

Bargaining, Negotiation and Fair Division

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After a recent spate of home improvements, four couples were having a dinner party to discuss the additions to their houses.

Alan had not recently had a new bathroom. Kara had not yet done her kitchen, but perhaps would update it next. Brian, who is married to Maud, had not had new windows. Laura delighted in showing photographs of her new conservatory. Neither Charles nor David had a new kitchen. Julie had not had new windows. Alan, who also had not had windows, is not married to Laura and Charles is not married to Kara.

Who is married to whom and what had they recently undertaken, assuming that each couple had one improvement and no two couples had the same improvement



- ❖ Alan is married to Julie and they had a new kitchen.
- ❖ Brian is married to Maud and they had a new bathroom.
- ❖ Charles is married to Laura and they had a new conservatory.
- ❖ David is married to Kara and they had new windows.

Ultimatum Game



- ❖ A person receives a pot to split.
- ❖ Pot holder proposes a split to a receiver.
- ❖ Receiver can accept or reject offer.
- ❖ If receiver accepts, both get what was offered.
- ❖ If receiver rejects, neither get anything.



- ❖ Power should be to the proposer.
- ❖ Purely rational outcome is to offer and accept very little.
- ❖ Fairness is complication
- ❖ Fairness depends on “right” to the pot.
- ❖ Receiver does better by having an irrevocable commitment.
- ❖ Lack of flexibility can be a strength.



Distributional Bargaining

- ❖ A situation in which a better bargain for one means less for the other.
- ❖ Better off by getting other party to make concessions.

Examples

- ❖ Housing: Buyer vs. Seller
- ❖ Labor: Workers (Unions) vs. Management
- ❖ Politics: Trade, War, Legislation
- ❖ Investment Manager vs. Investors



Deception vs. Fact

- ❖ Why can't you just lie about your position?
- ❖ Easier to prove the truth of a fact than to convince one of the “truth” of a lie.
- ❖ How do you take advantage of the credibility of the truth for strategic advantage?
 - ❖ **Answer: Make it true!**
- ❖ **Paradox:** the power to force an opponent may depend on the power to bind yourself.
- ❖ Think about the “right” to be sued.



Types of Commitments

- Promises
- Threats
- Other

Rules

- “Move first” - commit before your opponent.
- Make it fully evident and understandable to opponent.
- Offer and outcome need to be observable.
- Must be **irreversible** and the opponent must **know** and believe that fact.



- ❖ Unequal ability to make commitments between parties
- ❖ Not easy to establish commitments
 - ❖ Sometimes only option is pledging one's reputation (secrecy vs publicity)
- ❖ Both sides can make commitments - race to be first.
- ❖ Possibility of stalemate
 - ❖ Communication and simultaneous commitment
 - ❖ Both parties irreversibly bound
 - ❖ Can result in disaster



Is There Hope for Trust?

- Recognition of future opportunities that will be lost if mutual trust is not created and maintained.
 - a value which outweighs momentary gains from cheating.

How Can We Bargain for Trust?

- Piecemeal bargains to cultivate the necessary mutual expectations.
- Risk small investments in preparatory bargains to create a tradition of trust.
- Trust requires reputation and reputation requires repeated interactions.

Dealing with the F-word



FAIRNESS

- ❖ Behavioral Economics: research on how people play the ultimatum game.
- ❖ People will incur costs to be nice to those who treat them nice.
- ❖ People will incur costs to be mean to those who treat them mean.
- ❖ **Perceived** kindness of self vs. **perceived** kindness of others is what matters.
- ❖ **Stakes**: kindness and fairness matter *less* as payoffs get larger.
 - ❖ Everyone has a price?



- ❖ Reciprocity is an important part of reputation
- ❖ Public acts of “kindness” to another might publicly obligate another’s reciprocity.
- ❖ Publicly obligating another’s reciprocity causes them to choose between reciprocating or risking reputation and longer-term trust and cooperation with other parties.



How Do We Fairly Divide Gains and Costs Across a Group?

Properties of Divisions

- Proportional divisions
 - People get a “fair” share
- Envy-free divisions
 - People don’t envy other’s portions over their own.

Algorithms for Good Divisions

- Divide and Choose Method
- Adjusted Winner Approach