

Experimental research on bilateral negotiation

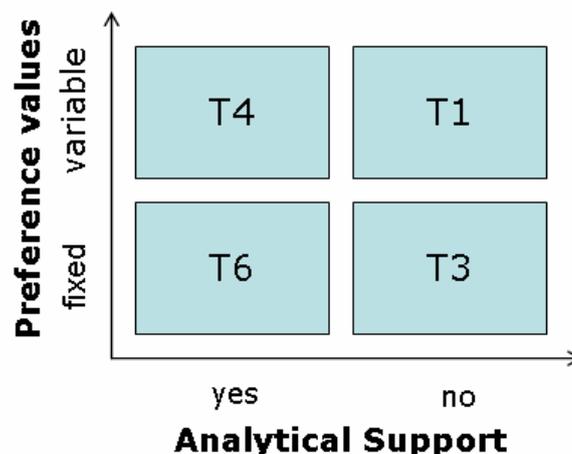
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Abstract

Two hundred undergraduate and graduate students from the two English universities in Montreal participated in our experiments. Subjects participated in a contract negotiation between an artist and an entertainment company. They negotiated as representatives of the respective sides. The contract was comprised of 4 fixed issues to negotiate: number of promotional concerts, number of new songs, royalties for CDs and contract signing bonus. Each issue had a fixed number of options to choose from. A complete offer consists of selecting one option per issue. In total, there were 240 possible contracts. The experiments were conducted in a lab setting in which the interaction between the negotiation parties was computer-mediated via a web browser. Each dyad had one hour to negotiate a contract by exchanging messages and complete offers for acceptance. Participants were also asked to fill in a pre and post negotiation questionnaire. Each participant was paid \$24 cash for a 3 hours session.

We have used a 2x2 factorial experiment design. One factor represents the availability of analytical support (AS) and the other the availability of quantitative information about the represented preferences. We note that we are not considering negotiations in which one of the sides has AS and the other has not. Thus, when AS is available or preference information is quantitatively given, it is for both parties in a negotiation. Each combination of one of the two levels per factor creates the four experimental treatments shown in Figure 1. Subjects were matched randomly in pairs and assigned to one of the experimental treatments. In total, we have obtained results for 100 negotiations, 24 correspond for treatment T3, 23 for T4 and 21 for T6 and T1 each.

Figure 1: Experimental treatments



An additive score system can be used to help participants in representing their preferences. A specific numerical value is assigned to each option of each issue. Contracts offers, constructed by selecting one option per issue, are scored adding their options scores to obtain an overall numerical value. For each treatment, subjects who reached the highest final contract score in comparison with those playing the same role had the opportunity to earn another \$40 dollars extra. This reward mechanism was made clear to the subjects before the experiment in order to induce in the subjects a contract value maximizer behaviour. Thus, contracts with higher scores were preferred. The analytical support provided to each party in T4 and T6 consisted in the display of offers' rating when making or receiving them, graphical information of the negotiation history and a post-settlement mechanism to improve a potential inefficient contract agreement.

Information regarding the preferences of the side represented by the participants was given in the confidential instructions. Quantitative information would be available when the numerical scores are enforcement in the set of instructions within the case description. Otherwise, subjects only receive verbal and visual information on the importance of issues and options but no rating values. Thus, preference information is quantified with numerical scores for treatment T3 and T6, whereas is qualitatively given for T1 and T4. This qualitative information tries to convey the deleted numbers used in the original quantitative version. Therefore, in T3 and T6 the importance that each side should give to the negotiated issues and their options is fixed, whereas in T1 and T4, when scores were not enforced, quantitative scores were elicited by the subjects prior negotiation based on his understanding of the qualitative information received. A direct method for rating issues and options was used to elicitate their understanding of this preferences. Besides the system would use these scores during the negotiation to evaluate every contract when AS is available.

As depended variables we measure objective and subjective variables. Our experiments showed conclusively that analytical support lead to more efficient agreements. When analytical support was not available for both negotiators the agreements presented more variability and were more inefficient: the negotiated agreements felt far from the efficient frontier and negotiators left potential joint gains on the table. In general, AS provides better quality agreements.