Essays on bargaining and strategic communication

de Groot Ruiz, A.W.

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
Strategic Communication

This thesis develops and tests game theoretic models of communication and bargaining. These models can be used to analyze strategic aspects of negotiations, such as those that arise between managers and workers, divorcing spouses or political parties. While the foundations may be somewhat technical, the essence can often be captured by a simple example. If you want to experience strategic communication, try your hand at the setting below during the public exposure of this thesis. (You can contact the author at adrian@degrootruiz.nl for questions.)

Do it yourself

You play Thomas, a mathematician from New York, who visits the village of Tamamdrés, along the beautiful coast of Oaxaca (México). Tamamdrés is surrounded by five beaches, all a kilometer apart from each other. Fallen in love with the place, you have decided to open a surf resort at one of the beaches. You want to maximize your resort’s earnings, but face the problem that you do not know where the surf is right. You have heard that there is one ‘surf beach,’ which provides a good surf, and that the other four beaches offer less reliable surf conditions. You do not know which one is the surf beach, but you believe it must be either the most western beach (a. Revolcadero) or the most eastern one (e. Positano). Both are equally likely to be the surf beach in your opinion. The closer your resort is to the surf beach, the better it is for your business. Your resort cannot be more than 2 km away from the surf beach, because otherwise not enough customers will show up.

So you decide to talk things over with the Mayor of the village, Don Miguel. He also happens to be the local surf expert and could tell you without a shadow of a doubt where the surf beach is. What is more, you need his permission to open your surf resort. However, you wonder how helpful Don Miguel will really be. Don Miguel wants to maximize the earnings of his village and faces the following dilemma. A surf resort at the surf beach will cost the village dearly, as tourists will stay away from the village center due to the distance, which is bad for local business. On the other hand, a successful resort closer to the village center would bring in loads of tourists, meaning booming business for his village. If Don Miguel does not give permission, nobody earns or loses money.

You can play this situation as follows with the person sitting next to you, who will play the role of Don Miguel. Both you and Don Miguel base the choices on the (same) table below.

1. You ask Don Miguel which beach is the surf beach.
2. Don Miguel gives you an answer (but beware, Don Miguel might not be completely honest...).
3. You choose at which beach you want to open your resort and you tell Don Miguel your choice.
4. Don Miguel decides whether or not to give you permission.

<table>
<thead>
<tr>
<th>Location of surf beach known by Don Miguel</th>
<th>Location of surf resort to be chosen by Thomas</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Revolcadero</td>
<td>a. Revolcadero</td>
</tr>
<tr>
<td>b. Ragusa</td>
<td>b. Ragusa</td>
</tr>
<tr>
<td>c. Montaña Blanca</td>
<td>c. Montaña Blanca</td>
</tr>
<tr>
<td>d. Venecia</td>
<td>d. Venecia</td>
</tr>
<tr>
<td>e. Positano</td>
<td>e. Positano</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$10</td>
<td>$7</td>
<td>$-10</td>
<td>$40</td>
<td>$20</td>
<td>$0</td>
<td>$-2</td>
</tr>
<tr>
<td>$0</td>
<td>$-2</td>
<td>$0</td>
<td>$0</td>
<td>$20</td>
<td>$40</td>
<td>$5</td>
</tr>
<tr>
<td>$5</td>
<td>$-10</td>
<td>$-2</td>
<td>$0</td>
<td>$-2</td>
<td>$-10</td>
<td>$7</td>
</tr>
<tr>
<td>$20</td>
<td>$40</td>
<td>$20</td>
<td>$4</td>
<td>$20</td>
<td>$-10</td>
<td>$7</td>
</tr>
</tbody>
</table>

Expected annual earnings for resort and village (in millions of pesos $) depending on Thomas’s choice and Don Miguel’s information.

Adrián Wadse de Groot Ruiz
2012
Strategic Communication

This thesis develops and tests game theoretic models of communication and bargaining. These models can be used to analyze strategic aspects of negotiations, such as those that arise between managers and workers, divorcing spouses or political parties. While the foundations may be somewhat technical, the essence can often be captured by a simple example. If you want to experience strategic communication, try your hand at the setting below during the public exposé of this thesis. (You can contact the author at adrian@degrootruiz.nl for questions.)

Do it yourself

You play Don Miguel, the Mayor of the village of Tamamdrés and local surf expert. Tamamdrés lies at the beautiful coast of Oaxaca (México) and is surrounded by five beaches, all a kilometer apart from each other. You have heard that a guy called Thomas, a visiting mathematician from New York, has fallen in love with the place and wants to open a surf resort at one of the beaches.

This Thomas wants to maximize his resort’s earnings and faces the following problem. He has heard that there is one ‘surf beach,’ which provides a good surf, and that the other four beaches offer less reliable surf conditions. He does not know which one is the surf beach, but he believes it must be either the most western beach (a. Revolcadero) or the most eastern one (e. Positano). Both are equally likely to be the surf beach in his opinion. The closer the resort is to the surf beach, the better it is for business. The resort cannot be more than 2 km away from the surf beach, because otherwise not enough customers will show up. Hence, Thomas has made an appointment with you to find out the best location for his resort.

You, however, want to maximize the earnings of your village and face the following dilemma. You know the surf beach is . However, a surf resort at that place will cost the village dearly, as tourists will stay away from the village center due to the distance and force local businesses to close. On the other hand, a successful resort closer to the village center would bring in loads of tourists, meaning booming business for your village. Thomas needs your permission to open his surf resort. If you say no, nobody earns or loses money.

You can play this situation as follows with the person sitting next to you, who will play the role of Thomas. Both you and Thomas base the choices on the (same) table below.

1. Thomas asks you which beach is the surf beach.
2. You give one of the following answers: (i) “it’s a. Revolcadero”, (ii) “It’s e. Positano” or (iii) “I’m not going to tell you” (you do not need to be honest).
3. Thomas chooses at which beach he wants to open the resort and tells you his choice.
4. You decide whether or not to give him permission.

Expected annual earnings for resort and village (in millions of pesos $) depending on Thomas’s choice and Don Miguel’s information

<table>
<thead>
<tr>
<th>Location of surf beach known by Don Miguel</th>
<th>Location of surf resort to be chosen by Thomas</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Revolcadero</td>
<td>-$10</td>
</tr>
<tr>
<td>e. Positano</td>
<td>$0</td>
</tr>
</tbody>
</table>
Strategic Communication

This thesis develops and tests game theoretic models of communication and bargaining. These models can be used to analyze strategic aspects of negotiations, such as those that arise between managers and workers, divorcing spouses or political parties. While the foundations may be somewhat technical, the essence can often be captured by a simple example. If you want to experience strategic communication, try your hand at the setting below during the public exposé of this thesis. (You can contact the author at adrian@degrootruiz.nl for questions.)

Do it yourself

You play Thomas, a mathematician from New York, who visits the village of Tamamdrés, along the beautiful coast of Oaxaca (México). Tamamdrés is surrounded by five beaches, all a kilometer apart from each other. Fallen in love with the place, you have decided to open a surf resort at one of the beaches. You already have a construction permit from the state authorities.

You want to maximize your resort’s earnings, but face the problem that you do not know where the surf is right. You have heard that there is one ‘surf beach’, which provides a good surf, and that the other four beaches offer less reliable surf conditions. You do not know which one is the surf beach, but you believe it must be either the most western beach (a. Revolcadero) or the most eastern one (e. Positano). Both are equally likely to be the surf beach in your opinion. The closer your resort is to the surf beach, the better it is for your business. Your resort cannot be more than 2 km away from the surf beach, because otherwise not enough customers will show up.

So you decide to talk things over with the Mayor of the village, Don Miguel. He also happens to be the local surf expert and could tell you without a shadow of a doubt where the surf beach is. However, you wonder how helpful Don Miguel will really be. Don Miguel wants to maximize the earnings of his village and faces the following dilemma. A surf resort at the surf beach will cost the village dearly, as tourists will stay away from the village center due to the distance, which is bad for local business. On the other hand, a successful resort closer to the village center would bring in loads of tourists, meaning booming business for his village.

You can play this situation as follows with the person sitting next to you, who will play the role of Don Miguel. Both you and Don Miguel base the choices on the (same) table below.

1. You ask Don Miguel which beach is the surf beach.
2. Don Miguel gives you an answer (but beware, Don Miguel might not be completely honest...).
3. You choose at which beach you want to open your resort.

<table>
<thead>
<tr>
<th>Expected annual earnings (in millions of pesos $) depending on Thomas’s choice and Don Miguel’s information</th>
<th>Location of surf resort to be chosen by Thomas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of surf beach known by Don Miguel</td>
<td>a. Revolcadero</td>
</tr>
<tr>
<td>a. Revolcadero</td>
<td>-$10</td>
</tr>
<tr>
<td>e. Positano</td>
<td>$0</td>
</tr>
</tbody>
</table>

Adrian Wadse de Groot Ruiz

2012
Do it yourself
You play Don Miguel, the Mayor of the village of Tamamdrés and local surf expert. Tamamdrés lies at the beautiful coast of Oaxaca (Mexico) and is surrounded by five beaches, all a kilometer apart from each other. You have heard that a guy called Thomas, a visiting mathematician from New York, has fallen in love with the place and wants to open a surf resort at one of the beaches. He already has a construction permit from the state authorities.

This Thomas wants to maximize his resort’s earnings and faces the following problem. He has heard that there is one ‘surf beach,’ which provides a good surf, and that the other four beaches offer less reliable surf conditions. He does not know which one is the surf beach, but he believes it must be either the most western beach (a. Revolcadero) or the most eastern one (e. Positano). Both are equally likely to be the surf beach in his opinion. The closer the resort is to the surf beach, the better it is for business. The resort cannot be more than 2 km away from the surf beach, because otherwise not enough customers will show up. Hence, Thomas has made an appointment with you to find out the best location for his resort.

You, however, want to maximize the earnings of your village and face the following dilemma. You know the surf beach is . However, a surf resort at that place will cost the village dearly, as tourists will stay away from the village center due to the distance and force local businesses to close. On the other hand, a successful resort closer to the village center would bring in loads of tourists, meaning booming business for your village.

You can play this situation as follows with the person sitting next to you, who will play the role of Thomas. Both you and Thomas base the choices on the (same) table below.

1. Thomas asks you which beach is the surf beach.
2. You give one of the following answers: (i) “It’s a. Revolcadero”, (ii) “It’s e. Positano” or (iii) “I’m not going to tell you” (you do not need to be honest).
3. Thomas chooses at which beach he wants to open the resort.

<table>
<thead>
<tr>
<th>Location of surf beach known by Don Miguel</th>
<th>Location of surf resort to be chosen by Thomas</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Revolcadero</td>
<td>a. Revolcadero</td>
</tr>
<tr>
<td>b. Ragusa</td>
<td>b. Ragusa</td>
</tr>
<tr>
<td>c. Montaña Blanca</td>
<td>c. Montaña Blanca</td>
</tr>
<tr>
<td>d. Venecia</td>
<td>d. Venecia</td>
</tr>
<tr>
<td>e. Positano</td>
<td>e. Positano</td>
</tr>
<tr>
<td>Expected annual earnings for resort and village (in millions of pesos $) depending on Thomas’s choice and Don Miguel’s information</td>
<td></td>
</tr>
<tr>
<td>a. Revolcadero</td>
<td>$-10$ $7$</td>
</tr>
<tr>
<td>b. Ragusa</td>
<td>$40$ $5$</td>
</tr>
<tr>
<td>c. Montaña Blanca</td>
<td>$20$ $4$</td>
</tr>
<tr>
<td>d. Venecia</td>
<td>$0$ $-2$</td>
</tr>
<tr>
<td>e. Positano</td>
<td>$0$ $-2$</td>
</tr>
<tr>
<td>Village</td>
<td>$-10$ $7$</td>
</tr>
<tr>
<td>Resort</td>
<td>$40$ $5$</td>
</tr>
<tr>
<td>Resort</td>
<td>$-2$ $0$</td>
</tr>
</tbody>
</table>

This thesis develops and tests game theoretic models of communication and bargaining. These models can be used to analyze strategic aspects of negotiations, such as those that arise between managers and workers, divorcing spouses or political parties. While the foundations may be somewhat technical, the essence can often be captured by a simple example. If you want to experience strategic communication, try your hand at the setting below during the public exposé of this thesis. (You can contact the author at adrian@degrootruiz.nl for questions.)