Conflict Resolution - basics

Defining Conflict
- In social psychology, focus is on interdependence and perception:
  - “the interaction of independent people who perceive opposition of goals, aims, and values, and who see the other party as potentially interfering with the realization of these goals” [Putnam & Poole, 1987]
- In RE, focus is typically on logical inconsistency:
  - E.g. conflict is a divergence between goals - there is a feasible boundary condition that makes the goals inconsistent [van Lamsweerde et al. 1998]
- Note:
  - conflict may occur between individuals, groups, organizations, or different roles played by one person

Resolution Method:
- The approach used to settle a conflict
  - Methods include negotiation, competition, arbitration, coercion, and education
  - Not all conflicts need a resolution method: not all conflicts need to be resolved.
- Three broad types of resolution method can be distinguished:
  - Co-operative (or collaborative) methods, which include negotiation and education;
  - Competitive methods, which include combat, coercion and competition;
  - Third Party methods, which include arbitration and appeals to authority.

Basic approaches to conflict resolution

Negotiation
- A collaborative exploration:
  - Participants attempt to find a settlement that satisfies all parties as much as possible.
- Also known as:
  - Integrative behavior
  - Constructive negotiation
  - Distinct from:
    - Distributive/competitive negotiation

Competition
- Is maximizing your own gain:
  - No regard for the degree of satisfaction of other parties.
  - Not necessarily hostile.

Third Party Resolution
- Participants appeal to outside source
  - The rule-book, a figure of authority, or the toss of a coin.
  - Can occur with the breakdown of either negotiation or competition as resolution methods.

Types of third party resolution
- Judicial: cases presented by each participant are taken into account
  - Extra-judicial: a decision is determined by factors other than the cases presented (e.g. relative status of participants).
- Arbitration: e.g. toss of a coin

Bidding and Bargaining
- Bidding:
  - Participants state their desired terms.
- Bargaining:
  - Participants search for a satisfactory integration of bids.

Conflict in Social Psychology

Causes of Conflict
- Deutsch (1973):
  - Control over resources
  - Preferences and nuisances (tastes or activities of one party impinge upon another)
  - Values (a claim that a value or set of values should dominate)
  - Beliefs (dispute over facts, information, reality, etc.)
  - The nature of the relationship between the parties.
- Robbins (1989):
  - Communication (insufficient exchange of information, noise, selective perception)
  - Structural (goal compatibility, jurisdictional clarity, leadership style)
  - Personal factors (individual value systems, personality characteristics).

Interesting Results
- Deviant behavior & conflict are normal in small group decision making
- More aggression and less co-operation when communication is restricted
- A decrease in communication tends to intensify a conflict (the contact hypothesis)
- Heterogeneous teams experience more conflict
- Homogeneous groups are more likely to make high risk decisions (groupthink)
- Effect of personality is overshadowed by situational and perceptual factors
Severity of Conflict

For two initial positions, A and B, we can measure the severity of conflict by examining what happens when we combine them.

Classification of Social Conflict

Adapted from Dahrendorf 1958:

- **Social Units**
  - Equal vs. equal
  - Superordinate vs. subordinate
  - Whole vs. part

- **Roles**
  - 1 (family role vs. occupational role)
  - 2 (occupational role vs. union role)
  - 3 (social personality vs. family role)

- **Groups**
  - 4 (boys vs. girls in school class)
  - 5 (father vs. children)
  - 6 (nuclear family vs. extended family)

- **Sectors**
  - 7 (air force vs. army)
  - 8 (management vs. union)
  - 9 (Department vs. University)

- **Societies**
  - 10 (Protestants vs. Catholics)
  - 11 (free men vs. slaves)
  - 12 (state vs. criminal gang)

- **Suprasocietal relations**
  - 13 (soviet bloc vs. western bloc)
  - 14 (Soviet Union vs. Hungary)
  - 15 (Common Market vs. UK)

Classifying approaches to resolution

Adapted from McGrath 1984

1. **Quadrant I**: Generate
   - Solving Problems w/Correct Answers
   - Generating Ideas

2. **Quadrant II**: Choose
   - Type I: Selecting Tasks
   - Type II: Starting Projects
   - Type III: Implementing Solutions
   - Type IV: Resolving Conflicts of Interest

3. **Quadrant III**: Execute
   - Type I: Performance Tasks
   - Type II: Confronting Issues
   - Type III: Resolving Conflicts of Power
   - Type IV: Resolving Conflicts of Viewpoint

4. **Quadrant IV**: Negotiate
   - Conceptual
   - Behavioral

Game Theory

**Game Theory for conflict resolution**

- **Given**:
  - 2 or more players
  - Known utilities for each outcome for each player
- **Can Calculate**:
  - What strategy results in the better outcome
  - How strategies by different players interact
- **E.g.** Prisoner’s dilemma:
  - **Not Confess**
  - **Confess**

<table>
<thead>
<tr>
<th></th>
<th>Not Confess</th>
<th>Confess</th>
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</thead>
<tbody>
<tr>
<td><strong>Prisoner A</strong></td>
<td>1 year each</td>
<td>10 years for A and 3 months for B</td>
</tr>
<tr>
<td><strong>Prisoner B</strong></td>
<td>3 months for A and 10 years for B</td>
<td>8 years each</td>
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**But**:
- In RE, we often don’t know what the utilities are
- Often can resolve conflicts by getting participants to change their utilities
- Often we don’t know even what moves are possible
Using Argumentation Structuring...

- **gIBIS**
  - developed by Conklin [1989]
  - Represents argumentation process as a hypertextual graph
  - Basic Process:
    - Identify issues
    - Identify positions one can adopt with respect to the positions
    - Link arguments that support or refute positions

- **Synoptic**
  - Developed by Easterbrook [1991]
  - Tool support for collaborative task-focused negotiation
  - Basic Process:
    - Get each participant to externalize their conceptual model(s)
    - Find correspondences between models
    - Classify mismatches
    - Generate options for resolving each mismatch

Using Pre-existing Domain Models...

- **Oz**
  - developed by Robinson [1992]
  - Uses pre-existing domain model to compare conflicting perspectives
  - Basic Process:
    - Identify perspectives (collections of beliefs)
    - Record perspectives by annotating a domain model of goals and objectives
    - Domain model links product attributes to goals
    - Choose combinations of product attributes to maximize participants' satisfaction

- **WinWin**
  - developed by Boehm & colleagues [mid 1990s]
  - Explicitly identifies win-conditions for each participant
  - Incorporates domain knowledge-base of quality requirements and product attribute links
  - Basic Process:
    - Enter win conditions for each participant
    - Identify attribute strategies for win conditions
    - Determine negative effects for each strategy on each win condition
    - Resolve disagreements manually