2. Important Negotiation Concepts

Introduction to Negotiation

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2.1 Basic Concepts
2.1.1 Definitions

Recall*:

Distributive negotiation is a competitive negotiation over one issue, a win-lose situation, such as haggling over a price in a bazaar.

Integrative negotiation is a negotiation that can look for win-win solutions or problem solving in order to have mutual gain.

* see chapter 1.2.2

Target point is the point at which a negotiator would like to conclude negotiations, i.e. his aspired goal. The target point is often referred to as the 'negotiator's aspiration'.

Resistance point is a negotiator's bottom line – the most she will pay as a buyer (for a seller, it is the smallest amount she will settle for). The resistance point is often referred to as the 'reservation price'.

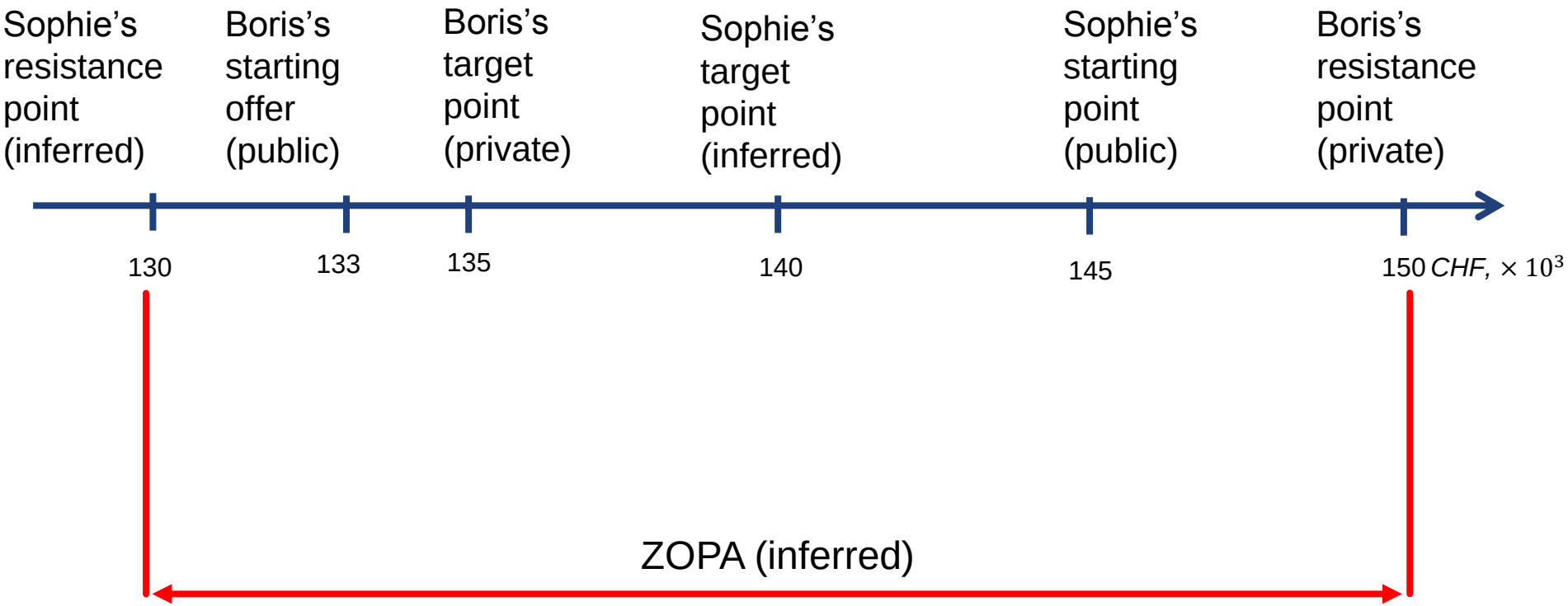
Starting point (or asking price, initial offer) is the initial price set by the seller/buyer.

Zone of potential agreement (ZOPA) (bargaining range, settlement range) is the spread between the resistance points of the negotiating parties.

2.1.2 Distributive negotiation

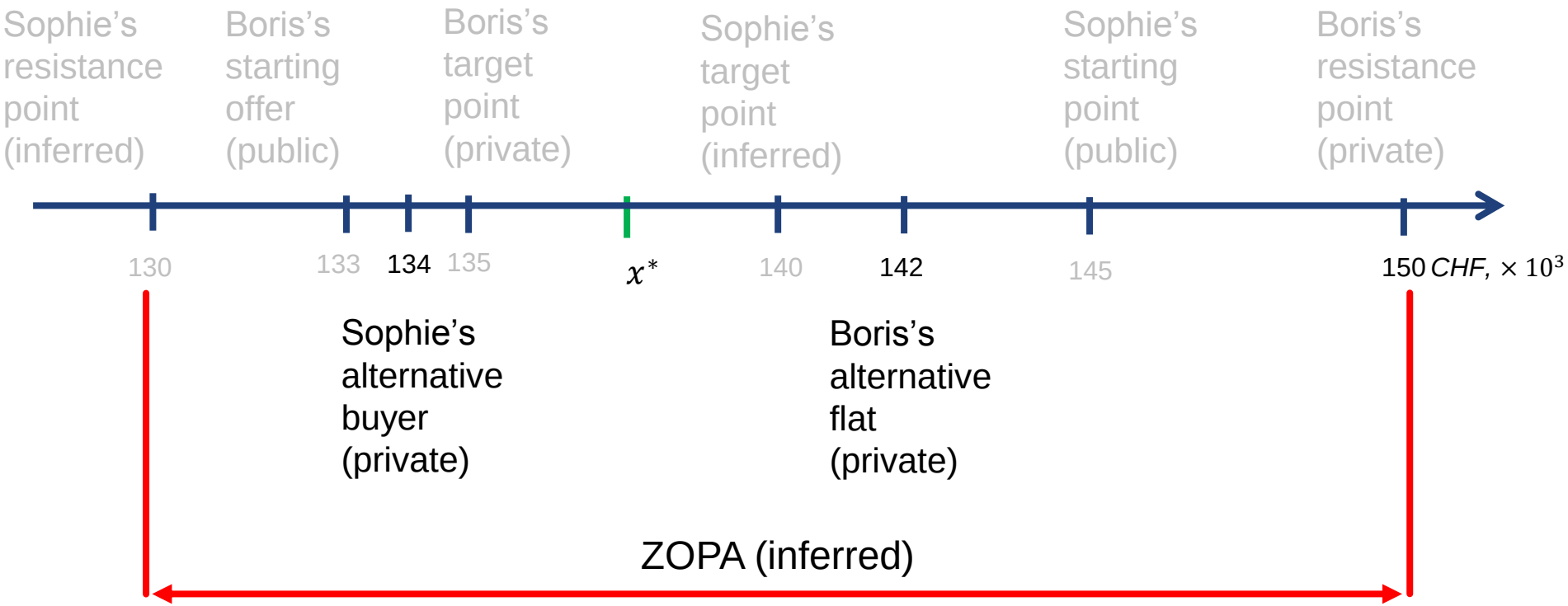
2.1.2.1 Example 1: Selling / buying a flat

- Sophie wants to sell her flat – seller
- Boris is looking for a flat – buyer



Lewicki et al. (2011)

Role of Alternatives



Lewicki et al. (2011)

2.1.2.2 Formal Model

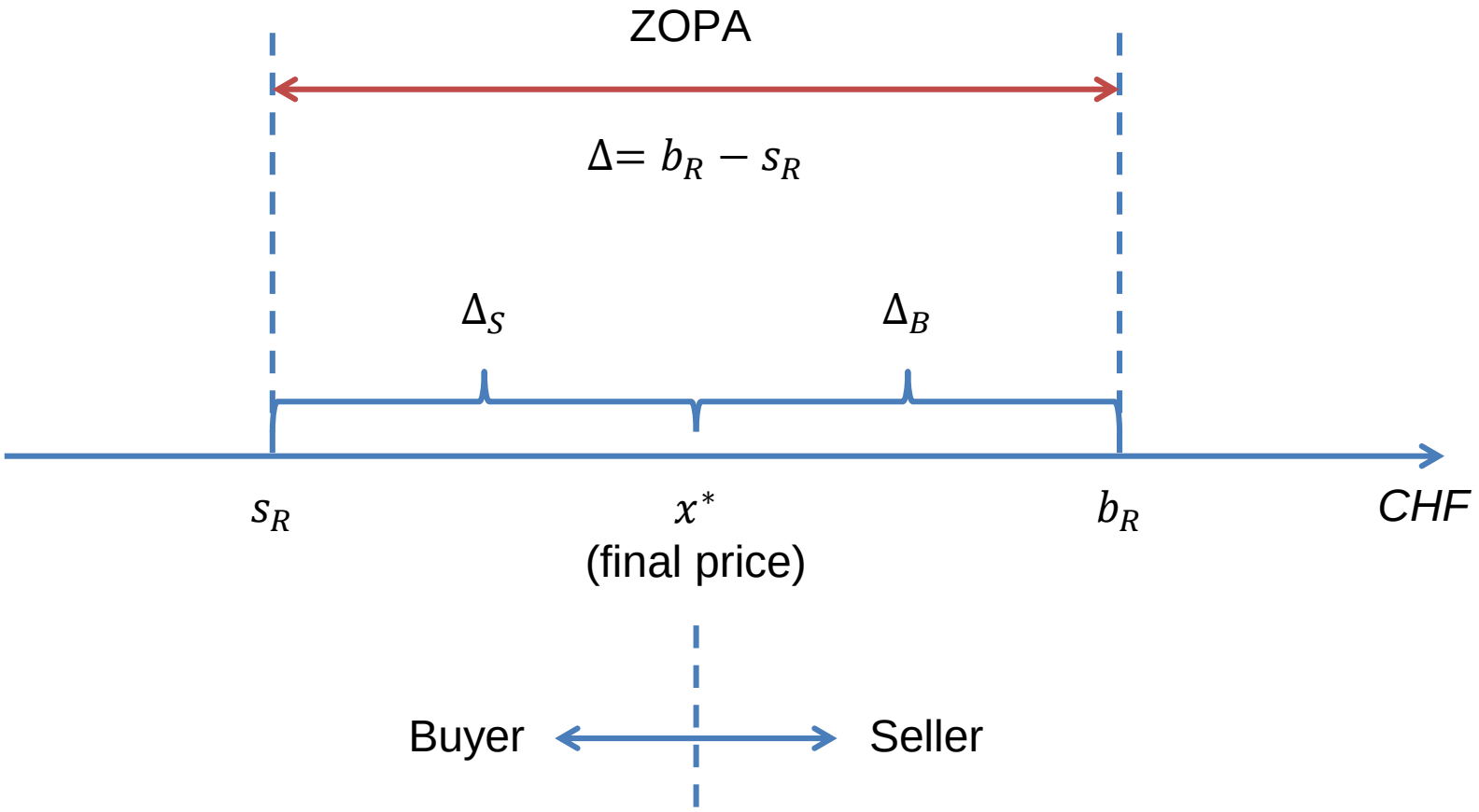
Notation:
b_R – buyer's resistance point (i.e. the maximum price buyer would agree to pay),
s_R – seller's resistance point (i.e. the minimum price seller would settle for),
x^* – final price.

Seller's surplus: $\Delta_S = x^* - s_R$.

Buyer's surplus: $\Delta_B = b_R - x^*$.

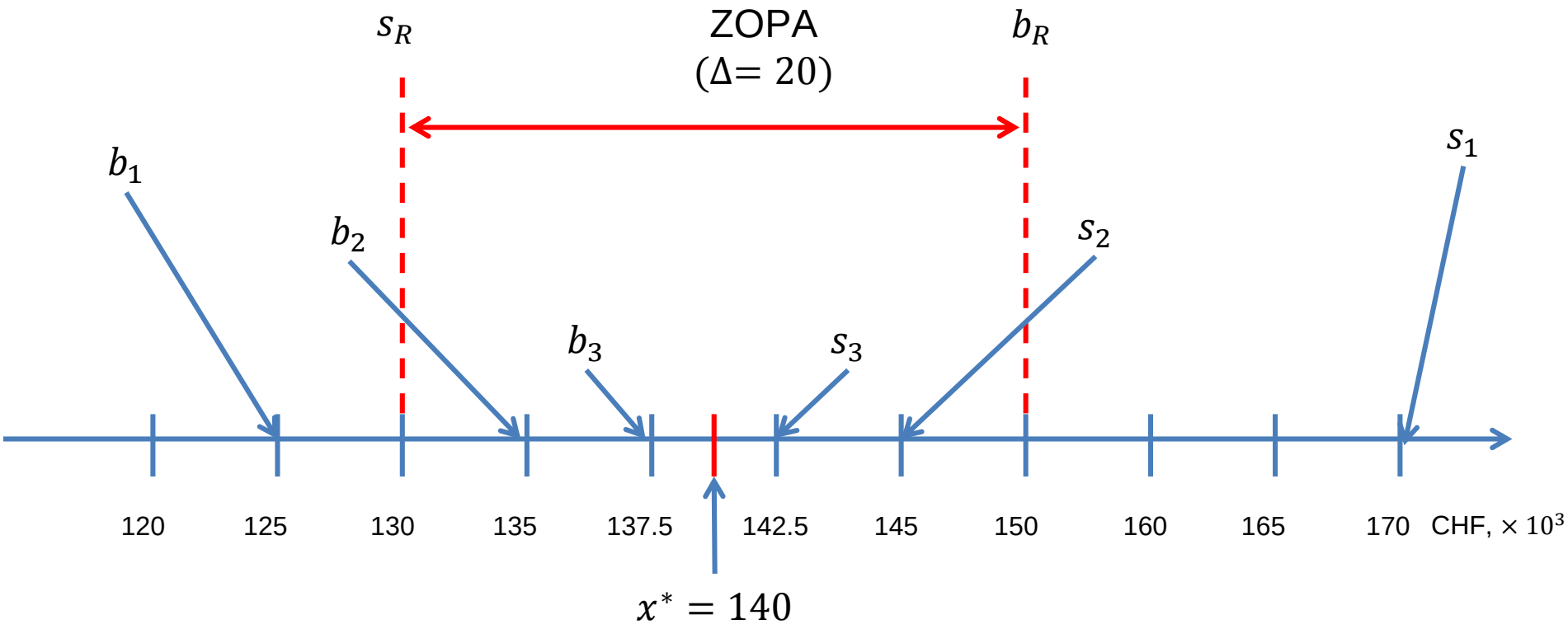
The total surplus from the deal: $\Delta = \Delta_S + \Delta_B = b_R - s_R$.

Note: If $\Delta \geq 0$ there is a ZOPA/POPA. If $\Delta < 0$ there is no ZOPA.



Raiffa et al. (2007)

"Dance of Concessions" (nest of intervals)



Raiffa et al. (2007)

2.1.2.3 Comments

- Achieve the most preferable outcome within the bargaining range (in ZOPA)
- Subjective assessment/perception of the deal
- By making extreme offers and small concessions you can attempt to review the resistance points
- It is important that people feel as if they got the best possible deal

2.1.3 Integrative negotiation
2.1.3.1 Example 2: Acquisition of a company

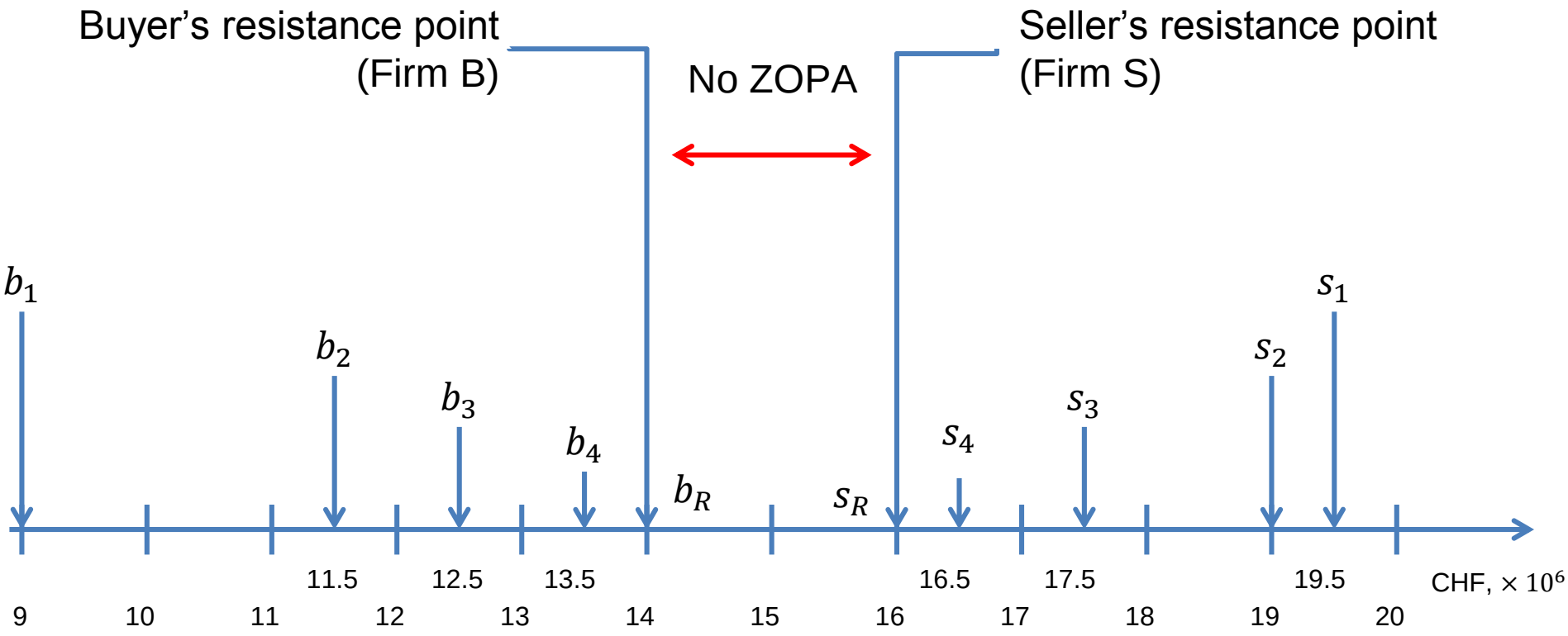
A big international corporation (Firm B) wants to make a friendly acquisition of one of its suppliers, the small company (Firm S).

Both agree that Firm S would be more valuable as a part of Firm B.

Despite this agreement, they are unable to complete the acquisition.

Firm B offers CHF 13.5 million for Firm S, but Firm S insists on CHF 16.5 million.

Efforts at a compromise fail: neither side found CHF 15 million acceptable.



Raiffa et al. (2007)

Both firms do some research and find out that the two firms have different views of the value of a new high-tech, high-risk Division D.

Firm B considers Division D worth only 1 million CHF (of the 14 million resistance point), while Firm S truly believes in the viability of the new products under development and has valued this division at 6 million CHF.

When the parties realize this, they can trade-off on this underlying issue, in order to find an agreement: Firm B acquires Firm S for 12 million CHF, but the owners of Firm S retain control of the Division D.

2.1.3.2 Formal model

Different valuations of high-tech Division D:

- Firm S values it at CHF 6 million
- Firm B values it at CHF 1 million

New resistance points:

$$s_R = \text{CHF } 10 \text{ million}$$
$$b_R = \text{CHF } 13 \text{ million.}$$

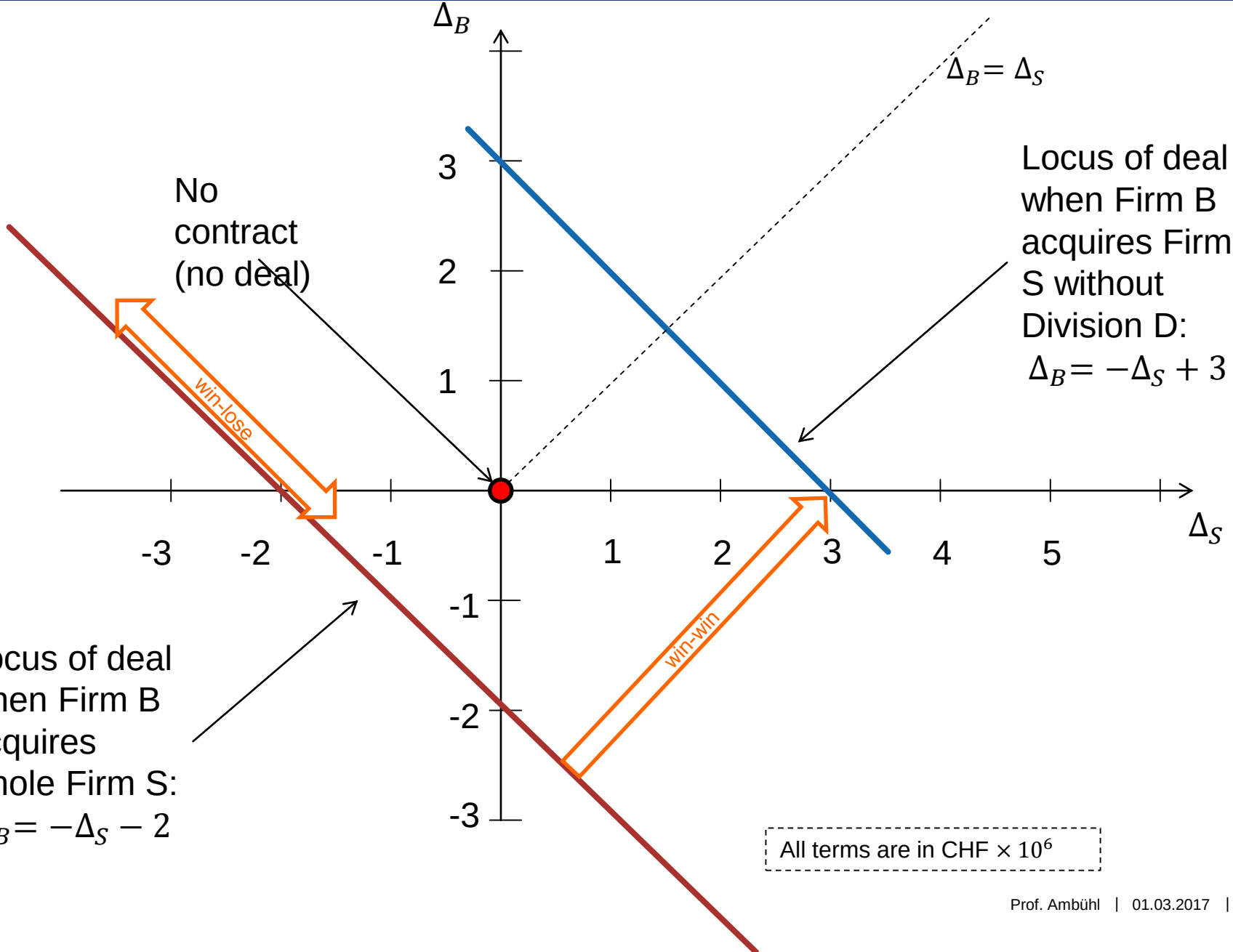
Surplus: $\Delta = b_R - s_R = 13 - 10 = +3.$

For any price x^* the buyer's and seller's surpluses are related as follows:

$$\Delta_B = -\Delta_S + 3.$$

A fair price would be

$$x^* = 11.5 \text{ CHF.}$$


Δ_B
$\Delta_B = \Delta_S$
3
2
1
-1
-2
-3
-3
-2
-1
1
2
3
4
5
Δ_S
No contract (no deal)
win-lose
win-win
Locus of deal when Firm B acquires Firm S without Division D:
$\Delta_B = -\Delta_S + 3$
Locus of deal when Firm B acquires whole Firm S:
$\Delta_B = -\Delta_S - 2$
All terms are in CHF $\times 10^6$

2.1.3.3 Steps in integrative negotiation

1. Sides need to agree on **what is the problem**
2. What are the **interests** behind the positions
3. Generate **alternative** solutions:
   - Redefine the problem
     - Expand pie
     - Logroll
     - Offer compensation in other area
     - Minimize costs
     - Bridge

   Example 3
   - Generate solutions (for the given problem)
4. Make a **list** of solutions
5. Prioritize options and **reduce** the list
6. Select a **solution**

Example 3: Generate alternative solutions

- **The problem:**

  What will a husband and wife do with 2 weeks of vacation?
- **Interests:**
  - He wants: mountains, hiking and other outdoor activities, rustic cabin
  - She wants: beach swimming and night life, fancy hotel
- **Generate alternative solutions:**
  - Expand pie: make 4 weeks – 2 weeks mountains; 2 weeks beach
  - Logrolling: (1) fancy hotel in the mountains **or** (2) rustic hotel on the beach
  - Compensation in other area: she pays him a ski equipment, he is ready to go to the beach
  - Minimize cost: she accepts to take a beach house away from the big hotels
  - Bridge: they choose a place that offers hiking, mountains, swimming, beaches and night life

2.1.3.4 Comments

Additional important elements:

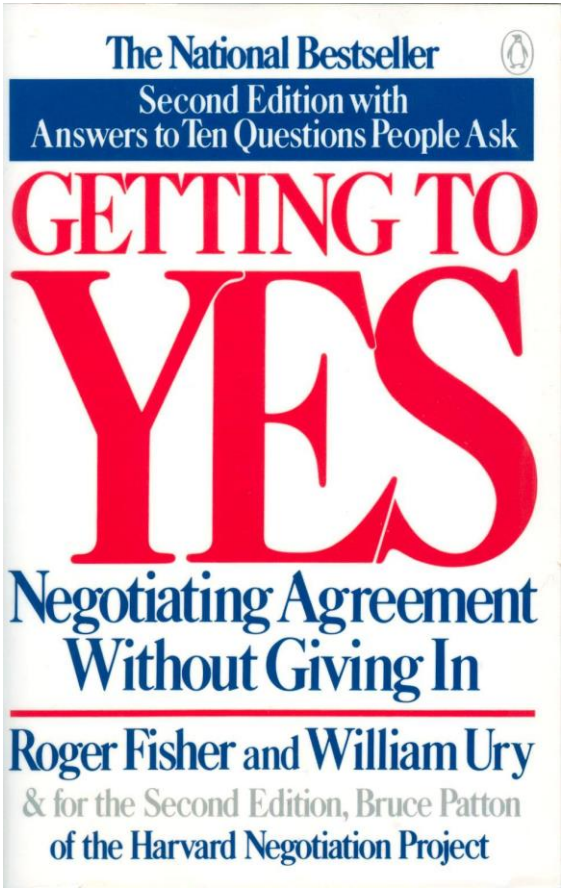
- **Fairness** and other **intangibles**
  - Outcome is **equally** shared (“divide it down the middle”)
  - Outcome is divided based on **equity**
  - Outcome is divided based on **needs**
- **Emotional** escalation
- Differences in **risk** preferences, **expectations**, **time** preferences
- **“Nothing is agreed until everything is agreed!”**

2.1.4 Conclusions
Lewicki et al.: Ten best practices*

- Be prepared
- Diagnose the fundamental structure of the negotiation
- Work the BATNA (Best Alternative to a Negotiated Agreement)
- Be willing to walk away
- Master paradox
- Remember the intangibles
- Actively manage coalitions
- Savor and protect your reputation
- Remember that rationality and fairness are relative
- Continue to learn from experience

* Roy J. Lewicki, David M. Saunders, and Bruce Barry (2011): *Essentials of negotiation.* McGraw-Hill, Singapore.

2.2 Harvard Method



2.2.1 Key principle of the Harvard Method

Fundamental question: **“What is the best way for people to deal with their differences?”**

Problem: Negotiators tend to **bargain over positions** and **lock** themselves into those positions

Suggested solution: Focus on **principled negotiation** or **negotiation on the merits** instead of positions (e.g., create respective values)

2.2.2 The four main propositions

1	**People**:	Separate the people from the problem
2	**Interests**:	Focus on interests, not positions*
3	**Options:**	Invent multiple options looking for mutual gains before deciding what to do
4	**Criteria**:	Insist that the result be based on some objective standard

* Interest: underlying motivation, concern, and importance
Position: manifestation of an interest in a concrete manner

1 Separate the people from the problem

- **"Hard on the facts, soft on the people." ***
- **Two points of interest** to be clearly separated:
  1. Working relationship
  2. Subject of negotiation
- Understanding each others **perceptions and emotions**, **communication**** and **avoiding conflicts** is key

  Scenario 1:

  Landlord: Why are you asking about the rent-calculation? Do you think that I'm a greedy liar?

  Renter: I highly appreciate everything you do for us. As a renter, understanding the calculation matters to me. Can you help me understand how this works?

** Especially important in negotiations based on "**conspirative discussions**" (e.g., international relations)

* See also: **"Fortiter in re, suaviter in modo"** (Claudio Aquaviva [1543-1615])

2 Focus on interests, not positions

- Many negotiations start based on **positions**
- Identify **implicit and explicit interests** of negotiations **behind the positions**

Scenarios – Are we asking the right question?

Scenario 2: Window

Person 1: "My position: I want to open the window in the office."

Person 2: "My position: I do not want to open the window."

Person 1 and 2 go back and forth until they find a lousy compromise.

Person 3: Asks about the **underlying interests behind each person's position** and decides to open a window in a nearby office to satisfy **Person 1's interest of wanting fresh air** as well as **Person 2's interest in not being exposed by too much cold air which could make him sick**

The Person 3 created an **objective negotiation solution where a non-positional solution** was developed

Scenario 3: The Slow Elevator

Problem Frame 1: As the owner of an office building, you have recently been receiving a lot of complaints about your building's slow elevator

Solution 1: Make the elevator faster; install a new lift, upgrade the motor, improve the algorithm

Problem Frame 2: Reformulate Problem Frame 1 **with the interests of the people involved**, being that **the wait is annoying**

Solution 2: **Make the wait feel shorter**; put up mirrors, play music or install hand sanitizer in the waiting area.

Scenario 4: Car-price-negotiation

Seller: No less than CHF 2'200; Buyer: No more than CHF 1'800

Third Person: Induces consideration of other items or circumstance

→ Buyer would give CHF 200 for a bike-rack that the seller doesn't need

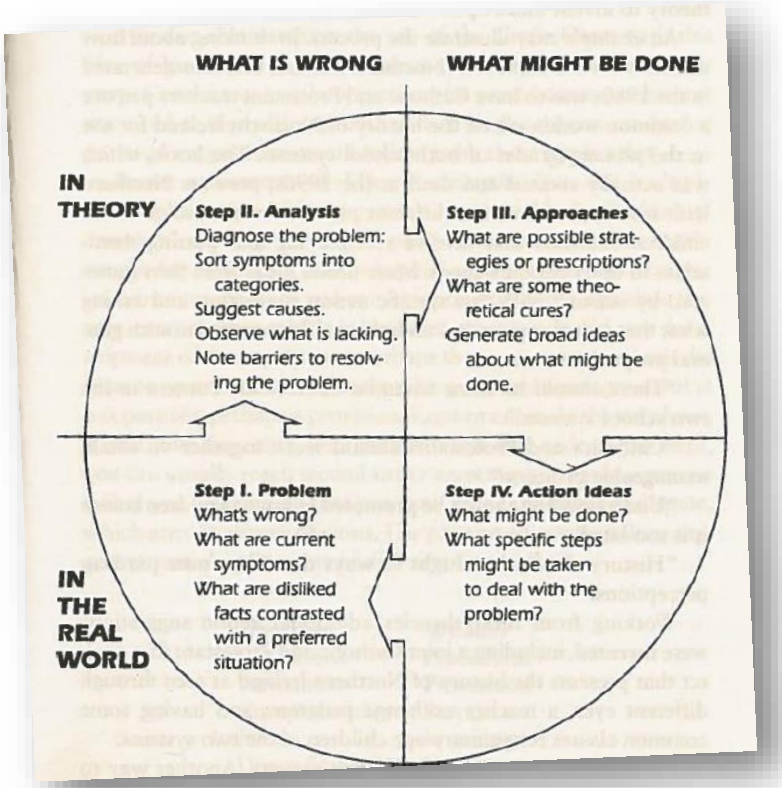
→ Seller would save CHF 200 if she can keep the car for one more month

3 Invent options for mutual gain

- Negotiators **diagnose negotiation-situations around interests**

- **Invent and judge options for potential solutions** with the aim to create **mutual gain**

- **Four steps in inventing options for mutual gain** (see Getting to Yes, p. 69):
  1. Problem identification
  2. Problem analysis
  3. Approach definition
  4. Action definition



4 Insist on using objective criteria

- Problem: Negotiators tend to **fall back** into aiming for an **agreement based on their own will**
- Proposed solution: **Develop, agree upon and apply objective** criteria upon which an agreement is derived
- Landlord - renter example: The renter can pursue to motivate the landlord to base the rent-calculation on a logical set of criteria, e.g.:
  - Past rent
  - Reference price per m^2
  - Other influencing factors (e.g., exposure to sunlight)

2.2.3 Three special situations

What to do in **specifically difficult negotiation-situations** where it is **difficult to apply principles based negotiations**?

The Harvard Method identifies **three types** of such situations:

1. **What if they … are stronger?**
2. **What if they … won't play?**
3. **What if they … use "dirty" tricks?**

1 What if they … are stronger?

Problem

Other party has a stronger negotiation position (e.g., richer, more economic or political power, more public opinion behind interests)

Solution

1. **Protect yourself** against a solution that you should reject
   - **Define a bottom-line** – yet the early focus on a single aspect tends to be too rigid (“cost of a bottom line”: you do not consider what you learn during negotiation)
   - **Develop your BATNA** – best alternative to a negotiation agreement (if you fail to reach an agreement)

2. **Make the most of your assets** – the **relative negotiation strength is not only defined by resources** but also by the best alternatives. Use your BATNA to understand, voice and strengthen your alternatives.

2 What if they … won't play?

Problem

Other party sticks to positional bargaining and attacks proposals or even your personality

Solution

1. **Hold on to your strategy of focusing on merits** until other parties understand and appreciate that approach
2. **"Negotiation jujitsu"** – look behind the other parties' respective intention, or develop options to modify or influence the other parties' position
3. **Get other party to get involved on your behalf**, or that introduces the focus on interests, options and criteria

3 What if they … use "dirty" tricks?

Problem

Other party uses "dirty" tricks to throw you off balance (e.g., providing false information, claiming to have decision power when they don't, psychological warfare, time pressure, personal accusations against you)

Solution

1. Critical to refer back to **and apply key propositions**
2. Redefine **"the rules of the game":**
   - Separate the people from the problem
   - Apply objective criteria
   - ...

   → It is easier to be hard on principles than to be hard on illegitimate tactics

2.2.4 Ten Questions people ask about Harvard Method

Questions about fairness and "principled" negotiation

1) Does positional bargaining ever make sense?

The outcome is usually better for both sides with principled negotiation. Yet consider if it is worth the effort along your flexibility, the complexity of the issue, the importance of the working relationship, or the other side's expectations.

2) What if the other side believes in a different standard of fairness?

Explore how the conflicting standards have developed in order to understand the respective history and logic, and consequently argue for the more appropriate standard.
Note: It might not be necessary to agree on the "best" standard.

3) Should I be fair if I don't have to be?

Consider how much the difference between being fair and unfair matters to you, given that an unfair deal might not be durable, that it might damage this or other relationships, and that your conscience might bother you.

Questions about dealing with people

4) What do I do if the people are the problem?

People are irrational – yet you can act rationally. Negotiate and establish your relationship based on objective criteria. Separate how you treat someone from how they treat you – don't get reactive.

5) Should I negotiate even with terrorists or someone like Hitler? When does it make sense not to negotiate?

Unless you have a better BATNA, you might have to. But negotiating does not have to mean giving in - it can provide valuable information.

6) How should I adjust my negotiating approach to account for differences of personality, gender, culture, and so on?

In many ways people are the same everywhere – such as wanting to be accepted. On other aspects it is important to "get in step", i.e. to understand specific differences, without stereotyping individuals.

Questions about tactics

7) How do I decide things like “Where should we meet?”

Throughout your preparation, clarify which such aspects matter and what’s best for you.

8) Concretely, how do I move from inventing options to making commitments?

Think of the closure already at the beginning so that you know what aspects matter to get a deal signed – and gradually work towards that. Avoid to become too rigid towards a single direction.

9) How do I try out these ideas without taking too much risk?

Start with ‘small’ negotiations, understand your learning as an investment, review your performance and make sure to enter negotiations well prepared.

Questions about power

10) Can the way I negotiate really make a difference if the other side is more powerful? And how do I enhance my negotiating power?

How you negotiate and how well you are prepared makes a big difference on the outcome. Resources are not the same as negotiation power: Use, develop and communicate your BATNA.

2.2.5 Criticism

The Harvard Method has been **criticized** on a number of issues:

1) **Too simplified for complex situations**
(Julia Palme, *Das Harvard Konzept – Der Klassiker der Verhandlungstechnik? Eine Kritik*; unpublished)

2) Not much beyond **common sense.**

3) Of no use if a **single aspect** is being negotiated.

2.3 Game Theory

Individual decision-making (Game with N=1)

Group of N individuals (Games with N>1)

- Non cooperative games
  - Static games
    - Constant sum game (zero-sum)
      - Pure Strategy
      - Mixed strategies
    - Non constant sum game
  - Dynamic games
    - Sequential move games
    - Repeated simultaneous move games
- Cooperative games

2.3.1 Introduction
2.3.1.1 Example

Example 4: Generals

Two generals opposing each other in battle

Each has the possibility to attack or withdraw

		General 2: attack	General 2: withdraw
General 1	attack	-3, -3	1, -2
	withdraw	-2, 1	0, 0

2.3.1.2 History

John von Neumann (1903 – 1957)

- Born in Budapest
- Diploma in chemical engineering from ETH (1926)
- PhD in mathematics from University of Budapest
- Founded the field of game theory as a mathematical discipline

Neumann, J. v. (1928), "Zur Theorie der Gesellschaftsspiele", Mathematische Annalen 100 (1): 295–320; written in Zurich 1926

see e.g. Ambühl (2014); Janos, Johann, John – Budapest, Zurich, Princeton; IdEAS, Chronos Verlag, Zürich

Oskar Morgenstern (1902 – 1977)

- Born in Görlitz (Germany)
- Studies and PhD in political sciences at University of Vienna
- Together with von Neumann, he founded the mathematical field of game theory and its application to economics

von Neumann, John; Morgenstern, Oskar (1944), Theory of Games and Economic Behavior, Princeton University Press

John Nash (1928-2015)

- Born in Bluefield (USA)
- Master in Mathematics from Carnegie Mellon University
- PhD in Mathematics from Princeton University
- Defined and studied what would later be called the "Nash equilibrium" and the "Nash bargaining solution"
- Nobel prize 1994; Abel prize 2015

John Nash: *Non-cooperative games*, 1950, Dissertation (28-pages)

Prominent contributors

Ernst Zermelo (1871–1953)	*Robert Aumann* (1930 – …)
Émile Borel (1871 – 1956)	*Daniel Kahneman* (1934 –…)
Oskar Morgenstern (1902 – 1977)	*George Akerlof* (1940 – …)
John von Neumann (1903 – 1957)	*Michael Spense* (1941 – …)
William Vickrey (1914 – 1996)	*Joseph Stiglitz* (1943 – …)
Leonid Hurwicz (1917 – 2008)	*Eric Maskin* (1950 – …)
John Harsanyi (1920 – 2000)	Ariel Rubinstein (1951 – …)
Thomas Schelling (1921 – 2016)	*Roger Myerson* (1951 – …)
Lloyd Shapley (1923 – 2016)	*Alvin Roth* (1951 – …)
John Nash (1928 – 2015)	*Jean Tirole* (1953 – …)
Reinhard Selten (1930 – 2016)	

Nobel prize winners are written in *italics*.

“A Beautiful Mind” by director Ron Howard, 2001

2.3.1.3 What is Game Theory?

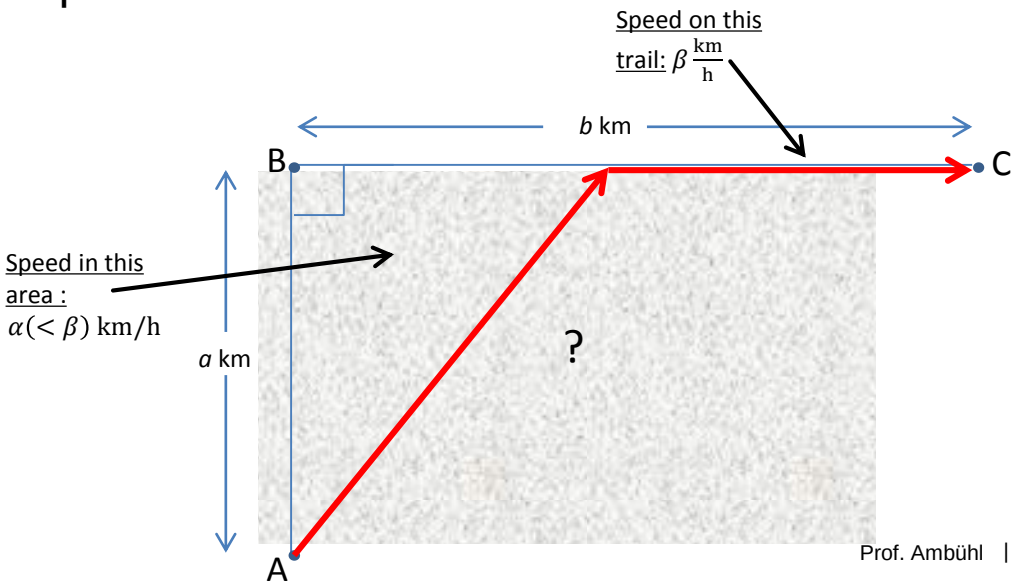
Roger Myerson (1991):

"Game theory can be defined as the study of mathematical models of conflict and cooperation between intelligent rational decision-makers. Game theory provides general mathematical techniques for analyzing situations in which two or more individuals make decision that will influence one another's welfare. […] Game Theory offers insights of fundamental importance for scholars in all branches of the social sciences, as well as for practical decision-makers."

2.3.2 Individual decision-making (Games with N=1)

Example 5: Optimal trail problem

You decide to walk from point A to point C. To the north, to the road BC, the terrain is difficult and you can only walk at α km/h. However, along the road BC you can walk at β km/h ($\alpha<\beta$). The distance from point A to the road is a km. The distance from B to C is b km. What path you have to follow in order to arrive at point C in the shortest (minimum) time possible?

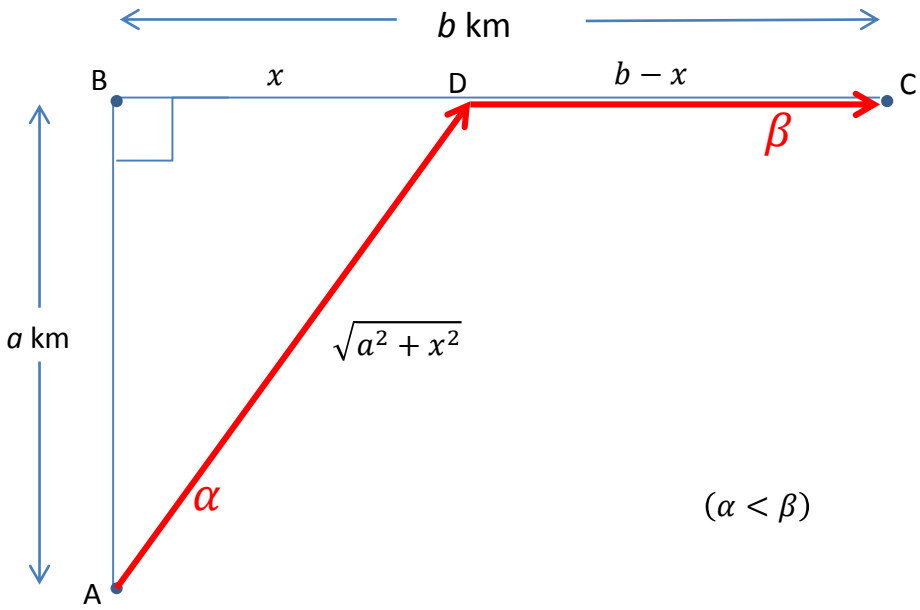


Time to get from A to D:

$$t_{AD}(x) = \frac{\sqrt{x^2 + a^2}}{\alpha}$$

Time to get from D to C:

$$t_{DC}(x) = \frac{b - x}{\beta}$$



Minimization problem:

$$\min_x (t_{AD}(x) + t_{DC}(x))$$

Extremum condition:

$$\frac{d}{dx}\left(\frac{\sqrt{x^2 + a^2}}{\alpha} + \frac{b - x}{\beta}\right) = 0 \quad \Rightarrow \quad \frac{1}{\sqrt{x^2 + a^2}} \cdot \frac{x}{\alpha} - \frac{1}{\beta} = 0 \quad \Rightarrow \quad x^* = \frac{\alpha a}{\sqrt{\beta^2 - \alpha^2}}.$$

NB.: The physical law for light refraction can be derived similarly (Snellius, 1621).

Example 6:
Linear programing: production problem

	Product 1	Product 2	Capacity
Factor A	2	10	60
Factor B	6	6	60
Factor C	10	5	85
Gain per unit	45	30	

Factor A : working hours
Factor B : square meters
Factor C: capital

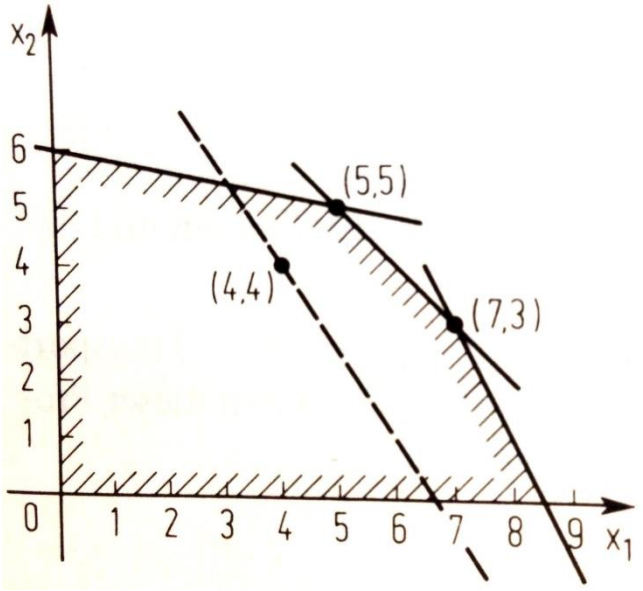
- Target – total gains: $45x_1 + 30x_2$

- Optimization problem

$$\max_{x_1,x_2} \ (45x_1 + 30x_2)$$

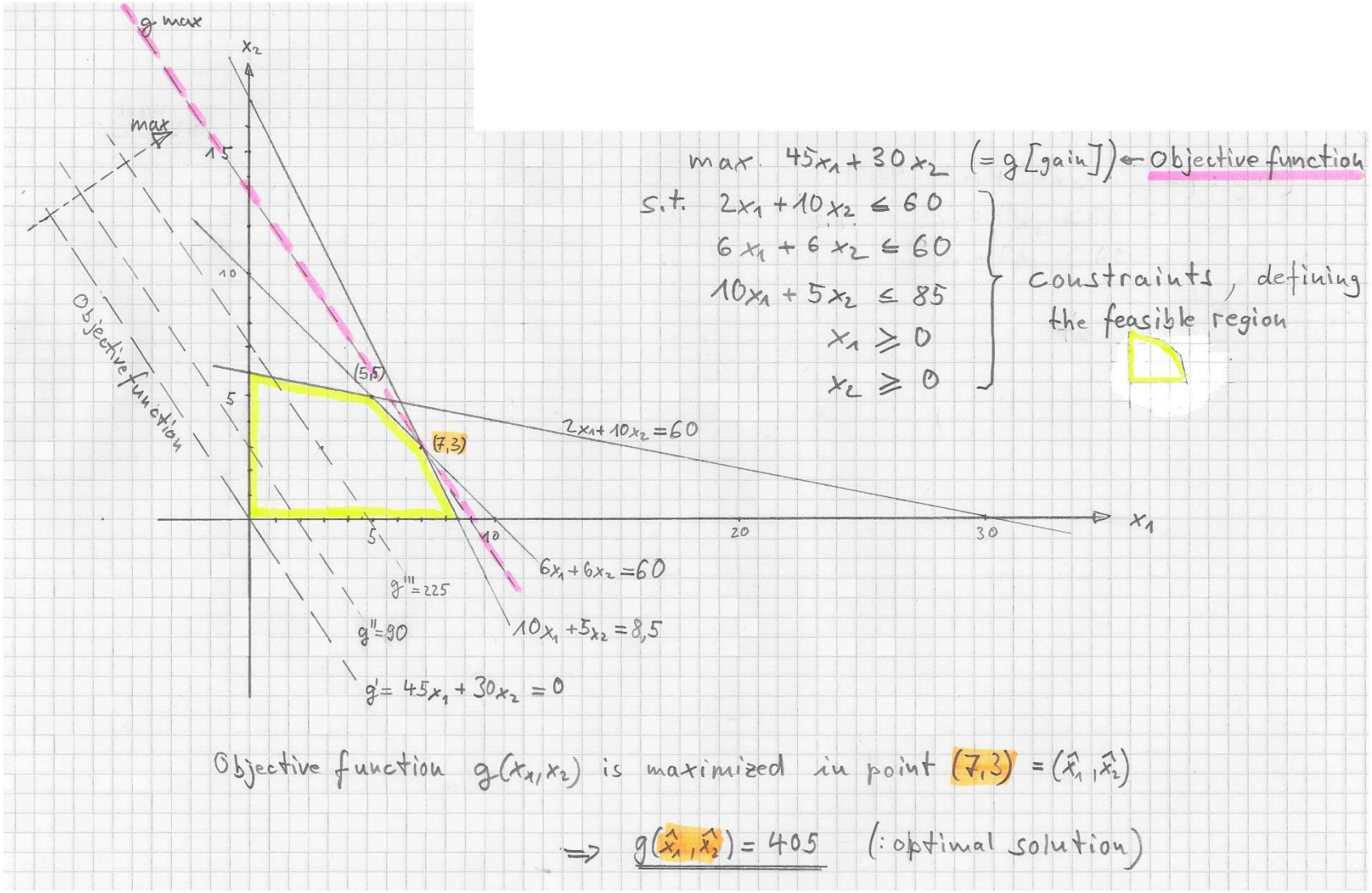
subject to

$$2x_1 + 10x_2 \leq 60$$
$$6x_1 + 6x_2 \leq 60$$
$$10x_1 + 5x_2 \leq 85$$
$$x_1 \geq 0, x_2 \geq 0$$



Peter Kall (1976): “Mathematische Methoden des Operations Research”, B.G. Teubner Stuttgart, Germany.

Solution


g max
max
x_2
15
10
5
Objective function
(5,5)
(7,3)
$2x_1 + 10x_2 = 60$
$6x_1 + 6x_2 = 60$
$10x_1 + 5x_2 = 85$
x_1
5
10
20
30
$g''' = 225$
$g'' = 90$
$g' = 45x_1 + 30x_2 = 0$
max. $45x_1 + 30x_2$ (= g [gain]) ← objective function
s.t. $2x_1 + 10x_2 \leq 60$
$6x_1 + 6x_2 \leq 60$
$10x_1 + 5x_2 \leq 85$
$x_1 \geq 0$
$x_2 \geq 0$
constraints, defining the feasible region
Objective function $g(x_1, x_2)$ is maximized in point $(7,3) = (\hat{x}_1, \hat{x}_2)$
$\Rightarrow$ $g(\hat{x}_1, \hat{x}_2) = 405$ (: optimal solution)