# Negotiations vs. Confrontation: A Possible Explanation of the Empirical Results

Olga Kosheleva and Vladik Kreinovich
University of Texas at El Paso
500 W. University
El Paso, TX 79968, USA
olgak@utep.edu, vladik@utep.edu

**Abstract**

A recent book promoting negotiations as an alternative to confrontations cites the empirical evidence that in business situations, confrontational attitude leads, on average, to a 75% loss in comparison with negotiations. An additional empirical fact is that only in 10% of the cases, negotiations are not possible and confrontation is inevitable.

## 1 Formulation of the Problem

A recent business-oriented book [1] by Professor Stuart Diamond, by one of the world's leading experts in negotiations cites two empirical facts:

- that in business situations, confrontational attitude leads, on average, to a 75% loss in comparison with negotiations, and
- that only in 10% of the cases, negotiations are not possible and confrontation is inevitable.

In this paper, we provide a possible explanation for these empirical results.

## 2 Why Confrontational Attitude Leads, on Average, to a 75% Loss

Let us first explain why confrontational attitude leads, on average, to a 75% loss in comparison with negotiations. A 75% loss means that businesses with a confrontational attitude get, on average, 4 times less than businesses that actively involve in negotiations.

From the game-theoretic viewpoint (see, e.g., [4]) a confrontational approach means considering each conflict situation as a zero-sum game, ignoring possible "win-win" outcomes – when both sides gain.

From this viewpoint, in general, we can have four possible outcomes:

- win-win,
- win-lose,
- lose-win, and
- lose-lose.

Since there is no reason to believe that in one of these situations, the gain is, in general, larger or smaller, it is therefore reasonable to assume that in all these four outcomes, the gain $g$ is approximately the same.

So, when the companies use a *negotiations* strategies, i.e., when they actively look for possible win-win solutions, both sides get approximately the same amount $g$.

What happens in situations when the companies pursue a *confrontation* strategy? In this case:

- in half of the situations, one side wins, and
- in half of the situations, the other side wins.

In the situations when the first side has an advantage, potential gains range from 0 to $g$. On average, the gain is thus $g/2$.

So, a confrontational company gets:

- on average gain of $g/2$ is half the cases,
- and no gains in other half of the cases.

This results in the average gain

$$\frac{1}{2} \cdot \frac{g}{2} + \frac{1}{2} \cdot 0 = \frac{g}{4},$$

which is exactly what we observe in business situations.

Thus, the first first empirical fact is explained.

# 3 Why Negotiations Are Possible in 90% of the Cases

Another empirical fact to explain is that only in 10% of the situations, win-win negotiations are not possible and the confrontation is inevitable. How can we explain this?

As we have mentioned earlier, we can have four possible outcomes: win-win, win-lose, lose-win, and lose-lose. Since we have no prior information about which situations are more frequent and which are less frequent, it is reasonable to consider all four situations to be equally probable. Thus, if we pick a combination of strategies of the two sides:

- the probability that we end up in a win-win situation in 1/4, and

- the probability that we *do not* end up in a win-win situation is equal to the remaining probability $1 - 1/4 = 3/4$.

Usually, each side has not *one* strategy, but a *spectrum* of possible strategies ranging from one extreme to another. For example, in a buy-sell situations, strategies means proposing prices within a certain range. Intermediate strategies can be viewed as combinations of the two extremes. We can thus alternatively describe the situations by saying that each side has two extreme strategies – with a possibility to consider the combinations of these two.

Each side has two extreme strategies, so we have 4 possible pairs of such strategies. But this is not all.

In serious negotiations, both sides usually involve some negotiation experts who help them reach a satisfactory agreement. Thus, to fully describe the situation, it is not sufficient to consider the two sides: we also need to describe the strategies of the negotiation expert. This expert also has, in effect, two extreme strategies – and the possibility of combining them. Thus, between the two sides and the negotiations expert – each of whom has two extreme strategies – we have $2 \times 2 \times 2 = 8$ possible combinations of strategies.

For each of these eight combinations, the probability that this combination does not lead to a win-win situation is $3/4$. Since we have no information about the dependence between these events, it is reasonable to assume that situations corresponding to different combinations are statistically independent. Thus, the probability that all eight combinations will lead to a not-win-win situation is equal to $(4/3)^8$, which is almost exactly 10%.

Thus, in 10% of the situations, no matter how much we try, we cannot find a win-win solution. However, in the remaining 90% of the situations, at least one of the combinations will lead to win-win solution.

This explains:

- why only in 10% of the cases confrontations are inevitable, and
- why in other 90% of the situations, it is possible, by using negotiations, to find a solution which is beneficial for both sides.

# 4 Explaining an Additional Related Empirical Observation

An additional empirical fact cited in the book [1] comes from the 2006 study [2] according to which, in the negotiation process, voicing bad ideas – i.e., ideas which are not win-win – actually helps the participants to eventually come up with "good" (win-win) ideas.

At first glance, this empirical observation seems counter-intuitive. However, it can also be easily explained by the experience of numerical optimization techniques.

Indeed, in the past, most iterative optimization techniques moved sequentially from a current "good" solution (i.e., a solution satisfying all the constraints) to an even better one. For example, in case of linear programming (when we optimize a linear function under constraints which are described by linear inequalities), it is known that the maximum of the objective function is always attained at one of the vertices of the polyhedron – that represents the set of all alternatives that satisfy all the constraints. Thus, in the simplex-method – the method which was most widely used to solve linear programming problems – the algorithm moves from one vertex to another. The problem with this approach is that its worst-case computation time grows exponentially with the size of the problem – and thus, becomes infeasible already for problems of reasonable size.

It turns out that we can drastically decrease the worst-case computation time – and thus, make the problem feasible – if in the iterations we use alternatives which are *not* vertices – and thus, known to be not optimal.

Linear programming was just a start, now such *interior point methods* are ubiquitous in optimization; see e.g., [3]. This fact – that generating clearly non-optimal intermediate steps helps in finding the maximum – explains why in human negotiations (which also desire to optimize each side's gain) "bad" (i.e., clearly not optimal) ideas are often helpful.

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