

Strategy and Turning Points

Abstract

Strategic approaches to negotiation exemplified by game theory often rely on quantitative information that cannot be gained from the negotiation itself. Crucially, game theoretical models presuppose accurate information on payoffs that no rational party would share. Nonetheless, limited but accurate quantitative information can be gained on the negotiation process by identifying where negotiations take a different turn. Turning points have consequences. The consequences represent short-term payoff maximizing choices of the negotiating parties. Therefore, quantitative information on consequences can be used to extrapolate how the negotiation-game was played, even if no information on payoffs is available. Based on the turning point analysis in (Crump & Druckman, 2016), the consequences in two trade negotiations are analyzed for patterns of strategic behavior. Thereby, the descriptive aspects of turning point analysis are expanded into a low-level dynamic framework that offers lessons on how negotiators should set their expectations in ministerial/council and committee level negotiations.

Keywords: negotiation process, cooperation, game theory

1. Introduction

Negotiations reach an agreement because parties change their payoffs. In a successful negotiation, parties adapt their expectations from the pre-negotiation to the negotiation to the agreement phase. Thus, the process of negotiating can be characterized as a learning process where “learning drives changes in strategic choice, modifications in payoffs that are perceived as acceptable, and ultimately, the ability to achieve negotiated outcomes” (Spector, 2007, p. 1). Such constant state of flux makes negotiations notoriously resistant to quantitative modelling. Quantitative models – as found in game theory – presuppose accurate information on payoffs to yield insights into optimal strategic behavior. Given that a game is essentially a collection of payoffs – a standard prisoner’s dilemma is a 2x2 game with symmetrical payoffs – changes in payoffs cannot be contained in one model alone.¹ In addition, although sharing private information can lead to mutual gain, parties would avoid this to prevent exploitation. Consequently, the payoff-sets that could be deduced from a party’s statement of position are not necessarily representative of the party’s true payoffs. Given that a high best alternative to negotiated agreement (BATNA) leads to a dominant position in the negotiation (Zartman, 2009), parties have a direct incentive to state an inflated BATNA. This is one of the many factors that taken together hinder the quantitative modelling of negotiations.

Nonetheless, notions that emanate from game theory are widely used to describe interactions in negotiations. The most prominent example of this is the notion of “tit for tat” (TFT; Axelrod, 1984). TFT describes the optimal strategy in an iterated prisoner’s dilemma – start with a cooperative move and subsequently copy the moves of the other player. Strategies

¹ Changes in payoffs could of course be integrated into the model in terms of factors representing response functions. Doing so does not solve the problem, but merely shifts it to a higher level of abstraction.

in negotiations are characterized as TFT even though no evidence of an underlying 2x2 game with symmetrical payoffs is given (Swanson & Malkin, 2017). Indirectly, this trend highlights the advantages that come with quantitative modelling – generalizable insights that allow for the precise description of a range of circumstances.

These advantages are sound and quantitative modelling of negotiations should be pursued even in light of the obstacles identified above. Some of these obstacles can be eschewed when focusing not on the strategies of the negotiating parties but on the process of the negotiation itself. This shift in focus equates to replacing a dynamic model with a model that is primarily descriptive in nature. Quantitative information then becomes less a precondition than a result of the analysis.

An example of this is turning point analysis (Druckman, 2001; Druckman, 2004; Crump & Druckman, 2016). Instead of identifying payoffs, turning point analysis identifies where the payoffs of the negotiating parties change. Turning points are events that cause negotiations to depart from their previous course. A turning point has three components. The precipitant – what happens before the departure, the departure and the consequences – how the departure changes the course the negotiations. The consequences of one turning point often form the precipitant of the next one. Turning point analysis seeks to introduce an exhaustive set of labels for the different patterns of change that can be observed in negotiations – for instance, precipitants can be procedural or substantive in nature and consequences can move the negotiations towards or away from an agreement. As part of this “enhanced case study” (Crump and Druckman, 2016, p. 6) the observations are aggregated and analyzed through descriptive statistics. The descriptive statistics give some predictive value to the observed patterns and allow for abstracting from a single case to make assumptions about a larger context.

Although primarily descriptive in nature, turning point analysis shares in some of the strategic elements commonly associated with game theory. By delivering precise descriptions of the elements leading up to an impasse in the negotiation and the elements that follow it (Druckman & Rosoux, 2016), turning point analysis enables negotiators to gain greater understanding of how to adjust their strategies to different negotiating environments. One of the decisive findings of the turning point analysis conducted in (Crump & Druckman, 2016) is that different levels of a negotiation process – i.e. the ministerial level and the committee level – should be kept separated. Both levels have different dynamics that demand different strategies to ensure that an agreement is reached. When overlap of these levels occurs and an issue that was not resolved at the committee level is “passed upward to a forum that is more familiar with dealing with procedural than substantive matters” (ibid., 32) a deadlock can ensue. The nearing overlap of two levels also enables parties to leverage their positions by tying their current demands – say, on the committee level – to their willingness to cooperate on the ministerial level. Such leverage is not conducive to reaching a mutually satisfactory outcome and can be hard to contain if it occurs at the very end of a negotiation.

It is evident that the strategic aspects of turning point analysis hold significant potential and should be exploited to a greater extent. This has been done in part in (Druckman & Rosoux, 2016), which integrates Thomas Schelling’s notion of focal points into the turning point framework. Focal points describe “each person’s expectation of what the other expects him to expect to be expected to do” (Schelling, 1960, p. 57) when no clear information on existing agreements is available. Focal points present “conspicuous expectations that facilitate convergence” (Druckman & Rosoux, 2016, p. 130) and – on a case by case basis – constitute either precipitants of departures or a departure. Integrating the “shared expectation” (ibid.) of focal points into the turning point framework shifts the focus of the framework away from describing changes towards considering the decision making

needed to turn willingness to cooperate into an agreement. It seems likely that further research on this matter will deepen the link of turning points and focal points. It should be valuable to explore how turning point patterns associated with a focal point influence the negotiating parties in their choice of focal points.

Here, a different approach is taken to emphasize the strategic aspects of turning point analysis. Building on the definition of consequences as the “clear and self-evident impact of a departure in terms of the direction taken by the negotiation process” (Crump & Druckman, 2016, p. 7), consequences are treated as deliberate choices of the negotiating parties. These choices in turn maximize the parties’ short-term payoffs. There is no need to identify the actual payoffs. Instead of modelling the negotiations as a game proper, the focus is merely on how the game was played. Consequences that move the negotiation towards agreement represent cooperative moves. Consequences that move the negotiations away from agreement represent defecting moves. Thereby insights are gained into how the parties responded to each other – how they played the negotiating game.² The trajectory of how the game was played can subsequently be analyzed based on off-the-shelf assumptions about how the parties should have played the game. Focusing on the consequences thus allows for treating the turning point framework as a low-level dynamic model.

The analysis of the consequences is based on data generated as part of a turning point analysis conducted in (Crump & Druckman, 2016) on the WTO Doha Development Agenda

² Formal methods for examining how a game is played are put forward in (van Benthem, Pacuit & Roy, 2011), in which a “Theory of Play” is developed to study information exchange at the intersection of game theory and logic. Although the following treatment of the consequences differs substantially in method and character, it benefits from the fundamental insights established in (van Benthem et al., 2011).

negotiations (2001-present) and the Uruguay round of the Trade Related Aspects of Intellectual Property Rights negotiations (TRIPS; 1985-1994). The former negotiations represent the ministerial/council level, the latter represent the committee level.

At the ministerial/council level precipitants are more likely to be internal than external (Internal 0.96, External 0.04). Furthermore, precipitants are more likely to be procedural in nature than substantive (Substantive 0.37, Procedural 0.63). Departures are more likely to be non-abrupt than abrupt (Non-Abrupt 0.60, Abrupt 0.40). The consequences are more likely to move the negotiations towards agreement than away from agreement (Towards Agreement 0.78, Away from Agreement 0.22). This information highlights that negotiations at the ministerial/council level are strongly procedural in nature and unlikely to be influenced from the outside. Accordingly, departures are primarily foreseeable and non-abrupt. As a result, “organizing actions may be considered a defining feature of complex ministerial/council level negotiations” (Crump & Druckman, 2016, p. 28). Hence, change in the negotiations is primarily brought about by a change in procedures.

At the committee level precipitants are also more likely to be internal than external, albeit on a closer margin (Internal 0.64, External 0.36). However, the precipitants are more likely to be substantive in nature than procedural (Substantive 0.68, Procedural 0.32). Departures are more also more likely to be non-abrupt than abrupt, albeit by a closer margin (Non-Abrupt 0.56, Abrupt 0.44). The consequences are also more likely to move the negotiations towards agreement than away from agreement, albeit by a slightly closer margin (Towards Agreement 0.72, Away from Agreement 0.28). This information highlights that negotiations at the committee level are strongly “ideas driven” (ibid., 27) in nature and more likely to be influenced from the outside. Accordingly, departures are less foreseeable and more abrupt than at the ministerial/council level. As a result, negotiations at the committee

level should be considered less stable than at the ministerial/council level as change can also be brought about from the outside – i.e. through pressure groups.

What these numbers do not express is why the Doha Development Agenda negotiations ended in a deadlock and the Uruguay round was an overall success.

2. Analysis of consequences

To gain deeper understanding of this matter, further analysis of the data on consequences is needed. The consequences assigned to a specific turning point are aggregated and plotted in Figure 1 and Figure 2 below. The turning points are represented on the horizontal axis, the consequences are represented on the vertical axis. The sign represents whether the consequence is towards agreement (+) or away from agreement (-). The y-values (-2, -1, 1, 2, 3, 4) represent the order of the consequences. If a turning point has two consequences where the first is away from agreement and the second towards agreement, the corresponding y-values are (-1, 2). When directions change, the y-value (0) is marked by a transparent circle.

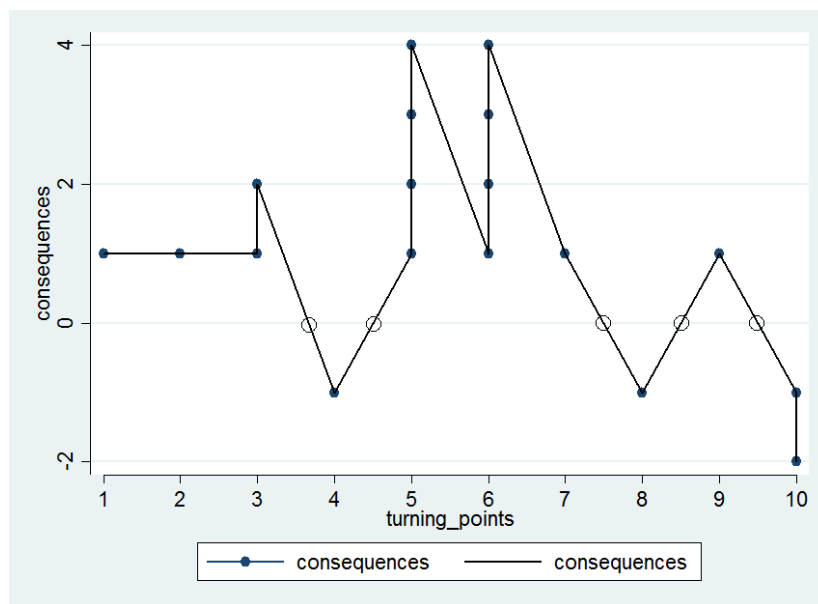


Figure 1: Doha Ministerial negotiations

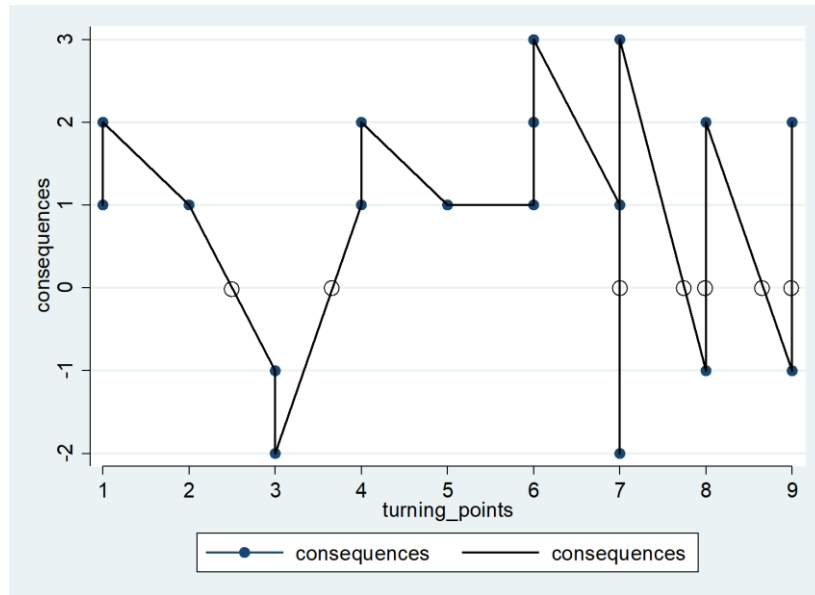


Figure 2: TRIPS Uruguay round negotiations

It becomes evident that both negotiations follow similar stages. Both plots show that the negotiations start cooperatively, then reach first period of defection, which is followed by a period of increased cooperation, which is in turn followed by a volatile endgame bargaining process. The final third of the negotiations contains more directional changes (0) than the first two-thirds of the negotiation. This likely shows the impact of nearing deadlines. For the Doha Ministerial negotiations, it can be observed at turning point 5, 6 and 10 that if a turning point has multiple consequences, these consequences are all unidirectional. The TRIPS negotiations are more volatile and directional changes occur also within turning points 7, 8 and 9.

To gain further insights into the data we analyze the moves in a numerical manner.

Table 1: Results of numerical analysis of consequences

Consequences	Ministerial/Council Level	Committee Level
Towards-Towards	0.65, of these 0.64 within TPs 0.36 across TPs	0.47, of these 0.50 within TPs 0.50 across TPs
Away-Away	0.06, of these 1.00 within TPs 0.00 across TPs	0.06, of these 1.00 within TPs 0.00 across TPs
Away-Towards	0.12, of these 0.00 within TPs 1.00 across TPs	0.24, of these 0.75 within TPs 0.25 across TPs
Towards-Away	0.18, of these 0.00 within TPs 1.00 across TPs	0.24, of these 0.25 within TPs 0.75 across TPs
Within TPs	0.47, of these 0.88 towards-towards 0.12 away-away	0.53, of these 0.44 towards-towards 0.12 away-away 0.44 mixed
Across TPs	0.53, of these 0.44 towards-towards 0.56 mixed	0.47, of these 0.50 towards-towards 0.50 mixed

For the ministerial/council level negotiations, movements within turning points are mainly towards agreement and exclusively unidirectional (towards-towards 0.88, away-away 0.12). This puts emphasis on the self-contained procedural dynamics observed in (Crump & Druckman, 2016). The procedural dynamics seem self-enforcing. Momentum, whether positive or negative, is sustained as the initial move is repeated within a turning point. For the committee level negotiations, the movements within turning points are more volatile (towards-towards 0.44, away-away 0.12, mixed 0.44). Positions at the committee level should be considered less stable than at the ministerial/council level. This leads to higher uncertainty about the trajectory of negotiations within turning points, but also gives parties heightened ability to correct and adapt.

In the ministerial/council level negotiations improvements happen exclusively across turning points (Away-Towards, within TPs 0.00, across TPs 1.00). Declines happen exclusively across turning points as well (Towards-Away, within TPs 0.00, across TPs 1.00). This substantiates the rigidity of positions within turning points at the ministerial/council level.

In the committee level negotiations improvement happens more often within turning points than across turning points (Away-Towards, within TPs 0.75, across TPs 0.25). Declines happen more often across turning points than within turning points (Towards-Away, within TPs 0.25, across TPs 0.75).

On both levels continued decline happens exclusively within turning points (Away-Away, within TPs 1.00, across TPs 0.00).

A decisive observation concerns the loss aversion of negotiators at both levels. At the committee level the probabilities for (Towards-Away) are higher and the probabilities for (Towards-Towards) lower than at the ministerial/council level. Thus, there is lower loss-aversion throughout committee level negotiations. However, when losses occur through defecting moves, the losses are eventually cut as cooperative moves overtake. The ministerial/council level in turn has lower probabilities for (Towards-Away) and higher probabilities for (Towards-Towards) than the committee level negotiations. Thus, there is heightened loss aversion throughout ministerial/council level negotiations. The strong procedural dynamics are meant to contain potential losses, however once losses are created through a defecting move, further defecting moves follow – the losses are not cut. The opposite stances on loss aversion offer one explanation for the Uruguay round ending as a success and the Doha Ministerial ending in deadlock.

3. Conclusion and lessons for negotiators

Regarding the notion of strategy, evidence of symmetrically matched moves is apparent in both negotiations. Given the assumption of an underlying prisoner's dilemma could be justified, these moves could be classified as TFT. In the Doha Ministerial negotiations, symmetrically matched moves occur within turning points 5, 6 and 10. In the TRIPS Uruguay round negotiations, these moves occur across turning points 7, 8 and 9, which all contain both a preceding defective move and a succeeding cooperative move. Especially in turning points 8 and 9 the first consequences away from agreement are matched as are the second consequences towards agreement. This leads to an interesting, albeit hypothetical question. Is TFT the optimal strategy? Perhaps for each single player, but not necessarily for the aggregated players that constitute the negotiating body. Within the last turning point of the Doha Ministerial negotiations, a defecting move is followed by a defecting move leading the negotiations to end in deadlock. Symmetrically matched cooperative moves in the middle part of the negotiations potentially create a false sense of a positive status quo.

A second conclusion concerns cooperation. When comparing both negotiations, it becomes evident that willingness to cooperate is not sufficient for ensuring a successful outcome. In addition, there needs to be an agile environment that can enable quick responses should this willingness momentarily cede. Such an environment seems especially important when the negotiations are structured as a "single undertaking" which posits that "nothing is agreed until everything is agreed" (World Trade Organization, 2017). If the last consequence is away from agreement, the entire process of the negotiation is compromised.

This emphasizes the results obtained in (Crump & Druckman, 2016). Both levels should not overlap in the negotiation process as they demand different strategies be taken to reach an agreement.

Analyzing the consequences within a negotiation can help negotiators gain a deeper understanding of how to adapt their strategies to the respective negotiating levels. For instance, at the ministerial/council level, a defecting move within a turning point is unlikely to be reversed until the next turning point is reached. At the committee level, there is higher uncertainty and positions are less stable, but negotiators have a heightened ability to respond to defecting moves through cooperation. These insights should support calculated and efficient decision making.

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