

The influence of different support approaches on negotiation processes and outcomes

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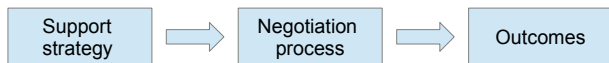
Support in electronic negotiations

- Communication support
 - provision of a communication channel
 - communication protocol, semantic enrichment, etc.
- Analytical support
 - utility elicitation
 - evaluation of offers and counter-offers
 - graphical representation, offer generation etc.
- Behavioral support
 - evaluation of the subjective perception of the negotiation process (questionnaire based)
 - analysis, diagnosis, advice (log-rolling, be more flexible, etc.)

Research Framework and Questions

Research questions:

- 1 How does the support strategy influence the negotiation process?
- 2 How does the negotiation process influence the negotiation outcome?



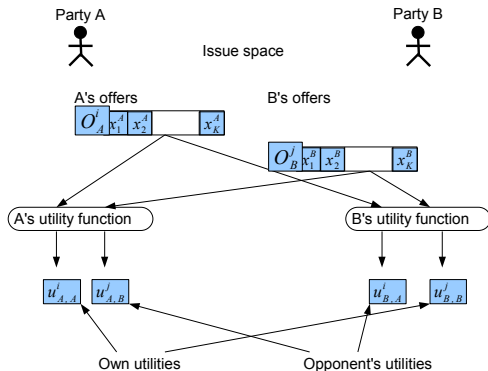
- Analytical support
utility values, offer evaluation (Negoisst)
- Behavioral support
analysis, diagnosis, advice (VienNA)

- Offers
- Concessions
- Gains
- Value creation

- Agreement
yes/no
- Efficiency
distance to Pareto frontier
- Fairness
contract imbalance

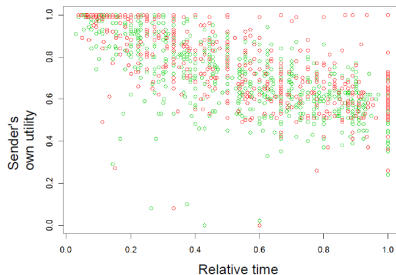
Offer process

Negotiation objects and preferences vary. The options (values) in the issues (attributes) of an offer determine the utility for both sides



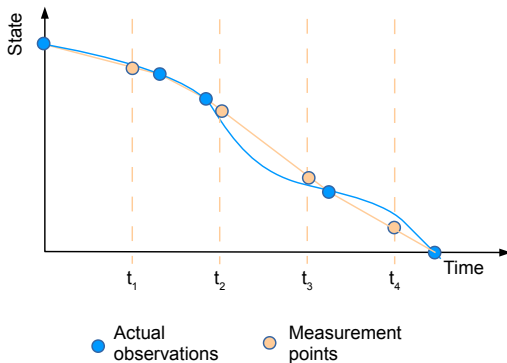
Challenge for comparison

Negotiation processes vary in duration and offer timing which makes comparisons challenging



Method SIPA

Standardized Interpolated Path Analysis makes different negotiation processes comparable (by statistical analyses)



Experimental Setup

- Treatments
 - control (just communication channel)
 - analytical support AS (Negoisst utility elicitation, evaluation and graphs)
 - behavioral support BS (vienNA mediation system)
 - AS and BS
- 'Blue Star' joint venture negotiation case
 - international joint venture negotiation
 - seven issues (number of board members, share of revenues, court of jurisdiction, etc.)
 - high level of conflict (narrow ZOPAs)
- Participants
 - 234 students from international negotiation courses at four European universities (Uni Vienna, TU Vienna, Uni Hohenheim, Uni Tilburg)
 - 117 negotiation dyads total
 - System training, afterwards 3 weeks for conducting the negotiations

The screenshot displays the Negoisst web interface. At the top, it identifies the system as 'Negoisst, Chair of Information Systems I, University of Hohenheim, © 2008-2010'. The main header area includes 'Add/Change Receivers' and 'Clear this Message' buttons. The central focus is the 'Blue Star Joint Venture: Write Message' window, which contains a 'New Message' section. This section includes fields for 'Receivers' (Mr./Mrs. Husar), 'Title' (First offer), and 'Action' (Offer). A text area below contains the message content: 'With this message you commit to the contract details proposed, these will be transferred to a preliminary contract.' Below the text area is a rich text editor with various formatting options. The right-hand side of the interface features an 'Agenda' and 'Importance of attributes' section, which lists and rates various contract attributes such as 'Court of jurisdiction', 'Duration of contract [years]', 'Mihalits directors on board', 'Mihalits share of future revenue', and 'Secrecy clause'. The bottom left corner shows an 'Info Box' with 'Attachments' and 'News Messages' tabs, and a status bar indicating the user is logged in as 'mihalits_93'.

(Schoop et al. 2003)

vienNA questionnaire

Welcome to vienNA 2.0 - Mozilla Firefox

http://info.tuwien.ac.at/e-nego-motion/

Welcome to vienNA 2.0

vienNA 2.0

My Issues

- share of future revenue
 - 1. 2010-11-24 17:02:33 (initiated by Metallurg)
- secrecy clause
 - 2. 2010-12-21 11:05:19 (initiated by Metallurg)

My Mediation

Create A New Issue to discuss | Choose An Already Existing Issue to discuss

Questionnaire - Issue: secrecy clause

Depict the differences among you and Metallurg for the "secrecy clause"

large

moderate

relatively small

How complex is the issue of the "secrecy clause"?

highly complex

moderately complex

not at all complex

For the "secrecy clause", is there an attractive outcome that can be achieved by equal compromises on the part of Metallurg and yourself?

yes

no

Info Box

Negotiated Case	Blue Star
Case properties	Joint Venture
City of Mediation	Vienna
Negotiation ends	November 20th, 2010
Support	Email to vienNA 2.0 Support
Your name	K. Keller
Your role	Mihalts
Role of opponent	Metallurg

based on Negotiator Assistant (Druckman et al. 2002, 2004)

vienNA diagnosis – analysis – advice

Diagnosis

Generally, you should try to get into the dark green zone. This increases your chances to reach a fair agreement.

Legend:
■ Issue Score
■ Process Score

You are flexible enough to come to a compromise regarding the "Royalties for CDs". If both parties (Young artist and World Music) could add some flexibility, you could shift to the win-win zone (dark green). Consider the following suggestions. Your level of flexibility is medium regarding the progress of the negotiation. World Music is signalling a rather low one. Please advise your opponent to take the suggestions provided by vienNA seriously.

The following shows the questions which are most important in your negotiation, your answers to them and the derived advice. The list is sorted by the number of questions per advice category (highest first):

Question	Your Answer	Detailed advice
Depict the differences among you and World Music for the "issue"	large	Expanding Information
For the "issue", is there an attractive outcome that can be achieved by equal compromises on the part of World Music and yourself?	yes	
When it comes to the "issue" to what extent are Young artist's values or ideologies at stake?	to a great extent	Differences
Did you refer to other negotiations you have participated in, outside of this case?	yes	
What is the current status of these negotiations?	concluded and the outcome is deadlocked	Attaining Integrative Agreements
How did you make the connection between those negotiations and the current case?	tactically	
Depict the differences among you and World Music for the "issue"	large	Differences
When it comes to the "issue" to what extent are Young artist's values or ideologies at stake?	to a great extent	
What is your approach to these negotiations?	strategic game	Attaining Integrative Agreements
How did you make the connection between those negotiations and the current case?	tactically	

based on Negotiator Assistant (Druckman et al. 2002, 2004)

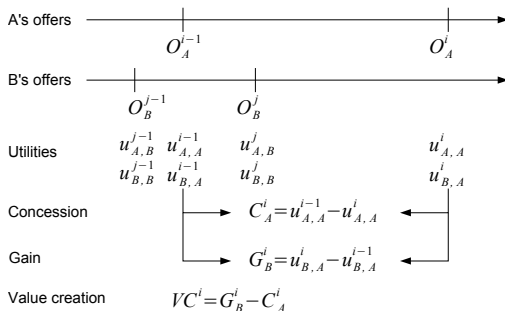
Agreement rate

	N	agreement (absolute)	agreement (%)
control	19	12	63.16
AS only	26	18	69.23
BS only	38	22	57.89
AS & BS	34	22	64.71
test		0.900	

χ^2 test

No effect of support strategy on agreement rates

Measurement – Dynamic process measures



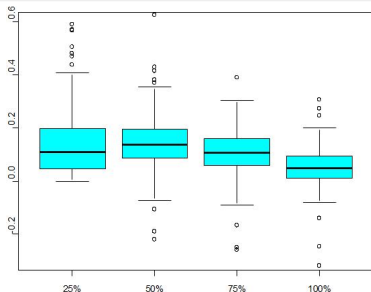
Support effects on dynamic process measures

	offers	concession	gain	value creation
control	4.97	0.444	0.489	0.045
AS only	5.23	0.456	0.504	0.048
BS only	6.10	0.432	0.495	0.063
AS & BS	5.00	0.434	0.500	0.066
test	3.097	1.541	1.452	0.336

Kruskal-Wallis tests

No effect of support strategy on dynamic process measures for the complete process

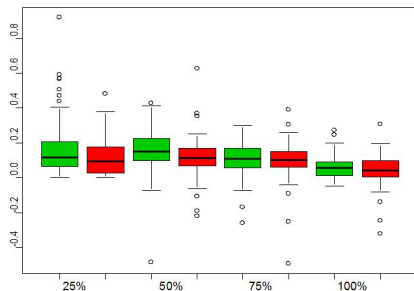
Concessions



	25%	50%	75%	100%
mean	0.140	0.140	0.104	0.056
median	0.110	0.138	0.108	0.049
sd	0.128	0.108	0.094	0.068
test vs 25%	–	10815	14283	*** 19760.5
test vs 50%	–	–	** 16171	*** 21509.5
test vs 75%	–	–	–	*** 19143

Wilcoxon rank-sum tests, Bonferroni-Holms correction

Concessions by agreement

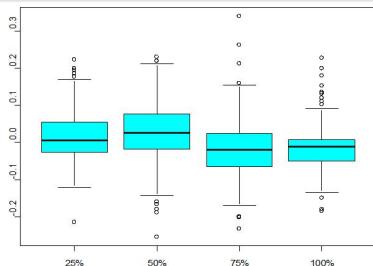


	25%	50%	75%	100%
no agreement	0.121	0.119	0.097	0.048
agreement	0.152	0.152	0.108	0.060
test	5091	** 4492.5	5621.5	5513

Wilcoxon rank-sum tests

Significantly decreasing concessions and higher concessions in early phases of successful negotiations

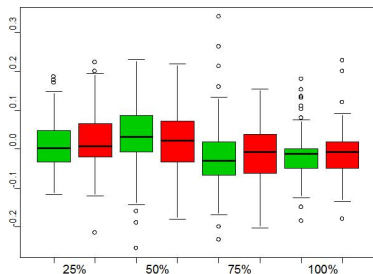
Value creation



	25%	50%	75%	100%
mean	0.015	0.030	-0.014	-0.014
median	0.005	0.026	-0.020	-0.010
sd	0.070	0.080	0.076	0.059
test vs 25%	—	* 10173.5	*** 16618	*** 17078
test vs 50%	—	—	*** 18146	*** 18570.5
test vs 75%	—	—	—	11819.5

Wilcoxon rank-sum tests, Bonferroni-Holms correction

Value creation by agreement

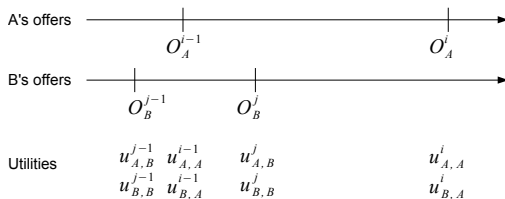


	25%	50%	75%	100%
no agreement	0.024	0.017	-0.010	-0.010
agreement	0.010	0.038	-0.016	-0.016
test	6540.5	5064	6387.5	6258.5

Wilcoxon rank-sum tests

Destruction of value towards the end of the negotiation, especially in successful negotiations (n.s.)

Measurement – Dyad process measures



Pareto distance
$$PD = \min_{e \in E} \sqrt{(u_{A,B}^j - e_A)^2 + (u_{B,B}^j - e_B)^2}$$

where E is set of efficient solutions dominating O_B^j

Contract imbalance
$$CI = u_{B,B}^j - u_{A,B}^j$$

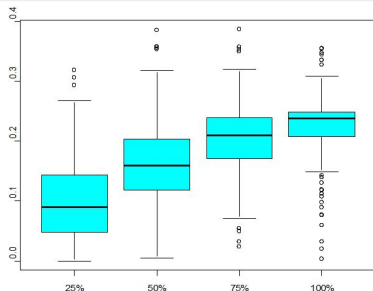
Support effect on dyad process measures

	Distance to eff. Frontier	Contract Imbalance
control	0.222	0.105
AS only	0.234	0.128
BS only	0.219	0.136
AS & BS	0.232	0.114
test	3.344	0.584

Kruskal-Wallis tests

No effect of support strategy on dyad process measures for the complete process

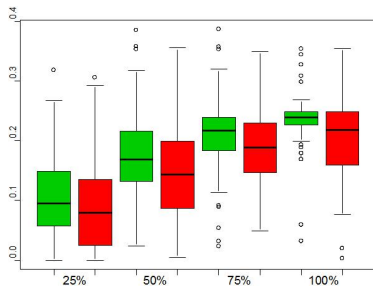
Distance to the Pareto efficient frontier



	25%	50%	75%	100%
mean	0.100	0.162	0.203	0.221
median	0.090	0.160	0.209	0.239
sd	0.072	0.070	0.056	0.057
test vs 25%	–	*** 2630	*** 733	*** 565
test vs 50%	–	–	*** 3718	*** 2985
test vs 75%	–	–	–	*** 5775

Wilcoxon rank-sum tests, Bonferroni-Holms correction

Distance to the Pareto efficient frontier by agreement

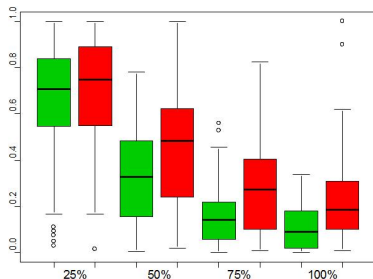


	25%	50%	75%	100%
no agreement	0.089	0.146	0.189	0.204
agreement	0.107	0.171	0.211	0.231
test	* 4817.5	* 4612	** 4471.5	* 4525.5

Wilcoxon rank-sum tests

Increasing distance to the Pareto efficient frontier, significantly larger for successful negotiations

Contract imbalance by agreement



	25%	50%	75%	100%
no agreement	0.695	0.454	0.284	0.224
agreement	0.669	0.325	0.157	0.110
test	6319.5	*** 7645.5	*** 8103	*** 8358

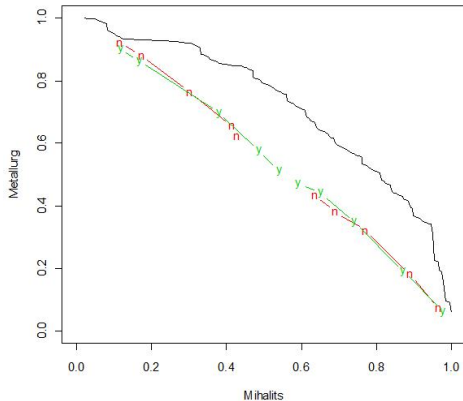
Wilcoxon rank-sum tests

Offers significantly balance out during the negotiation process, successful negotiation significantly more balanced towards the end of the negotiation.

Conclusions

- No influence of the support strategies (treatments) on the offer process (potentially on other dimensions of the negotiation process – relationship, emotions, etc.)
- The process-oriented perspective is important to understand outcomes of negotiations
- 'Fixed-pie' behavior is observable in all (successful and failed) negotiation processes
 - Participants fail to realize potentials for value creation
 - ... and in later stages of the negotiation even destroy value
- Negotiator's dilemma: Negotiations reaching agreement are even further away from efficiency than failed negotiations
 - Concessions early in the process are important for reaching agreement
 - Prolonged imbalance has a negative impact on agreement prospects

Average paths in utility space



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