



Negotiations

Introduction
Negotiation types
Negotiation principles
Negotiation support
Automatic negotiation?



Negotiation “definition”

Negotiation is the **process** in which parties that perceive one or more **incompatibilities** between them, try to find a **mutually acceptable solution**.



Negotiation science(?)

- Symmetric prescriptive \Rightarrow game theory
- Symmetric descriptive \Rightarrow sociology, psychology, etc.
- Asymmetric perspective \Rightarrow management, decision theory, etc.
- External perspective \Rightarrow mediation



Negotiations vs. auctions

■ Auctions:

- Meant to determine the value of product
- Work in market situations (more buyers and/or sellers)
- Well defined product
- Only information through bids
- Focused on outcome
- In principle no “log-rolling” (connections between bidders to raise or lower the price)
- No externalities expressed



Negotiations vs. auctions

- **Negotiations:**

- Can be used to **create** the value of product
- Work in situations with 1 buyer and seller
- Product might not be defined completely yet
- Preferences might not be clear before negotiation
- Information exchange is integral part of negotiation
- Process is important
- Relations between parties might be important
- Externalities and “log-rolling” possible



Negotiations vs. bargaining

- **Bargaining:**
 - Single issue negotiation between two parties
 - Usually bargaining is a zero-sum game
 - Bargaining can be seen as part of negotiation



Issues in disputes

1. Two or more parties?
2. Are the parties monolithic?
3. Is the game repetitive?
4. Are there linkage effects?
5. One or more issues?
6. Is an agreement required?
7. Is ratification required?



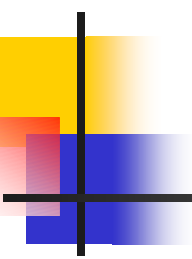
Issues in disputes

8. Are threats possible?
9. Are there time constraints and/or costs?
10. Are the contracts binding?
11. Are the negotiations private or public?
12. What are the group norms?
13. Is third-party intervention possible?



Types of negotiation

- Distributive negotiation
 - The pie is fixed and is divided among the parties \Rightarrow
 - More suitable for using game-theoretical analysis
- Integrative negotiation
 - Try to expand the pie that is divided in order to find new compromises



(Distributive) negotiation phases

1. Determine the process
2. Determine the issues
3. Quantify the issues
4. Determine preferences for packages
5. Maximize the utility
6. Get commitment/compromises
7. Close the deal (secure commitment)

Negotiation method: SOFT

1. Participants are **friends**
2. The goal is **agreement**
3. **Make** concessions to cultivate friendship
4. **Be soft** on people and problem
5. **Trust** others
6. **Change** your position easily
7. Make **offers**
8. **Disclose** your bottom line
9. **Accept** one-sided losses to reach agreement
10. Search for the answer **they** will accept
11. Insist on **agreement**
12. Try to **avoid** a contest of will
13. **Yield** to pressure

Negotiation method: HARD

1. Participants are **adversaries**
2. The goal is **victory**
3. **Demand** concessions as a **condition** to friendship
4. Be **hard** on people and problem
5. **Distrust** others
6. **Dig in** your position
7. Make **threats**
8. **Mislead** as to your bottom line
9. **Demand** one-sided **gains** as a price for agreement
10. Search for the agreement **you** will accept
11. Insist on **your position**
12. Try to **win** a contest of will
13. **Apply** pressure



Negotiation principles

1. **Principled** negotiation
2. Separate the **problem** from the **people**
3. Focus on **interests** not **positions**
4. Invent **options** for **mutual gain**
5. Use **objective criteria**

Good outcomes?

We walk away or an agreement

1. Better than our **BATNA**
(**B**est **A**lternative **T**o a **N**egotiated **A**greement)
2. Satisfies our interests well, theirs enough
3. Is among the best of many options
4. Is legitimate
5. Involves commitments that are realistic and operational



Negotiation preparation

1. **Alternatives**, establish your BATNA and estimate theirs
2. **Interests**, find out your interests, understand their current choices
3. **Legitimacy**, find standards
4. **Options**, develop options
5. **Commitments**, which options can you commit to
6. **Communication**, what do we want to learn
7. **Relationship**, what kind of relationship do we want
8. **Systems**, how do we negotiate



Negotiation support

Example: smart-settle

<http://www.smartsettle.com/>



Automated negotiation

- Mainly about bargaining:
 - Single issue
 - Two parties
 - One-shot transactions
- Research: multi-issue negotiation
- Open: finding/generating **new** options

The Trade-off Algorithm

To be beneficial to the other the preference of the other must match the similarity function

$$\text{trade-off}_a(x, y) = \arg \max_{z \in \text{iso}_a(\theta)} \{\text{Sim}(z, y)\}$$

complexity $\approx kn$

