

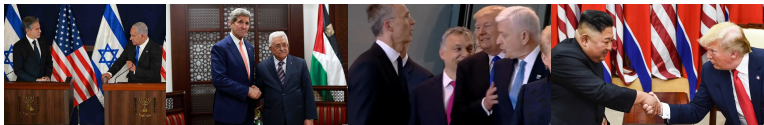
International Negotiations Games, Strategies and Negotiations

Adding dimensions to bargaining

Costas Roumanias

AUEB, Department of International and European Economic Studies

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Game theoretic analysis

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- ▶ A more integrated approach to negotiations includes more dimensions

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- ▶ Value design
- ▶ Setup of the negotiation

Other factors at the tactics level

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- ▶ Bet 3: You toss a fair coin. Heads win you €12000. If tails is up, you lose €10000. and so on

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On average you leave with money but most people refuse to play such bets, why? (risk aversion)

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- ▶ People form “reference” points. Gains and losses are then perceived as deviations from the reference point
- ▶ €100 of loss weigh more on us (negatively) than €120 of gains weigh on us (positively).
- ▶ when faced with losses, we become risk lovers. When faced with a possibility of gain, we become risk averse

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- ▶ can explain patterns of behaviour that classical expected utility theory could not
- ▶ adds dimensions in the way we might approach transactions/negotiations

Loss aversion: K-T's experiments

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- ▶ Game 3: Independently of your economic status, you are given €1000. You are asked to choose between: 50% probability of earning another €1000 *or* win €500 for sure

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- ▶ Game 4: Independently of your economic status, you are given €2000. You are asked to choose between: 50% probability of losing €1000 *or* lose €500 for sure
- ▶ You can easily verify that in terms of expected payoffs, earnings and probabilities, Games 3 and 4 are identical (do it please)!

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People react differently to gains than the do to losses

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People are more motivated/incentivized when they risk losing something they own/have earned

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Repeated experiments have shown that when we feel something is ours, its value increases (Endowment effect) We need to include behavioural/psychological findings when we design mechanisms to extract surplus

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Repeated experiments have shown that when we feel something is ours, its value increases (Endowment effect) We need to include behavioural/psychological findings when we design mechanisms to extract surplus People who buy houses/negotiate are subject to behavioural traits...

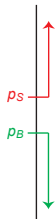
Creating value (level 2): the value of an extra dimension

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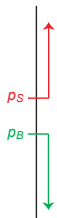
- ▶ In this case, negotiating on price only cannot possibly lead to a deal

Creating value (level 2): the value of an extra dimension



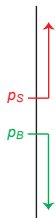
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- ▶ What if we added an extra dimension?

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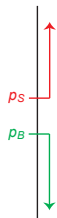
- ▶ In this case, negotiating on price only cannot possibly lead to a deal
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- ▶ Dimension 1: price of new machinery

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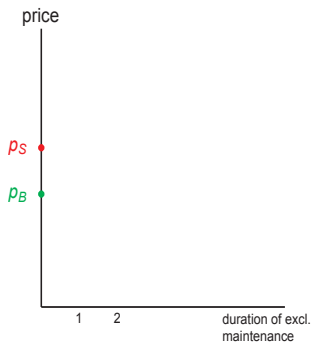
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- ▶ Dimension 1: price of new machinery
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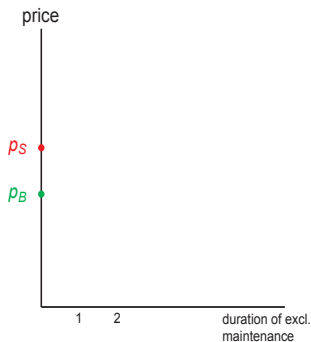
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 - ▶ **Seller: red**
Buyer: green

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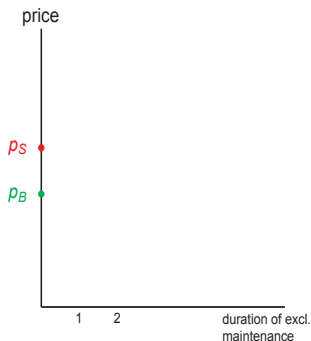
- ▶ Seller's reservation price above buyer's higher price

Creating value (level 2): the value of an extra dimension



- ▶ Seller's reservation price above buyer's higher price
- ▶ NO DEAL

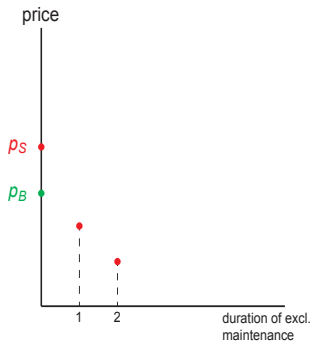
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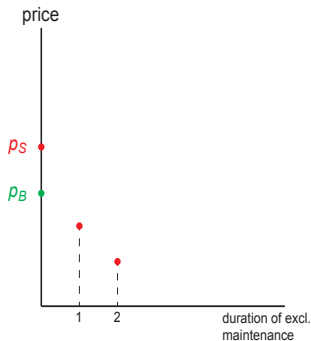
- ▶ We add to the negotiation the length of an exclusive contract for maintenance

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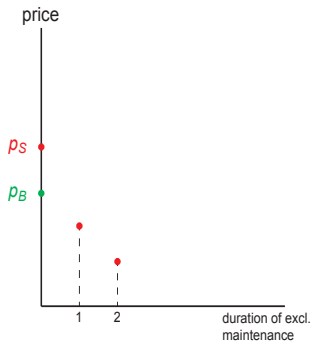
- ▶ **Seller:** willing to drop the price if he gets one year of maintenance

Creating value (level 2): the value of an extra dimension



- ▶ **Seller:** willing to drop the price if he gets one year of maintenance
- ▶ Or drop it even further if seller throws in 2 year of maintenance

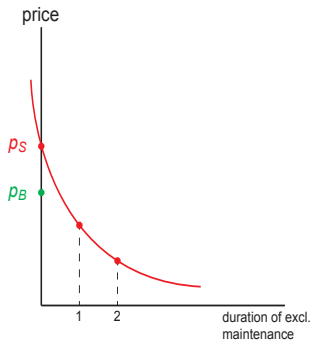
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- ▶ **Seller:** willing to drop the price if he gets one year of maintenance
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- ▶ **Seller:** indifferent between three red points

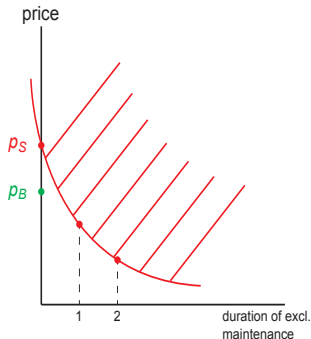
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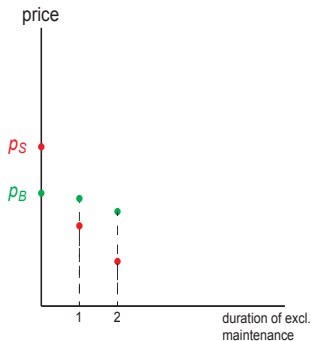
- ▶ Red curve: indifference curve of seller

Creating value (level 2): the value of an extra dimension



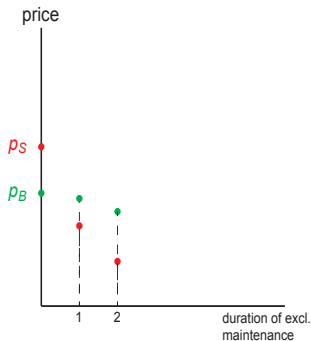
- ▶ **Seller:** Prefers contracts above the red indifference curve
 - ▶ they involve higher price for any given maintenance length
-
- ▶ The seller prefers anything above the red indifference line (highlighted area) to a unidimensional contract at price p_S

Creating value (level 2): the value of an extra dimension



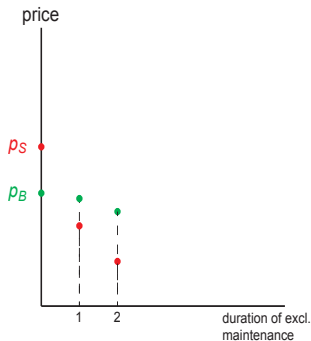
- **Buyer:** willing to sign a maintenance contract of 1 year with seller to achieve a drop in price

Creating value (level 2): the value of an extra dimension



- ▶ **Buyer:** willing to sign a maintenance contract of 1 year with seller to achieve a drop in price
- ▶ Or to increase length of contract in exchange for a further drop

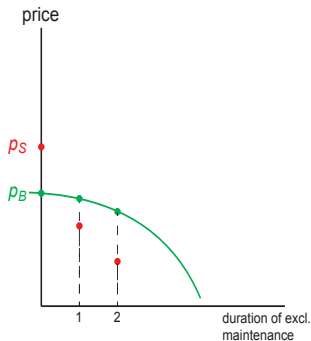
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- ▶ **Buyer:** willing to sign a maintenance contract of 1 year with seller to achieve a drop in price
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- ▶ **Buyer:** indifferent between 3 green points

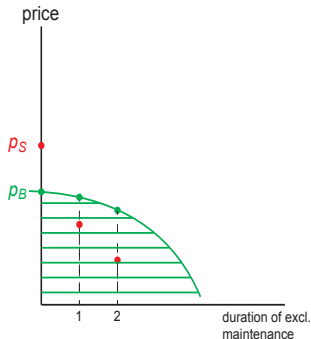
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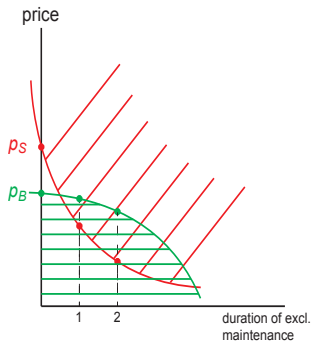
- ▶ Green curve: indifference curve of buyer

Creating value (level 2): the value of an extra dimension

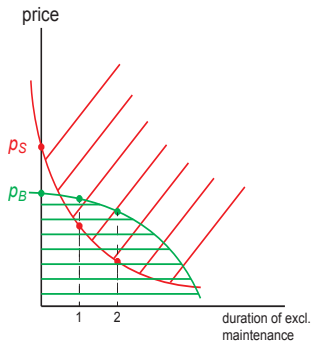


- ▶ **Buyer:** willing to sign a maintenance contract of 1 year with seller to achieve a drop in price
 - ▶ Or to increase length of contract in exchange for a further drop
- ▶ Anything below the green curve is preferred by buyer to a unidimensional contract at price p_B

Creating value (level 2): the value of an extra dimension

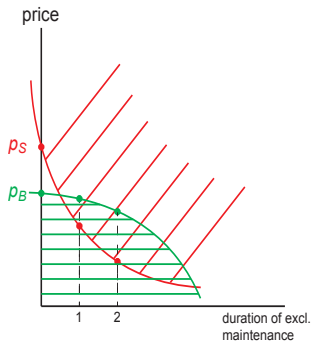


Creating value (level 2): the value of an extra dimension



- ▶ Green area: area of contracts preferred by **Buyer**
- ▶ Red area: area of contracts preferred by **Seller**

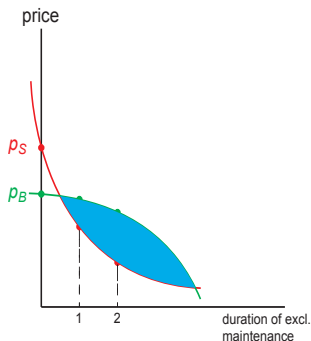
Creating value (level 2): the value of an extra dimension



- ▶ Green area: area of contracts preferred by **Buyer**
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- ▶ Common area: both prefer it to NO DEAL

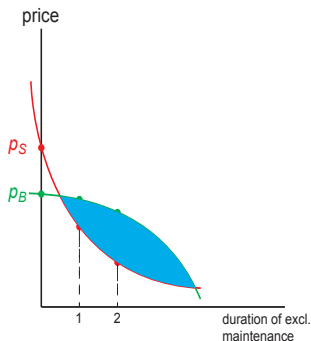
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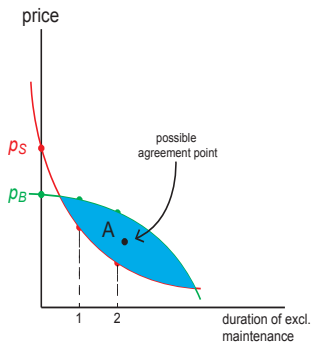
- ▶ Common area: both prefer it to NO DEAL

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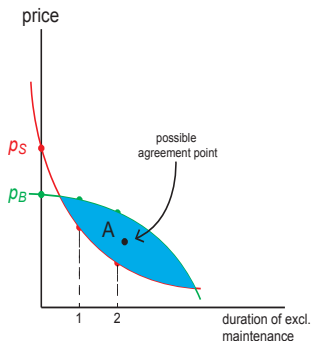
- ▶ Green area: area of contracts preferred by **Buyer**
- ▶ Red area: area of contracts preferred by **Seller**
- ▶ Common area: both prefer it to NO DEAL
- ▶ Anything in the blue area is preferred by both parties to not signing

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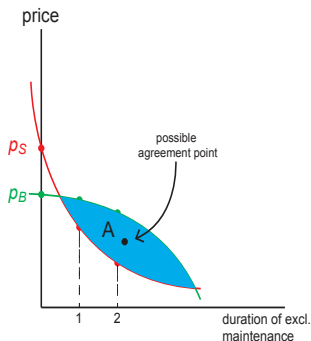
- ▶ Point A: one of the possible points of agreement

Creating value (level 2): the value of an extra dimension



- ▶ Point A: one of the possible points of agreement
- ▶ Unidimensional negotiation: “leaves money on the table”

Creating value (level 2): the value of an extra dimension



- ▶ Point A: one of the possible points of agreement
- ▶ Unidimensional negotiation: “leaves money on the table”
- ▶ Adding a dimension to the negotiation can save a deal that would not happen otherwise