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Do They Agree Once More? - An Analysis of the Factors That Influence Agreement in the Post-Settlement Phase

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1 Introduction

Empirical studies found that the performance of humans in conducting negotiations is rather poor. On the one hand, disputants often fail to reach an agreement, on the other hand in case they settle the conflict, the solutions found are frequently inefficient (Raiffa, 1982). This inefficiency may result from negotiators' focus to actually settle the conflict, which impedes the recognition of efficient solutions (Raiffa, 1985).

To assist negotiators facing these challenges, electronic negotiation support systems (eNS) provide communication and decision support (Lim and Benbasat, 1992-93). A number of eNS, e.g. *Inspire* (Kersten and Noronha, 1999) or *NEGOTIATION ASSISTANT* (Rangaswamy and Shell, 1997), additionally offer a post-settlement phase to improve electronically negotiated outcomes.

2 The Post-settlement Phase

The two broad phases of interest for our study are: (i) the negotiation phase, from the start of the negotiation until an outcome is reached, and (ii) the post-settlement phase, which is only entered if the negotiated outcome is an inefficient agreement as illustrated in Figure 1.

The post-settlement phase was proposed as a measure to improve negotiation outcomes (Raiffa, 1985). In this phase offers are restricted to solutions which are Pareto-superior to the initial agreement. Pareto-superior alternatives dominate the initial agreement, Pareto-optimal alternatives are not dominated by any other alternative.

Hitherto, only few empirical studies investigate the post-settlement phase of eNS. Results indicate that both, user acceptance of and agreement rate in the post-settlement phase are low. This is actually surprising as a dyad in terms of utility cannot be worse off by entering this phase. However, if negotiators manage to reach an agreement, the dyad is certainly better off. There is virtually no literature on the

factors that influence agreement in the post-settlement phase. Therefore, this study aims at investigating the relevance of several negotiation process and outcome dimensions for post-settlement agreement. We analyze data gathered in negotiation experiments conducted via *Inspire* as part of an international joint teaching negotiation course.

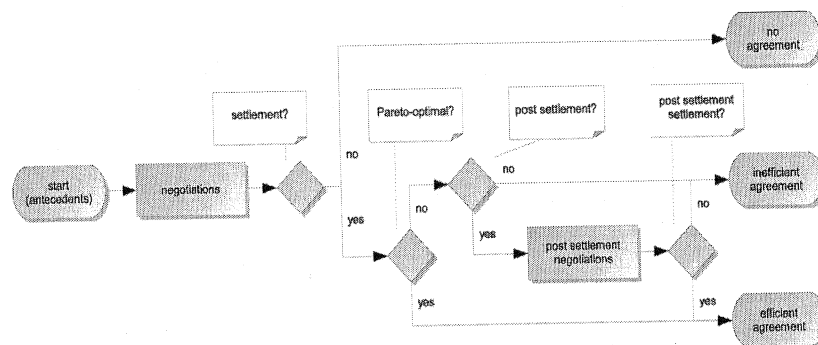


Fig. 1. Negotiation and post-settlement process flow chart

3 Influencing factors of Post-Settlement Agreement

With respect to the general negotiation process illustrated in Figure 1, we investigate the following factors that potentially influence the post-settlement agreement: (i) the antecedents of the negotiation, (ii) the negotiation process, (iii) the negotiated outcome, and (iv) the post-settlement phase.

Antecedents of the Negotiation. There is a magnitude of antecedents of negotiations. However, as the focus of this study is on post-settlement agreement, we only pay attention to those antecedents that actually have an impact on negotiated agreement and therefore potentially also on the prospects of post-settlement agreement. Empirical research identified the composition of dyads, as well as gender and bargaining experience of negotiators to have an impact on several negotiated outcome dimensions (Dennis et al., 1999, Koeszegi et al., 2004, Koeszegi et al., 2006). Their influence on the post-settlement outcome has not been examined yet and therefore is part of the focal study.

Negotiation Process. In the endeavor to find an agreement, negotiators have to exchange messages, to inform and influence each other, and tentative proposals for settling the conflict -- so-called offers. The resulting thread of exchanged messages and offers is called negotiation process. Prior research indicates that higher investments in the negotiation process reduce the users' willingness to enter a post-settlement phase (Block et al., 2006). Similarly, once entered these investments might undermine the prospects of agreement in the post-settlement phase. Therefore we expect the negotiation time, as well as the number of exchanged messages and offers to influence post-settlement agreement.

Negotiated Outcome. In general the two conditions on the negotiated outcome to enable the choice to enter a post-settlement phase are: (i) that an agreement was reached, and (ii) that this agreement was inefficient. However, inefficiency is just a binary indicator of the quality of an agreement. Other agreement quality measures might influence the prospects for post-settlement agreement, too. A small distance to the Pareto-frontier or high joint utility might make it easier to find a post-settlement agreement as the dyad is already close to only a few possible solutions. Fairness -- e.g. measured in terms of contract balance -- probably increases post-settlement prospects as the discriminated party might refuse Pareto-improvements on the basis of an unfair tentative agreement. Finally, low individual utility of the initial agreement might motivate negotiators to improve their outcome in the post-settlement phase.

Post-Settlement Phase. As mentioned above, negotiations in the post-settlement phase are more restricted than in the former negotiation phase. The exchange of offers is limited to Pareto-optimal solutions which are Pareto-superior to the initial agreement. However, there still remains considerable scope for the design of this phase, which doubtlessly influences the probability of finding a post-settlement agreement. First, the number of Pareto-optimal solutions presented by the eNS to the negotiators is expected to have an impact on post-settlement agreement. Less and 'acceptable' solutions reduce cognitive load and space for haggling. Acceptability could be interpreted in terms of utility and offer configuration. Extreme utility vectors on the Pareto-frontier suffer less acceptance by the users as they favor one of the parties. Offer configuration violating reservation levels of either negotiator might find no acceptance even if they result in 'acceptable' Pareto-optimal utility vectors. Finally, a holistic evaluation of the post-settlement phase might be an indicator of its effectiveness. This evaluation can be reached by comparing satisfaction with process and outcome of dyads that reached a Pareto-optimal agreement with and without post-settlement.

4 System Design

As antecedents of negotiations are given, system designers lack means to account for these factors in the design of the post-settlement phase. Similarly, the negotiation process and the initial outcome are influenced by a variety of factors that are not under total control of system designers. Therefore, results indicating an impact of these factors on the post-settlement phase are mainly of descriptive characteristic. In contrast, factors based in the post-settlement phase per se, e.g. the number of proposed Pareto-optimal solutions or the location of these solutions on the Pareto-frontier, can be defined by system designers. Consequently, if results indicate an impact of factors based in the post-settlement phase, we may derive prescriptive suggestions about how to design an effective post-settlement phase of an eNS. The effectiveness of this phase can be evaluated by comparing dyads that re-agreed in the post-settlement phase with those that did not.

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