits. System 1 is not very good at maths, it replaces calculations of probability with looking for patterns seen before. We look for confirming evidence of conclusions we have already reached and resist evidence that goes against them. We are easily influenced by the way a proposition is framed and by who is making a proposal. Where numbers are concerned we become 'anchored' to the number we first heard. We judge ourselves in relation to the context in which we find ourselves, we judge the behaviour of others as an indication of who they really are. I could go on!

So influential have the theories behind this work become that Kahneman was awarded the Nobel Prize in Economics in 2002 for the insights it generated in how people actually make decisions. Indeed it has spawned a whole new branch of the discipline known as behavioural economics, with its associated ideas of 'nudging' people to do what's good for them.

I am particularly interested in the role that mediation can play in providing a process which allows participants to explore the relationship between System 1 and 2, which might have led to the situation they find themselves in and might offer possibilities for finding a way out. In other words it can help in exploring the judgements that have been reached (often unconsciously) and help bring some more rational thought to bear on decisions that may have to be made; recognising that rational thought is usually hard work and often counter intuitive.

One particular issue that John and David's blog sparked in my mind was the degree to which mediators should be explicit in their use of this work. Should they be very transparent and try to explain what might seem to be ideas that might not appear at first sight to have much to do with the matter in hand. Or should they be much more discreet and try to use the party's System 1 thinking to nudge them towards an outcome which appears to work for all. For example the idea of suggesting the break-off of negotiations at an early stage if a 'zone of probably agreement' isn't obvious, could be seen as exploiting 'loss aversion', by taking away the prospect of further negotiation. This could then encourage the parties to moderate their demands.

While Kahneman is now often thought of as the father of this whole body of work, much of the underlying ideas were developed by Kahneman working in close collaboration with his fellow psychologist Amos Tversky, who died in 1996 at the age of 59. Interestingly while he was still alive Tversky was the probably the better known and the more highly regarded of the two. As Michal Lewis sets out in his recent book the 'Undoing Project' their relationship was intense and their method of working in a dynamic collaboration could be described as 'creative conversations' which lasted many hours and allowed them to build on and explore each others ideas and insights and co-design experiments to test conclusions. Perhaps we could use these blogs to generate our own creative conversations to build on and develop ideas in a more virtual way. Let's see this as the start of a conversation - who knows how it might develop and where it might go.