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A Theory of Policymaking in the Case of Rights Exercised About Actions

by

Richard Levesque

A thesis submitted to
the Faculty of Graduate Studies
in partial fulfillment of
the requirements for the degree of

Doctor of Philosophy

Carleton University
Ottawa, Ontario
January 7, 2010



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Your file *Votre référence*
ISBN: 978-0-494-63849-1
Our file *Notre référence*
ISBN: 978-0-494-63849-1

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Abstract

We analyze policymaking in the case of rights exercised about actions; specifically, rights to perform actions and also rights exercised by employers in firms to choose who they employ to perform any action on their behalf. Predictions are made on the basis of a new concept of our own design: the concept of relations generated by actions. Relations are, basically, events of a social nature whose objects are actions. We model relations as games. An entire chapter of the dissertation is devoted to the task of developing games to model relations.

The main result we demonstrate about relations by modeling them as games is that controversies of a political nature can occur in them. The issue of any political controversy taking place in a relation can only be the formulation of a right someone involved in the relation can exercise about the action generating it. We use that result as a stepping stone to consider policymaking in the case of rights exercised about actions from the standpoint of a welfare state.

We predict different processes should be used to formulate rights to perform actions and employers' rights to choose who they employ. Rights to perform different actions should be formulated separately and independently from one another. Rights exercised by different employers to choose who they employ should, rather, be formulated all at once.

State regulation and the firm are also extensively considered in the dissertation. About state regulation, we demonstrate that regulating the way and the intensity any action is performed is not the same. On the basis of that result, we predict that if two parties disagree concerning whether performing any action should be allowed or not, these two parties should also disagree concerning what, between the way and the intensity that action is performed, should be regulated about it. About the firm, we develop a new model of it based on the concept of relations generated by actions. That model of the firm sheds light on the conflicting aspect of employer-employee relations as well as on the political aspect of such conflicts.

Acknowledgments

This dissertation would not have been completed without the support of Professor Stanley L. Winer. He went way beyond the call of duty by providing me not only with first class intellectual support as dissertation supervisor, but also with substantial financial support when I ran out of funding and even with political support vis-à-vis the Faculty of Graduate Studies to obtain many time-limit extensions when I ran out of time to complete the project. I cannot thank him enough for all he did on my behalf. I am forever in his debt.

J'aimerais aussi remercier ma mère, Suzanne Laroche, de même que mon défunt père, Claude Levesque, pour m'avoir élevé en épargnant aucun effort pour que je reçoive la meilleure éducation possible. C'est à eux que je dois mon goût pour les études.

Finally, I would like to express my gratitude to Stephan Schott and Michael Hicks. Stephan has acted like a second dissertation supervisor, whereas Mr. Hicks has helped me a great deal writing in English.

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CHAPTER 1

INTRODUCTION

This dissertation is concerned with *rights exercised about actions*. There are two different types of rights exercised about actions. On the one hand, there are *rights to perform actions*. On the other, there are *rights exercised by employers in firms to choose who they employ to perform any action on their respective behalf*.

A right to perform an action is a state policy whose formulation indicates whether performing a specific action is allowed or not. For instance, a state policy whose formulation indicates whether having and also conducting an abortion is allowed or not is a right to perform an action. That policy more specifically is: the right to have/conduct an abortion.

An employer's right to choose who he employs to perform any action on his behalf is a state policy whose formulation indicates whether a specific employer is allowed or not to replace any individual in his employment by someone else who is not. When an employer is forbidden by the state to replace any individual in his employment by someone else who is not, the employees of that particular employer are considered as being unionized. The policy issue of the formulation of rights exercised by employers in firms to choose who they employ is therefore, in effect, the one of the unionization of employees in firms.

In the dissertation, we use the deductive methodology to investigate policymaking in the case of state policies taking the form of rights exercised about actions. Policymaking

is, therefore, the dependent variable of the researches we conduct in the dissertation. There are three independent variables we consider to predict how policymaking should be observed to be carried out in the case of rights exercised about actions. These variables are: (i) the object of state policies, (ii) the logic of political controversies occurring in society about the formulation of state policies and finally, (iii) the state. This, in a nutshell, constitutes the theoretical setup of the dissertation. In the next section, we present in more details the theoretical setup of the dissertation by defining each of the variables constituting it.

1.1 Theoretical Setup

1.1.1 Objects of state policies

Any state policy is about something. The object of a state policy is what that policy is about. Since we use the deductive methodology to conduct our researches, we define the domain of the independent variables of our theoretical setup by making assumptions. There are two different assumptions that can be made about state policies to define their object. The object of a state policy can be assumed to be either *wealth* or, an *action*.

Table 1: Objects of state policies

<p style="text-align: center;"><u>POLICIES WHOSE OBJECT IS WEALTH</u></p> <ul style="list-style-type: none">- The fiscal policy of the state.- Any policy of the state conceived as a public good the state supplies to members of civil society.
<p style="text-align: center;"><u>POLICIES WHOSE OBJECT IS AN ACTION</u></p> <ul style="list-style-type: none">- Rights to perform actions.- Rights exercised by employers in firms to choose who they employ to perform any action on their respective behalf.

Table 1 divides the realm of state policies in two broad categories of families. On the one hand, there are state policies whose object is wealth. That first category of state policies notably includes the fiscal policy of the state. Also included in that first category of state policies are the ones conceived for research purposes as being public goods the state supplies to members of civil society like national defence for instance. The other category of state policies according to Table 1 are the ones whose object is an action. That second category of state policies includes rights to perform actions and also rights exercised by employers in firms to choose who they employ to perform any action on their respective behalf.

In the dissertation, we investigate policymaking only in the case of state policies whose object is assumed to be an action. That is, only in the case of rights exercised about actions. This implies that our objective in the dissertation is not to develop a general theory of policymaking. Not all state policies are rights exercised about actions. However, in our researches concerning policymaking, we leave aside state policies whose object is wealth

like the fiscal policy for instance. We investigate policymaking in the dissertation only in the case of rights exercised about actions. The only assumption we make in the dissertation about state policies to investigate policymaking is, therefore, that the object of any state policy is an action.

1.1.2 Political controversies and policymaking

The second independent variable we consider in the dissertation to predict how policymaking should be carried out is the logic of political controversies occurring in society about the formulation of state policies. We assume that policymaking is a phenomenon caused by political controversies occurring in society about the formulation of state policies. In this subsection, we successively define the notions of political controversies and policymaking to explain why we assume the former cause the latter.

We define a political controversy as being what is taking place in society whenever certain members of it publicly express and defend different viewpoints concerning how a specific state policy should be formulated. For instance, the formulation of the fiscal policy of the state is the issue of a political controversy in society if some say the state should lower its taxes, whereas others rather argue that taxation levels should remain unchanged such that public funds are available to properly address some policy issue like the debt or, social programs for instance. In the same vein, if some say that abortion should be forbidden whereas others rather claim that women should in all cases and circumstances be allowed to decide for themselves whether they need an abortion or not, this also constitutes a controversy of a political nature whose issue in that particular case is, however, the formulation of the right to have an abortion. A political controversy is, therefore, simply a

debate between certain members of society whose issue is how a specific state policy should be formulated.

The fact that the formulation of a state policy is the issue of a political controversy in society implies that it is not possible to formulate that policy in a way which would have the effect of satisfying entirely members of civil society all at once. The reason is that, by definition, a political controversy involves individuals having different views concerning how a specific state policy should be formulated. We assume that political controversies as defined above cause the policymaking phenomenon.

In that regard, we define policymaking as a phenomenon occurring whenever a process is used to decide (i.e., to choose) how to formulate any state policy. In light of that preliminary definition of policymaking, it is first of all possible to infer from it the meaning of the expression 'making a policy'. Making a state or public policy mainly means choosing how to formulate it. As a result, conducting researches about the policymaking phenomenon means paying attention to how policy choices are made.

Most definitions of policymaking describe that phenomenon as being a process¹. In the dictionary, a process is defined as 'a systematic series of actions directed to some end'². Describing policymaking as being a process, therefore, clearly conveys the idea that policymaking is goal-oriented. As a result, policymaking can more specifically be defined as a phenomenon occurring whenever the formulation of any state policy is decided by explicitly wanting to achieve a goal or objective determined a priori by doing so. Policymaking is, therefore, more than making policy choices. Policymaking is making policy choices in a goal-oriented fashion.

¹ For instance, Paul Sabatier has edited a book entitled *Theories of the Policy Process* (1999).

² This definition of the word process comes from dictionary.com.

We assume it is when a state policy cannot be formulated in a way which would have the effect of satisfying entirely members of society all at once that, as a second best, the state will instead attempt to formulate it in a way having the effect of realizing some goal or objective. This amounts to assuming that policy choices are made in a goal-oriented fashion only when they are controversial; that is to say, only when they pertain to issues being the object of a controversy in society. But, what is the goal the state seeks to achieve by how it chooses to formulate one of its policies when it is not possible to formulate it in a way which would have the effect of satisfying entirely all those who care about the issue to which it pertains? We answer that question by making an assumption about the state.

1.2.3 The state

For research purposes we assume that, when the state cannot formulate one of its policies in a way which would have the effect of satisfying entirely members of society all at once, it instead attempt to formulate that policy in a way having the effect of realizing an objective expressed in terms of welfare like, for instance, in a way compatible with the objective of maximizing social welfare. This assumption about the state amounts to investigating policymaking from the standpoint of a welfare state. Throughout the dissertation, we use abundantly the expression 'welfare state'. We define a welfare state as a state whose policy choices pertaining to controversial issues in society are first and foremost made in light of welfare considerations.

1.2.4 Theoretical setup: summary

In summary, the dependent variable of our researches is policymaking. We define policymaking as making policy choices in a goal-oriented fashion. We use the deductive methodology to investigate policymaking so defined. There are three independent variables we consider to predict how policymaking should be observed to be carried out. These variables are: (i) the object of state policies, (ii) the logic of political controversies occurring in society about the formulation of state policies and, (iii) the state.

Among the three independent variables we consider to predict how policymaking should be carried out, two of them are kept fixed at the same value throughout the dissertation. These two variables are: the object of state policies and the state. About the object of state policies, we always assume it to be an action; even though we realize the object of state policies can also be assumed to be wealth. About the state, we always assume it settles the political controversies occurring in society about the formulation of its policies by policy choices having the effect of realizing an objective expressed in terms of welfare. We realize it would have been possible to make a different assumption in that regard. For instance, we could have instead assumed that the state settles the political controversies occurring in society about the formulation of its policies by policy choices having the effect of maximizing political support or, in a way having the effect of respecting the moral prescriptions of some sacred book like the Bible, etc...

These considerations about the theoretical setup of our researches imply that the only independent variable we allow to vary to predict how policymaking should be carried out is the logic of political controversies occurring in society about the formulation of state policies. To flesh out the content of that variable, we develop in the dissertation a model of political controversies whose issue is the formulation of any right exercised about an

action. The model we develop of that sort of political controversies constitutes the main theoretical contribution of the dissertation. In the next section, we explain how we proceed in the dissertation to model political controversies whose issue is the formulation of any right exercised about an action.

1.2 The model

The model we develop in the dissertation of political controversies whose issue is the formulation of any right exercised about an action is built with the help of three different theoretical devices. The first is a concept of our own design. This concept is the one of *relations generated by the performance of actions*. The second is *game theory*. The last is the concept of *power*.

1.2.1 The concept of relations generated by the performance of actions

A relation in the sense used in the dissertation is defined as an event occurring when the performance of an action affects the welfare of not only the one having performed it, but also the welfare of at least one other person or party. Whenever the welfare of some individual X is affected by the performance by another individual Y of a specific action, we consider this to have the effect of putting X in relation with Y. The relation thus created between X and Y by the performance by Y of some action constitutes an event. The reason is that any relation generated by the performance of an action can have many different outcomes³. Relations are, therefore, events of a social nature whose objects are actions.

³ The fact that any relation can have at least two different outcomes is actually a result demonstrated in the dissertation.

We take it for granted in the dissertation that, among all the events occurring in society, some of them are relations generated by the performance of actions⁴. This research postulate raises the question of the government of relations. That is to say, the question of how relations generated by the performance of actions unfold. Indeed, what happens when someone's welfare is affected by the performance by someone else of an action? How do individuals act and behave toward each other when the performance by at least one of them of an action has the effect of putting them in relation with one another? What role, if any, does the state play in governing relations? To answer these questions, we develop in the dissertation a model of relations generated by the performance of actions.

1.2.2 Relations and games

We model any relation generated by the performance of an action as a *game*. Games are theoretical devices used in rational theory to model *dependency*. Dependency is conceived in rational theory as a phenomenon occurring when an individual cannot realize the preferences he has about something without the help or assistance of at least one other person or party⁵. Modeling a relation generated by the performance of an action as a game, therefore, essentially means postulating about this relation at least one of those involved in it depends on someone else also involved in the relation to realize her preferences about the action generating it. Whenever the performance of an action simultaneously affects the welfare of two individuals or more, it cannot happen that all those whose welfare is affected by the performance of that action be all able to realize the preferences they have

⁴ In the last chapter of the dissertation, we contrast events whose objects are actions (i.e., relations) with events whose objects are rather wealth. The latter being the kind of events studied in economics.

⁵ We explain in more details how dependency is conceived in rational choice theory in chapter three of the dissertation.

about it without the help or assistance of anyone else. If X's welfare is affected by the performance by Y of some action, at least one of them (either X or, Y or, both) is going to be dependent on the other to realize his preferences about the action putting them in relation. The dependency anyone experiences vis-à-vis someone else to realize preferences about an action can always be modeled as a game⁶.

The main result demonstrated in the dissertation about relations generated by actions is that there are basically five different kinds of games that can be used to model this sort of events. These games can, however, be regrouped in three broad categories. There are: *games of total divergence*, *games of partial divergence* and, *games of no-divergence*.

With the help of the different kinds of games developed early on in the dissertation to model relations, it is possible to predict how this sort of events are likely to unfold. More specifically, what can be predicted with the help of these games are the different tactics any individual X who depends on another individual Y to realize preferences about some action could rationally use vis-à-vis this other individual Y such that, despite this constraint⁷, X's chances of realizing them are maximized. The main result we demonstrate about the government of relations generated by actions by modeling them as games is that controversies of a political nature can occur in them. More specifically, we demonstrate that when some individual X depends on another individual Y to realize preferences about an action, X could in some cases rationally attempt to realize them by going after a right Y exercises about that action like, for instance, the right to perform it. Going after a right exercised by someone else means attempting to convince the state to formulate that right in

⁶ This is actually the main result demonstrated in chapter three of the dissertation.

⁷ Being dependent on someone else to realize preferences about something amounts to having to overcome a constraint to realize them.

a way other than the one preferred by the one exercising it. It is when some individual X goes after a right exercised by some other individual Y that a political controversy is likely to occur between these two individuals. The reason is that Y should be against that a right he exercises be formulated in a way other than the one he prefers.

We demonstrate that when the performance of an action generates between the one who performs it and someone else a *relation of total divergence*, a controversy of a political nature is likely to occur in that relation about the issue of the formulation of the right to perform the action generating it. A political controversy whose issue is the formulation of the right to perform any action is, in effect, one whose issue is whether performing a specific action should be allowed or not. This result implies the conclusion that political controversies whose issue is whether performing any action should be allowed or not can be modeled as relations/games of total divergence.

Another result we demonstrate in the dissertation is that the firm can be conceived as a relation generated by the performance of an action. More specifically, we demonstrate that when the performance of an action generates between the one who performs it and someone else a relation of partial divergence of the first kind, that relation is likely to be organized by someone involved in it as an employer-employee relation. On the basis of that result we subsequently demonstrate that, when the relation between an employer and his employees takes the form of a game of partial divergence of the first kind, a political controversy is likely to occur in the relation between the employer and those in his employment about the issue of how the right the employer exercises to choose who he employs should be formulated. The issue of any political controversy between an employer

and his own employees is more specifically going to be whether the employer should be allowed or not to replace those presently in his employment by others who are not.

By using the concept of relations generated by the performance of actions, we are therefore able to demonstrate by deductive means that political controversies can occur in society about the formulation of rights to perform specific actions as well as about the formulation of rights exercised by specific employers to choose who they employ to perform actions on their respective behalf. These two results, we use them as stepping stones to investigate policymaking in the case of rights exercised about actions. The reason being that we assume that policymaking is a phenomenon caused by political controversies occurring in society about the formulation of state policies. Predicting that political controversies can occur in society about the formulation of rights exercised about actions is, because of that assumption, tantamount to predicting that policymaking should be observed to be carried out in the case of state policies taking the form of rights exercised about actions.

1.3 Results

We predict it should be possible to observe major differences between how any welfare state proceeds to formulate rights to perform actions and rights exercised by employers in firms to choose who they employ to perform any action on their respective behalf. The main difference it should be possible to observe in that regard concerns how a welfare state proceeds to, on the hand, formulate rights to perform *different* actions and, on the other, rights exercised by *different* employers to choose who they each employ.

A welfare state should formulate rights to perform different actions separately and independently from one another on a case-by-case basis. This amounts to predicting that a welfare state should consider the formulation of rights to perform different actions as being entirely distinct policy issues. For instance, a welfare state should consider the issue of whether abortion should be allowed or not as being totally different from the one of whether the extraction of oil from tar sands should be allowed or not. The distinction made by a welfare state between these two policy issues should be such that it should handle them separately, in total isolation from one another. In addition, we predict that the main thing any welfare state should be observed to be doing while in the process of deciding how to formulate the right to perform any action is to gather, and also to public diffuse, information of an empirical nature about the action being the object of that right. Policy choices of welfare states in the case of rights to perform actions should, therefore, first and foremost be made on the basis of information of a purely empirical nature pertaining to the actions being the objects of these rights.

On the other hand, we predict that a welfare state should formulate the rights of the different employers of its jurisdiction to choose who they employ all at once in the same way each (at least by default) by enacting only a single, one-size-fits-all, policy all in all to do so. If a welfare state formulates all at once the rights of the different employers of its jurisdiction to choose who they employ, this implies that no distinction of any kind is made between different employers in the process by which this type of rights are formulated. We therefore predict that welfare states should make no distinction between employers to make policy choices concerning the formulation of the rights they each exercise to choose who they employ. In addition, we predict that a welfare state should never take into

consideration any empirical information about the firms/businesses employers operate to decide how to formulate the rights they exercise in them to choose who they employ.

In light of these predictions, it can be seen it would be quite difficult to fail to notice the differences between how welfare states proceed to formulate rights to perform actions and employers' rights to choose who they employ. Welfare states should formulate rights to perform actions separately and independently from one another and employers' rights to choose who they employ all at once. A welfare state should take into consideration empirical information to make policy choices in the case of rights to perform actions, but not in the case of employers' rights to choose who they employ. The main variable explaining why welfare states should use different processes to formulate rights to perform actions and employers' rights to choose who they employ is the logic of political controversies concerning the formulation of these two types of rights. In that regard, we demonstrate in the dissertation that political controversies whose issue is the formulation of the right to perform any action have a logic very different from the one of political controversies whose issue is, rather, the formulation of the right exercised by any employer to choose who he employs.

The logic of political controversies whose issue is whether performing any action should be allowed or not (i.e., the logic of relations of total divergence) makes it impossible to know a priori the policy choices that can be made about any of them being the most compatible with the objective of maximizing social welfare. It takes information of a purely empirical nature about any action being the object of a controversy in society concerning the issue of whether performing it should be allowed or not to be able to identify the policy choice that can be made about the formulation of the right to perform

that action being the most compatible with the objective of maximizing social welfare. This conclusion explains why we predict that welfare states should always take into consideration empirical information to make policy choices in the case of rights to perform actions, and also why we predict that policy choices in the case of rights to perform actions should be made separately and independently from one another on case-by-case basis.

The logic of political controversies whose issue is the formulation of the right exercised by any employer to choose who he employs (i.e., the logic of relations of partial divergence of the first kind organized as employer-employee relations) makes it possible to know a priori the policy choices that can be made about any political controversy of this kind being the most compatible with the objective of maximizing social welfare. This conclusion explains why we predict that a welfare state should never take into consideration any empirical information to decide how to formulate the right of any employer to choose who he employs, and also why we predict that welfare states should formulate the rights of the different employers of their respective jurisdictions to choose who they employ all at once by enacting a one-size-fits-all policy in that regard.

1.4 Dissertation outline

The dissertation is divided in two parts. The first part is constituted by chapters two and three. In chapters two and three, we explain how to proceed to model any relation generated by the performance of an action as a game. The second part of the dissertation is constituted by chapters four and five. The main topic we investigate in four and five is policymaking in the case of rights exercised about actions. In chapter four, we investigate policymaking in the case of rights to perform actions. In chapter five, we investigate

policymaking in the case of employers' rights to choose who they employ to perform any action on their respective behalf.

Chapter II: Power

Chapter two is the literature review of the dissertation. The topic we review in two is power. The reason is twofold. The first is that power is the main concept we use to model any relation generated by the performance of an action as a game. The second is that how we define power to be able to model relations as games is very different from how power is usually conceptualized in the social sciences.

In two, we begin by considering how power is usually conceptualized in economics. We show that, in economics, power is usually defined in negative terms as abusing others. We argue that defining power in negative terms has the effect of limiting the kind of questions that can be investigated about the exercise of power in society to questions of a normative nature concerning whether it is justifiable or not that, in society, some are submitted to the power others are able to exercise on them.

This conclusion leads us to review how French philosopher Michel Foucault conceives power in a social context. For Foucault, power is basically an action whose object is also an action. In the dissertation, we adopt Foucault's conception of power. However we define power in a way slightly different from Foucault. We define power as having determined the way an action is performed. That definition of power implies that exercising power in a relation generated by the performance of an action means having determined the way the action generating that relation is performed.

Defining power as having determined the way an action is performed makes it possible to always be able to identify at least two different outcomes any relation generated by the performance of an action can have. In addition, defining power in a Foucauldian manner rather than in negative terms allows considering about the exercise of power in society questions other than questions of a normative nature pertaining to whether anyone in society should be submitted to the power others are able to exercise on her.

Indeed, defining power as having determined the way an action is performed raises questions of a strategic nature concerning how an individual could determine the way an action is performed when that individual depends on someone else to do so. In the dissertation, we demonstrate there are tactics to: (i) determine the way an action is performed (i.e., to exercise power) and also, (ii) prevent others from determining the way an action is performed (i.e., to prevent others from exercising power). In that regard, we show that employing someone else to perform an action having the effect of putting one in relation with her constitutes a tactic that can be used against this other person to prevent her from determining the way she performs that action and, consequently, to prevent her from exercising power in the relation the performance of that action by her generates.

Chapter III: Modeling relations as games

In chapter three we develop the different kinds of games that can be used to model relations generated by the performance of actions. We demonstrate there are five different kinds of games that can be used to model relations. These games, as mentioned previously, can be regrouped in three broad categories, namely: games of total divergence, games of

partial divergence and, games of no-divergence. Games of total divergence can be either zero-sum or, nonzero-sum. There are, therefore, two different kinds of games of total divergence that can be used to model relations. Games of partial divergence can be either of the first kind or, of the second kind. There are, therefore, also two different kinds of games of partial divergence that can be used to model relations. Finally, games of no-divergence are all alike and, consequently, there is only one kind of games of no-divergence that can be used to model relations.

Suppose that X is in relation with Y when Y performs some action. That relation is going to be one total divergence if X and Y do not have the same preferences concerning whether Y should perform or not the action generating the relation. A relation of total divergence so defined is going to be zero-sum if the performance of the action generating it in any way always has the effect of negatively affecting the welfare of at least one of those involved in it. For instance, if X's welfare is always negatively affected by the performance by Y of the action putting them in relation no matter the way Y performs it, their relation is going to take in such a case the form of a zero-sum game of total divergence.

The relation between X and Y generated by the performance by Y of an action is going to be one of partial divergence if X and Y do not have the same preferences about the way Y should perform the action generating the relation, but at least one of them prefers the action generating the relation to be performed in the way the other prefers most rather than it be not performed at all. If Y is the one who prefers performing the action putting him in relation with X in the way X prefers most rather than not performing it at all even though this is not the way Y prefers to use to perform that action, then their relation is

going to be one of partial divergence of the first kind. If it is rather X who prefers that Y performs the action putting them in relation in the way Y prefers most rather than Y does not perform it at all even though X has different preferences than Y in that regard, then their relation is going to be one of partial divergence of the second kind. Finally a relation of no-divergence is one involving individuals having the exact same preferences about the action putting them in relation no matter what the preferences of these individuals in that regard.

The games we use in the dissertation to model relations are built piece by piece in chapter by indicating how to proceed to ascribe to them: (i) a structure, (ii) a payoffs configuration and, (iii) rules. The games we build to model relations are highly original. The most innovative aspect of these games is their rules. The rules we ascribe to games modeling relations have the effect of making their playing field uneven. The unevenness aspect of the playing field of the games we build to model relations explains why we make a distinction between certain games of partial divergence not made anywhere else in game theory. This distinction is the one between relations/games of partial divergence of the first kind and, relations/games of partial divergence of the second kind. In the dissertation, we therefore make contributions to game theory by building games never considered before. Such is the case notably of games of partial divergence of the first kind.

Chapter IV: Policymaking in the case of rights exercised about actions

In chapter four we investigate policymaking in the case of rights to perform actions. We define policymaking as making policy choices in a goal-oriented fashion. We

assume that policy choices are made in a goal-oriented fashion only when these choices concern controversial issues. The first result we demonstrate in four is that when the performance of an action generates a relation of total divergence between the one who performs it and someone else, a political controversy is likely to occur in that relation about the issue of how the right to perform the action generating the relation should be formulated. This result leads us to model any political controversy whose issue is the formulation of the right to perform an action as a relation of total divergence.

The first question we investigate concerning policymaking in the case of rights to perform actions in chapter four is the one of the different policy choices that can be made about rights to perform actions to formulate them. Indeed, when there is a controversy in society concerning the formulation of the right to perform any action, what are the different policy choices that can be made to settle that controversy? In that regard, we demonstrate there are three different ways to formulate the right to perform any action. The right to perform any action can be formulated in a way such that performing that action is going to be: (i) allowed or, (ii) forbidden or, (iii) regulated.

From this result, we infer that state regulation can be conceived as being a policy choice made about the formulation of the right to perform an action. That is to say, we infer from that result that *regulating for the state means choosing to formulate the right to perform some action such that performing that action is going to be regulated*. In addition, we demonstrate there are two different things that can be done about any action to regulate its performance. The performance of any action can be regulated either by making it mandatory to use a specific *way/technique* to perform it and/or, by limiting the *intensity* that action can be performed by imposing either an upper or lower limit in that regard.

After having investigated the different policy choices that can be made about actions to formulate the rights to perform them, we investigate which one(s) of these policy choices are compatible with the objective of maximizing social welfare. In that regard, we demonstrate that none of the policy choices that can be made about the formulation of rights to perform actions is likely to have the effect of maximizing the contribution any action can make to social welfare. This result implies the conclusion that maximizing social welfare should require formulating the rights to perform certain actions differently. In addition, we demonstrate that when an action is the object of a controversy in society concerning the issue of whether performing it should be allowed or not, it not possible to know a priori how the right to perform that action has to be formulated to maximize the contribution it can make to social welfare.

This last result is the one from which we draw most of the conclusions and predictions of our researches concerning policymaking in the case of rights to perform actions. From this result, we notably draw the conclusion it takes information of a purely empirical nature about an action being the object of a controversy in society concerning the issue of whether performing it should be allowed or not to be able to identify the policy choice that can be made about it being the most compatible with the objective of maximizing social welfare. This conclusion leads us to predict that the main thing any welfare state should be observed to be doing while in the process of deciding how to formulate the right to perform any action is to collect, and also to publicly diffuse, information of an empirical nature about the action being the object of that right. This conclusion also leads us to predict that rights to perform different actions should be formulated separately and independently from one another one a case-by-case basis.

The last topic we consider in four is state regulation. In that regard, we first of all demonstrate that when the performance of an action generates a zero-sum relation of total divergence between the one who performs it and someone else, regulating the performance of that action cannot have the effect of maximizing the contribution it can make to social welfare. This result implies the conclusion that regulation is not a policy choice compatible with the objective of maximizing social welfare in the case of actions whose performance cannot have any other effect on the welfare of certain members of society but the one of negatively affecting it. In the case of such actions, regulating their performance is a policy choice compatible with the objective of protecting the welfare of a minority in society at the expense of the one of the majority and, consequently, at the expense of social welfare as a whole.

There are two different things that can be done about any action to regulate its performance. The performance of an action can be regulated either by making it mandatory to use a specific way to perform it and/or, by imposing an upper or lower limit on the intensity that action must be performed by anyone. If two parties are in conflict in society concerning whether performing any action should be allowed or not, we predict the two parties involved in that conflict should also be observed to have different views concerning what should be regulated about the performance of the action being the object of the conflict between the way to perform it and, the intensity it has to be performed. That is to say, we predict it cannot happen that two parties being on opposite sides of the fence concerning whether performing any action should be allowed or not be however observed to be in agreement concerning what is the best thing to regulate about the performance of that same action between the way to perform it and, the intensity. In that regard, we predict

that the party involved in a controversy whose issue is whether performing any action should be allowed or not whose welfare would be protected/improved by the regulation of the performance of that action (that party more specifically being the minority among all those whose welfare is affected by the performance of that action) should prefer it be regulated in terms of the intensity it must at most or at least be performed. The party involved in that same controversy whose welfare would, instead, be negatively affected by the regulation of the performance of the action being the object of it (that party more specifically being the majority among all those whose welfare is affected by the performance of that action) should rather prefer that this action be regulated in terms of the way that must be used to perform it.

At the end of chapter four, we empirically test the predictions generated by our theory of policymaking in the case of rights to perform actions pertaining to state regulation by looking at real cases of actions whose performance is either actually regulated by some state or, it has been considered at some point in time by some state to regulate their performance. The main case we consider in that regard is the one of the regulation of the extraction of oil from tar sands in Alberta for environmental reasons. This case does not falsify our prediction that those who care about the policy issue of how the right to perform any action is formulated should be observed to not be indifferent between the options of regulating the way and the intensity that action is performed. For instance, the government of Alberta clearly prefers the extraction of oil from tar sands on its territory to be regulated in terms of the way (i.e., the technology) that must be used by oil companies to perform it rather than in terms of the intensity it can at most be performed (i.e., by the means of a cap-and-trade system).

Chapter V: Policymaking in the case of employers' rights to choose who they employ

In chapter five, we investigate policymaking in the case of employers' rights to choose who they employ to perform any action on their respective behalf. The first result we establish in five is that when the performance of an action generates a relation of partial divergence of the first kind between the one who performs it and someone else, that relation is likely to be organized as an employer-employee relation. What do we mean by a relation generated by the performance of an action organized as an employer-employee relation?

Generally speaking, a relation is defined as an event occurring when the performance of an action affects the welfare of not only the one performing it, but also the welfare of at least one other person or party. A relation so defined is going to be considered as being *organized as an employer-employee relation* if the party involved in that relation who owns the capital anyone has to use to perform the action generating it is not the one who can be observed performing that action, but rather someone involved in the relation only because the performance of the action generating it by someone else provides him a payoff. For instance, if X is in relation with Y when Y performs some action, that relation is going to be considered as being organized as an employer-employee relation if the one who owns the capital Y utilizes to perform the action generating the relation is not Y, but rather X.

The firm can, therefore, be conceived as a relation generated by the performance of an action. Modeling the firm as a relation of partial divergence of the first kind organized as an employer-employee relation allows demonstrating that conflicts can occur in firms.

More specifically, we demonstrate that an employer and his employees can be in conflict concerning the issue of the power employees should exercise in the relation. That is, employees may want to exercise more power in the relation with their employer than the latter wants them to exercise in it. An employer can prevent his employees to exercise too much power in their relation by threatening them to fire them and replace them by others. Employees can, however, counter that tactic used by their employer to prevent them from exercising power by asking the state to forbid him to replace them by others. This reasoning explains why we predict that controversies of a political nature can occur in firms about the issue of the formulation of employers' rights to choose who they employ.

We use this last result as a stepping stone to investigate policymaking in the case of employers' rights to choose who they employ. We demonstrate that relations of partial divergence of the first kind organized as employer-employee relations can only have outcomes compatible with the objective of maximizing social welfare. This result holds whether employers are allowed or not to replace those they employ to perform any action on their respective behalf by others. On the basis of this last result, we conclude that allowing and forbidding unionization in firms are two policy choices indubitably radically different from one another, but they are both *equally* compatible with the objective of maximizing social welfare. This conclusion leads us to predict that welfare states should not take into consideration any empirical information about firms to decide whether to allow or not unionization in them, and also that a welfare state should either allow unionization in all the firms of its jurisdiction or, forbid it in all of them.

Chapter VI: Summary and Extensions

In chapter six, we summarize the main results and predictions of our researches concerning policymaking in the case of rights exercised about actions. We also extend some of these results and predictions by comparing them with the ones reached by public choice theories. The main prediction of our researches concerning policymaking is that a welfare state should use different processes to formulate rights to perform actions and rights exercised by employers in firms to choose who they employ to perform any action on their respective behalf. This prediction implies that it would be mistaken to consider that a welfare state always proceeds in the exact same way to formulate its different policies. A welfare state should not have a single, all purpose, policymaking process, but rather many.

From a theoretical standpoint, our researches highlight the importance of the variable logic of political controversies to explain/predict how policymaking is carried out. This variable is, after all, the only one explaining why a welfare state should use different processes to formulate rights to perform actions and rights exercised by employers to choose who they employ. This prediction that a welfare state should not always use the same process to formulate its policies can be extended by considering how policymaking is carried out in the case of state policies other than rights exercised about actions.

Economists also use the deductive methodology to investigate politics and policymaking. However, in economic theories of politics and policymaking like public choice theories, the object of state policies is assumed to be wealth rather than actions. Comparing the results and predictions of public choice theories with the ones generated by

our theory of policymaking in the case of rights exercised about actions reveals major differences. These differences, in turn, highlight the importance of another variable explaining how policymaking is carried out. That variable is: the object of state policies.

We conclude the dissertation by arguing that taking into consideration this idea that, in addition to state policies whose object is wealth there are also state policies whose objects are rather actions allows explaining paradoxes generated by public choice theories. One of the paradoxes that can be explained by taking into consideration that wealth is not the only object of state policies is the one of policy cycles. Policy cycles do not occur according to a scale as large and widespread as Plott's theory in that regard predicts it. We explain that paradox by arguing that policy cycles are likely to occur in the case of state policies whose object is wealth like the fiscal policy for instance, but not in the case of state policies whose object are actions like rights to perform actions.

CHAPTER 2

THE CONCEPT OF POWER IN THE SOCIAL SCIENCES: A LITERATURE REVIEW

2.1 Introduction

In this chapter, we look at how power is conceptualized in the social sciences, especially in economics. The main question we try to answer by reviewing the literature dealing with power is: what is power? How should power be conceptualized in a social context?

Why devote an entire chapter to power? There are two reasons. The first is that power is the main concept used in the next chapter to model relations generated by the performance of actions as games. We use power more specifically as a means to identify the different outcomes any relation can have. The second reason why we devote an entire chapter to power is that how we define power in the context of relations generated by the performance of actions to model them as games is quite different from how power is usually conceptualized in the social sciences.

2.1.1 The negative conception of power

Power is usually defined in the social sciences by describing what happens to anyone on whom power is exercised by someone else. In that regard, one thing that can be said about the words most often used to describe the effects that power has on those on whom it is exercised by others is that these words all have a rather negative connotation.

Abuse, oppression, and repression are the words most often used in the social sciences to describe what happens to those on whom others exercise power.

Economics illustrates very well our claim that power is usually conceptualized in the social sciences in negative terms. In the case of economics, having power vis-à-vis someone else is most often defined, in terms of effects, as taking advantage of this other person to a point such that this constitutes abuse. For instance, in microeconomic theory, there exists the notion of 'market power'. In a standard microeconomic textbook, market power is concisely defined as being: 'the ability to alter profitably prices away from competitive levels' (Mas-Colell et al. 383). This definition of power, albeit short, is interesting to pay closer attention to. The reason is that this definition of market power highlights two things about power that many other social definitions of power also associate to this concept.

The first thing about power highlighted by the definition provided above of this concept is that power is usually associated with control. Power is what an individual is considered to have when he can, at will, control the outcome of an event in which he is personally involved alongside others. In the particular case of market power, the event whose outcome can be controlled by exercising power in it is, of course, a transaction. What an individual who has power in the context of a transaction is able to control is, more specifically, the price at which this transaction is going to be effected, even though this individual is just one of the two parties (either the buyer or, the seller) taking part in it. An individual who is about to make a transaction with another displays market power in the context of this transaction if he can arbitrarily set the price at which this transaction

is going to be effected at the expense of market forces which, under the conditions of perfect competition, take care of this task on behalf of both the buyer and the seller.

The second aspect of the definition of market power stated above which is common to most definitions of power that can be found in the social sciences is the idea that what an individual who has power in the context of some event of a social nature such as a transaction can do with it is to improve his welfare at the expense of those who are also, just like him, involved in this same event. In the case of a transaction between two parties, if one of these two parties has power vis-à-vis the other, then what this party will be able to do in the context of this transaction is to alter the price at which the transaction is going to be effected such that he will make gains that will come directly from the pocket of the other party with which it is effecting it. When one of the individuals or parties involved in some event has power in it, what is usually thought to happen as a result of this is that the other people also involved in this same event are deprived of something of value to them. This can be either a part of their wealth or, a part of their freedom. That is why, negative conceptions of power can, in fact, be said to describe power in predatory terms.

In this chapter, we argue that defining power in negative or predatory terms, such as in a way that makes power synonymous with abuse, has the effect of limiting the kind of questions that can be investigated about any event in which power appears to be exercised to questions of a purely normative nature about whether it is good or bad that power is exercised at all by some on others in the context of this event. Indeed, if the only effects that power can have on those on whom it is exercised is making these individuals worse off than they would otherwise be if no one had power on them, then one inference

that can be drawn from such a view of power is that society would likely be a better place if it was possible to entirely purge it once and for all of power.

Economics in this regard constitutes a good example of a social science that has had to wrestle with major questions of a purely normative nature because it holds on to a strictly negative conception of power. In the case of economics, it is the firm whose *raison d'être* and normative value has been questioned strictly because power appears to be an aspect of its inner workings. In that regard, one thing about the firm it would be a little difficult to deny is that the firm is a component of the economic system. Yet, how to describe the relation between the boss or employer of the firm and the ones who are in his employment? Wouldn't it be accurate to describe the boss as being someone who exercises power on his employees? If indeed bosses in firms have power on their respective employees and it is considered that anyone on whom someone else exercises power is either oppressed or abused by that, then what does this say about economies in which the firm is used as a mechanism to allocate wealth? Wouldn't it be accurate to say about these economies that they allocate resources by the means of a mechanism in which abuse and/or oppression routinely takes place?

The first economist who has raised the problem of the firm in the manner described above is Ronald Coase. In a classic article of economic theory published in 1937 entitled *The Nature of the Firm*, Coase challenged economists to, so to speak, explain the *raison d'être* of the firm in the economic system. Is the firm a desirable component or not of the economy? This, in short, is the question and, in fact, the challenge Coase dared economists to provide an answer to. In this chapter, we especially

pay attention to how economists have answered Coase's challenge of explaining what is the *raison d'être* of the firm in the economic system.

Economists have been able to explain and legitimize the role the firm plays as one of the components of the economic system. However, to do this, economists found it necessary, as a prerequisite, to literally take power out of the firm. What they have done to develop a theory of the firm from which it is possible to draw the conclusion that there is nothing wrong with the firm as well as with economies in which the firm is used as a mechanism to allocate resources is basically to dismiss the idea, notably put forward by Coase himself, that what the boss does in the firm is exercising power on his employees. The price that the firm has had to pay to be considered by economists as being a desirable component of the economic system is, therefore, the one of being entirely purged of power.

There is, of course, nothing wrong *per se* with investigating whether the firm allocates resources efficiently or not. There is, in fact, nothing wrong with the idea of having doubts concerning whether the firm does an efficient job or not at allocating resources. Is this, however, the only question worth investigating about the firm? In the dissertation, we demonstrate that there are other questions that can be investigated about the firm.

Chapter five of the dissertation is entirely devoted to the topic of employer-employee relations. The firm can, in that regard, be defined as being more generally an employer-employee relation whose particularity is that the employer of the firm is anybody but the state. In chapter five, we do not investigate whether the firm allocates resources efficiently or not. Instead, we demonstrate that the employer and the employees

of an employer-employee relation can have diverging preferences about the power that the employees should exercise in the relation. This can have the effect of creating a conflict between an employer and his own employees. Conflicts occurring in firms can be waged by political means. When the employees of some employer-employee relation are disgruntled by the fact that their employer prevents them from exercising as much power in their relation as they want to exercise in it, they can attempt to remedy this situation by going after the right their employer exercises in the relation to choose who he employs.

One thing that we are able to show in the dissertation is that it is possible to investigate questions about the firm other than questions of a purely normative nature concerning the relative efficiency of the firm at allocating resources. However one thing that has to be done to consider questions about the firm other than its relative efficiency at allocating resources is putting power back in it so to speak, while however tossing aside the negative/predatory conception of power.

2.1.2: The Foucauldian conception of power

But, aside from the negative conception of power, how else can power be conceptualized in a social context? To answer this question, we turn ourselves toward French philosopher Michel Foucault. Foucault proposes to define power as a set of actions on other actions (Foucault, 1982: 220). Defining power in that way implies that the object of power is not wealth or, individuals, but rather actions. Power is an action whose object or target is also an action.

Defining power as Foucault does as an action whose object is an(other) action allows considering questions about the exercise of power in society other than normative

questions concerning whether power is good or bad. Defining power as an action whose object is also an action raises notably questions of a strategic nature concerning how power can be exercised or resisted when one depends on someone else to do so. This is exactly what we demonstrate by using the Foucauldian definition of power to model the firm.

2.2 The Negative conception of power: the case of economics

2.2.1 The problem posed by the firm as a mechanism to allocate resources

Economics is a scientific discipline of the social sciences whose object of study is wealth. Adam Smith is credited by most to be the one who gave birth to economics as this discipline is known and practiced nowadays by publishing, in 1776, a book entitled *An Enquiry into the Nature and Causes of the Wealth of Nations*. The title of Smith's book defines very well the research agenda of modern economics: studying the various processes and mechanisms by which wealth, and more generally resources, are created and allocated in society. Economics looks at the question of the creation and distribution of wealth in society from two different perspectives. The first is the one of specific economic actors or agents such as consumers, producers, the state, etc. This is microeconomics. The other perspective from which economics pays attention to wealth-related issues is the one conceiving the entire economy as a system whose various components are all interconnected with each other such that in any change in any of the components of the economic system has an effect on all the others. This is macroeconomics.

A major result of microeconomics is that competitive markets allocate resources efficiently. However economists have recognized for a long time now that the market is not the only mechanism by which resources are allocated in society. The firm and politics constitute two other mechanisms through which resources change hands, and are consequently allocated.

Because economists consider that competitive markets allocate resources efficiently, they tend to use the market as a benchmark to study the firm and also politics. Are the firm and politics mechanisms as efficient as the market to allocate resources? Moreover, what is the relation between the market on the one hand, and the firm and also politics on the other? If it is taken for granted that a competitive market will have the effect of allocating any resource handled by it efficiently, then why is it not the market that takes care of the task of allocating all resources in society? Is the *raison d'être* of politics and the firm is to come to the rescue of the market when, for some reason, it fails at the task of allocating certain resources efficiently? Or, do the firm and/or politics stand in the way of the market in its selfless quest to allocate resources efficiently?

What economists find troubling about mechanisms of resources allocation other than the market such as the firm or politics is that, unlike competitive markets, these other mechanisms seem to rely on power one way or the other to allocate the resources they handle. This point is precisely the one made by Coase in his article on the nature of the firm. Here it is worthwhile to present how Coase states the problem posed by the firm vis-à-vis the market, and especially vis-à-vis the result that the market is an efficient mechanism to allocate resources:

«It is convenient if, in searching for a definition of a firm, we first consider the economic system as it is normally treated by the economist. Let us consider the description of the economic system given by Sir Arthur Slater. **‘The normal economic system works itself.** For its current operation it is **under no central control**’ ... An economist thinks of the economic system as being co-ordinated by the price mechanism. ... Sir Arthur Slater’s description, however, gives a very incomplete picture of our economic system. **Within a firm, the description does not fit at all.** For instance, in economic theory we find that the allocation of factors of production between different uses is determined by the price mechanism. The price of factor A becomes higher in X than Y. As a result, A moves from Y to X. ... Yet ... [i]f a workman [in a firm] moves from department Y to department X, he does not go because of a change in relative prices, but because he is ordered to do so. ... As D. H. Robertson points out, we find ‘island of conscious **power** in this ocean of unconscious buttermilk.’ But in view of the fact that it is usually argued that co-ordination will be done by the price mechanism, why is such organization necessary? **Why are these ‘islands of conscious power’?** » [emphasis added by us] (Coase 4-5)

This quote embodies every one of the points mentioned in the introduction of the chapter about the problem that the very existence of the firm poses to economic theory, in light of the result that competitive markets allocate resources efficiently. Coase defines the firm strictly in opposition to the market. In that regard, Coase claims that the firm and the market should not be seen as being one and the same in terms of how they respectively accomplish the task of allocating resources. The reason is that, in the firm, it is not the price mechanism that allocates factors of production (i.e., resources) to their respective uses. It is rather the boss who takes care of this task. And, following D. H. Robertson, Coase does not hesitate at all to use the word power to describe the fact that, in the firm, the task of allocating factors of production to productive uses is taken care of by a particular individual who uses his ‘good judgement’ to do so. The quote fittingly

ends by a question, a challenge in fact, Coase dares himself as well as economics as a whole to find an answer. This question is: why are there firms?

Even though Coase's article is now more than seventy years old, it still captures very well how economists see the firm: it is some sort of device or mechanism to allocate resources. The particularity of the firm is that it relies on power rather than the price mechanism to accomplish the task of allocating resources to productive use. Oliver Williamson puts Coase's challenge in the following way: 'If the market is a marvel, then why do we need firms?' (Williamson and Marsten *xi*) Does the firm accomplish things in terms of allocating resources that the market cannot accomplish? Or is the firm some sort of parasite hindering the market in its quest to allocate resources efficiently?

Following this existential question raised by Coase about not so much the nature of the firm (as the title of Coase's article suggests it), but rather about the role the firm plays in the economy, economists have provided two different answers. These two different answers concerning the role the firm plays in the economy have one thing in common. To legitimize the role that the firm plays in the economy, they both find it necessary (a prerequisite) to take power out of the firm. Apparently, taking power out of the firm is the price the firm has to pay to be seen by economists in a positive light. In what follows, we will consider the two different answers provided by economists to Coase's challenge of explaining why the economic system uses firms as a mechanism to allocate wealth. These answers are presented not in a chronological order, but rather according to an order reflecting, as far as we can tell, their relative popularity among the ranks of economists.

2.2.2 Alchian and Demsetz's answer to Coase's challenge

The first answer to Coase's challenge we believe not to be the most popular one among the ranks of economists is the one developed by Armen Alchian and Harold Demsetz in a paper published in 1972 entitled *Production, information Costs, and Economic Organization*. In this paper, Alchian and Demsetz basically argued that there is no difference between the firm and, the market. The following quote, which appears at the very beginning of the paper, summarizes very well how Alchian and Demsetz conceive the firm:

«It is common to see the firm characterized by the power to settle issues by fiat, by authority, or by disciplinary action superior to that available in the conventional market. This is delusion. The firm ... has **no power** of fiat, no authority, no disciplinary action any different in the slightest degree from ordinary market contracting between any two people. I can 'punish' you only by withholding future business or by seeking redress in the courts for any failure to honor our exchange agreement. That is exactly all that any employer can do. He can fire or sue, just as I can fire my grocer by stopping purchases from him or sue him for delivering faulty products. » (Alchian and Demsetz 777-778) [emphasis added by us]

According to Alchian and Demsetz, an employer does not have anymore power vis-à-vis his employees than a customer has vis-à-vis any of the suppliers from which he procures various goods and services such as a grocer for instance. The employer is just somebody who consumes a service that somebody else supplies him with. There is no difference between getting a service by employing the one who supplies it, and buying a can of soup at some grocery store. Alchian and Demsetz, therefore, reconcile the firm and the market by essentially saying that they are one and the same. More precisely,

Alchian and Demsetz answer Coase's challenge by disputing Coase's claim that how the firm proceeds to allocate resources is any different from how the market does it.

Even within the ranks of economists, there are not many people that have thus far bought the idea put forward by Alchian and Demsetz that the firm and the market are one and the same. In fact, Alchian has now to a large extent recanted his views expressed in the early nineteen seventies about the nature of the firm. In that regard, in 1988, Alchian authored with Susan Woodward a review of Oliver Williamson's major opus *The Economic Institutions of Capitalism*. The title of this review is very revealing concerning the change of heart that Alchian has had about the firm. The title is: *The Firm is Dead; Long Live the Firm* (1988). As the title of the review reveals, Alchian is no longer convinced that the firm is dead; in the sense that the firm and the market are one and the same⁸. Since it is Williamson's work that has convinced Alchian to change his views about how the firm operates from the inside, let us take a closer look at how Williamson conceives the firm, and especially at what Williamson claims differentiates the inner-workings of the firm from the one of the market.

2.2.3 Williamson's answer to Coase's challenge

Let us start by reviewing how Williamson defines power:

«Because B is bigger than A, B enjoys advantage in the exchange relation between them. Or because A is dependent on B, B has a power advantage over A. » (Williamson, 1996b: 22)

⁸ Williamson asserts explicitly that Alchian has rejected the idea that the firm and the market are one and the same. He bases this assertion on an unpublished paper authored by Alchian. See: (Williamson, 1985: 53, footnote 11).

Observe that what Williamson stresses about power to define it is not what most social definitions of power usually highlight about power. The difference here is that Williamson defines power not by highlighting the effects that power has on those on whom it is exercised. Williamson's definition of power rather highlights the cause or source of power. In that regard, Williamson explains how individuals are able to exercise power on others by a difference of size and/or of strength. Williamson basically says: If B exercises power on A, it must be because B is either bigger and/or stronger than A.

This definition of power, albeit expressed differently, is nonetheless in line with the one of market power provided in the introduction of the chapter. The reason is that the notion of market power in economics is especially associated with monopolies. What is a monopoly? A monopoly is, of course, a firm which has either no, or very little, competition on the market it supplies. A monopoly is therefore a firm which, in comparison to its average customer, is rather 'big'.

The reason why Williamson defines power by focusing much more on the cause of power than on its effect is that Williamson is interested to see how the concept of power fits in the firm in terms of describing the relation between an employer and his employees. In that regard, if it was considered that the boss of the firm exercises power on those that he employs then, given Williamson's definition of power, it would be necessary to explain why the boss exercises power in the firm by the fact that he is bigger and/or stronger than his employees.

There is no need to do extensive empirical researches about the firm to reject this hypothesis that what allows an individual to become the boss of others is that he dominates them in terms of the size or the strength he has compared to them. For

instance, from a strict numerical standpoint, most firms have a greater number of so-called 'simple employees' than bosses. Hence, with respect to size measured by the means of a simple 'head-count', the number of employees of a given firm is usually much larger (bigger) than the number of bosses. This sort of observations lead Williamson to totally dismiss the idea that the employer-employee relation is characterized by the fact that the employer has power over those he employs.

If Williamson rejects the idea that what a boss has vis-à-vis his employees is power, Williamson does not however believe that the relation between a boss and his employees is identical to the one between a customer and his grocer of choice. What Williamson believes a boss has vis-à-vis his employees that a customer does not have vis-à-vis his grocer is authority. What is authority?

For Williamson, authority is basically a clause of a contract governing a transaction enabling the buyer of this transaction to fill out the terms of the contract and also to alter these terms (within some a priori agreed zone of acceptance) while the contract is in the course of being executed. For Williamson, an employer-employee relation is a transaction between a buyer and a seller governed by a contract whose terms are intentionally left unspecified at the time where the contract is struck (Williamson, 1980: 17). If some transaction between a buyer and seller is governed by a contract that takes the form of an employer-employee relation, this means that the task of 'filling out' the terms of the contract is left in the capable hands of the buyer who, in such a case, exercises authority in the context of the transaction vis-à-vis the supplier. For Williamson, a boss is simply someone who has been able to convince someone else to supply him a good or a service by leaving him the possibility to modify, to adapt, the

terms of their transaction from one exchange or delivery to the next by exercising authority in the transaction.

When does it make sense for two parties who wish to effect a transaction with each other to effect it by having recourse to a contract to govern its completion taking the form of an employer-employee relation? To explain this, we need to take a step back and consider from a broader perspective Williamson's view of transactions and exchange. Williamson's name in that regard is the main one associated with a branch of economics known as *Transaction Cost Economics*. Transaction Cost Economics is a field of research whose object of study is not wealth per se, but rather transactions.

A transaction is an event occurring whenever a party freely accepts to supply another one with some good or service. The main question investigated by transaction cost economics is: what has to be done to make it possible for a transaction to occur? It can be argued that Williamson's understanding of transaction and exchange is similar to Hobbes' understanding of society.

Hobbes is famous for having defined society by opposition to what he called 'the state of nature' (Hobbes 57). For Hobbes society and, more generally, civilization are not natural phenomena. By not being natural, Hobbes means that society and civilization are man-made. To live in society, man has had to do first create certain things. The main thing that man has had to first create to later on being able to have and enjoy society is: the state or leviathan.

Now, let us leave Hobbes aside to return to Williamson. Williamson believes too that men in the state of nature would not be able to do much transacting. For Williamson, a transaction is an event that can only occur in a specific, man-made, environment.

Williamson considers anything that must first be created to make it possible for two parties to effect a transaction: a transaction cost.

Williamson divides transaction costs in two categories: ex ante and ex post (Williamson, 1996a: 176). Ex ante transaction costs are things that must be created even before two parties come to realize they could both benefit by transacting with each other. The most important cost of transacting belonging to the ex ante category is the one of instituting and enforcing property rights so that it becomes clear and undisputable who owns what. As well, for a transaction to occur between two parties, these two parties must first find each other. If X wants to buy some good or service, X will first have to find somebody else who would be willing to part ways with (i.e., to sell) this good or service that he is looking to acquire.

Williamson's researches on the costs of transacting are not primarily focused on the ones which must be incurred ex ante. Williamson's researches are rather focused on the transaction costs that occur ex post. Ex post transaction costs are costs occurring after two parties have realized that they could both benefit if one of them supplied the other with some good or service, but before these two parties are able to effect this mutually beneficial transaction. Ex post transaction costs can be described as being more precisely: contracting costs (Williamson, 1996a: 177).

Indeed, once a given individual X who is looking to buy some good or service finds another individual Y who is willing to supply him with this good or service, then what needs to be done to effect this transaction is to establish the terms under which it will indeed be made. Williamson is in that regard convinced that it is mistaken to consider that all transactions are alike. Williamson rather believes that transactions can be

considered as being objects having the property to vary from one case to the next according to three different dimensions. They are: frequency, uncertainty, and asset specificity (Williamson, 1985: 52). Frequency, uncertainty, and asset specificity are, according to Williamson, the variables characterizing any transaction that must be taken into consideration to explain and/or predict the level of complexity of the contract that will have to be used to govern it. Contracts and, more specifically, the relative complexity of contracts therefore constitute the dependent variable of Williamson's researches about transactions.

Williamson's idea of a contract is very broad. Contracts can take many forms. Certain contracts can be rather informal. For instance, a contract can take the form of a simple handshake. But Williamson also sees organizations and institutions as being contracts. For Williamson, an organization such as a firm is a contract of a rather complex nature (when compared to a simple handshake) whose purpose is to govern the completion of a transaction between a buyer, and one or certain suppliers.

Frequency is the dimension of a transaction determining whether it will be worthwhile or not for the parties involved in it to spell out its terms formally on a piece of paper. Indeed if a buyer knows that he will need to be supplied in the foreseeable future many times with some good or service rather than just a single time, this buyer may want to economize on the ex ante costs of finding a suitable supplier. Once this buyer finds a suitable supplier, he may ask him to sign a contract with him indicating the number of times that he will have to supply him with whatever he is buying from him, when exactly this will have to be done, the price of each of these transactions, etc. Hence, as the frequency at which a given party is eager to buy or supply some good or service

increases, this party may feel the need to secure a specific partner or co-contracting party. To do so, this party may seek to sign a contract with the suitable buyer or supplier that it has been able to find in order to, so to speak, lock him up.

To make a long story short, when a transaction is positively characterized by frequency, uncertainty, and asset specificity, it is in such a case that it will make sense for the parties involved in that transaction to govern its completion by having recourse to a contract taking the form of an employer-employee relation. Indeed, frequency is one aspect characterizing most employer-employee relations. Most employees work for a specific boss or firm for a rather long period of time. So frequency is indeed one of the causes explaining the existence of this form of contractual arrangement generally known as employer-employee relations.

But, in Williamson's eyes, what really sets apart the employer-employee relation as a type of contracts from other types of contracts is not first and foremost its long-lasting aspect which is triggered by its high frequency. Authority is rather in Williamson's eyes the true distinctive and unique feature of the employer-employee relation. And authority is not a clause of a contract triggered by the frequency of the transaction this contract governs. This clause is rather triggered or explained by the two other attributes of transactions mentioned above: uncertainty and asset specificity.

Authority is what a party (in fact: a buyer) has over the other party with which it transacts when this party can write and modify the terms of the contract governing their transaction while the latter is in progress. That is why Williamson refers to the employer-employee relation as being an incomplete contract (Williamson, 1980: 17). But what is the point of contracting in an incomplete manner; that is to say, by leaving to a latter

point in time the task of filling out (i.e., of completing) the contract. Williamson's answer to this question is: adaptation.

An individual who accepts to supply some good or service to another individual as the employee of this other individual is a supplier who accepts to adapt whatever he provides this buyer according to how the latter tells him to do it (Williamson, 1980: 19). One reason why a given buyer may wish to obtain some good or service from a supplier who will be willing to adapt and, in fact, tailor whatever he provides him to his particular needs and demands is: uncertainty. Some buyer could need to be supplied with some good or service, but according to characteristics and specifications which may vary from one transaction to the next that cannot be foreseen in advance.

Asset specificity too creates a need for adaptation. An asset is defined as being anything material such as capital or immaterial such as knowledge that a supplier needs to have to produce some good or service. An asset defined in this way is considered by Williamson as being specific if this asset has value (in the sense that it is necessary for a given supplier to use it to produce some good or service) only in the context of a transaction effected with a specific buyer (Williamson, 1996a: 59). In other words, an asset is specific if it is not necessary to use it to supply some good or service in general, except in the case of a particular buyer. Here is what Williamson has to say about asset specificity as a variable on which depends the level of complexity of contracts:

«The importance of asset specificity to transaction costs economics is difficult to exaggerate. ... Absent this condition, the world of contract is vastly simplified; enter asset specificity, and non-standard contracting practices quickly appear. ... Whenever assets are specific in nontrivial degree, increasing the degree of uncertainty makes it more imperative that the parties devise a machinery to 'work things out' –since contractual gaps will be larger and the occasions for sequential will increase in number and importance as the degree of uncertainty increases. » (Williamson, 1985: 53 and 56)

The only word missing from this quotation to really summarize Williamson's understanding of the firm is 'authority'. Here Williamson rather uses the expression: 'machinery to work things out' to refer to authority. But, to come back to the question of the firm and especially to Coase's challenge about the *raison d'être* of the firm, Williamson's answer to the latter could be summarized in the following way. Williamson agrees with Coase about the fact that the firm and the market are not one and the same. The difference between the firm and the market is that they constitute different kinds of contracts to effect transactions. The market, when seen through the lens of transaction cost economics, can be described as being a kind of contract of a rather simplistic or minimal nature. A transaction takes place in the market when the would-be buyer of some good or service does not have to strike an elaborate or complex contract with the supplier of his choice to obtain this good or service from the latter.

On the other hand, a firm is a transaction between a buyer and a seller in which the buyer exercises authority *vis-à-vis* the seller or supplier. The authority the buyer exercises *vis-à-vis* his supplier when he is the boss of the latter allows him to adapt the services that he obtains from him at his convenience. In fact, Williamson explains the

fact that bosses usually pay their employees according to the time they put in to produce the good or service they supply him with rather than according to their relative productivity because: (i) at the moment where the employment contract is struck, it is not yet specified in details what the boss will ask his employee to do for him and, (ii) the boss wants to make sure that pecuniary considerations will not deter any of his employees to accept his orders to do what he tells them to do. Indeed, if some employee is paid according to the time he spends working for his boss rather than in terms of how he uses his time while he works for his boss, doing one thing or the other while he is 'on the clock' should not bother him too much, and hence this should incite him to do whatever he is told to do.

In the end, Williamson reconciles the market and the firm by saying: they can both be seen as contracts governing transactions, but they differ in terms of how they each accomplish that. In the firm, the contract governing the transaction between the buyer and the supplier gives to the buyer the authority to adapt the services that he obtains from the seller according to his particular needs and wishes. In the market, a would-be buyer can trade with different suppliers, but he has to take what each of these suppliers has to offer as is so to speak. In the market, the buyer can negotiate the price he will pay to obtain some good or service. But, with respect to the intrinsic qualities of the good or service that a buyer is looking to acquire, the choices available in the market are restricted to what the different sellers supplying this market respectively have in stock. In regard to the qualities of the goods that each of the sellers offer, the buyer in the market can only either buy or not buy what he is offered. Market

transactions are, from the perspective of the buyer, of a kind that could be described as being: take it or leave it.

2.2.4: Critiques and shortcomings of transaction costs economics

In his researches, Williamson has paid much more attention to what he calls 'non-market transactions' than to market transactions because it was the former whose legitimacy (especially in terms of their relative efficiency) constituted a problem to solve for economists. It is safe to say that Williamson is the one who has developed the most convincing explanation for non-market transactions, and more generally for the existence of mechanisms other than the market to allocate resources in society. But, for some, Williamson has gone a little too far with respect to answering Coase's challenge.

Indeed, it is one thing to explain the existence of firms and, especially, to have a rationale explaining why not all transactions are effected in the market. But are all non-market transactions legitimate in terms of their relative efficiency at allocating resources? Does there exist cases of transactions that are effected under governance structures (i.e., contracts) other than the market that could be effected more efficiently if they were instead completed in the market? This question has been raised because, thus far, Williamson has never encountered a single transaction effected in a non-market contractual arrangement which, after diligent researches, he has not found to be effected in the most efficient manner possible contractually speaking. The firm (Williamson, 1980 and 1985), the exchange of hostages (Williamson, 1985), the public service (Williamson, 1999), vertical integration leading in certain cases to monopolistic situations (Williamson, 1985), you name it! Williamson has studied them all at one

point or the other during his long academic career and has found them all to be legitimate; in the sense of positively contributing to the efficient allocation of resources in society. Given that Williamson has never encountered in his whole career a single transaction effected under an inefficient contractual arrangement, one could ask if the fruit of Williamson's researches is not, as he claims, a theory predicting the kind and, especially, the complexity of the contract that will govern the completion of any transaction, but rather a more or less elaborate ex post rationalization for any kind of non-market transactions one may encounter at any place and moment in time.

Indeed, Williamson believes that some sort of invisible hand guides the parties who wish to effect a transaction with respect to the kind of contracts they will choose to use to govern its completion. In Williamson's eyes, individuals *always* opt for the most efficient contractual arrangement to transact. This has the effect of giving to Williamson's researches on organizations and institutions a kind of 'don't worry, be happy' glow. The fact that Williamson has never in his career encountered a single transaction effected under the wrong kind of contractual arrangement given the attributes of this transaction is, therefore, the main critique that can be addressed to Williamson's researches and, more generally, to transaction cost economics.

The point we want to make here is not so much a critique of Williamson's transaction cost approach to the firm, but rather simply an observation about the results that have come out from this theoretical approach to the study of the firm. Through the lens of transaction cost economics, the only thing that can be studied about the firm is its relative efficiency at allocating resources. Of course, some may say: assessing the relative efficiency of the firm (especially in comparison to the market) at allocating

resources was the challenge posed by Coase back in 1937. By finding out the firm does contribute to the efficient allocation of resources in society, Williamson has done what he had set out to do in the first place: answering Coase's challenge.

But is the relative efficiency of the firm at allocating resources the only question worth investigating about the firm? This is doubtful. For instance, conflicts often occur in firms between an employer and his own employees. In that regard, it is safe to say that employer-employee relations are not always harmonious. In the past, some of the conflicts that have occurred in firms have even degenerated into bloody affairs.

We consider it can be taken as being a fact (an empirical fact) that conflicts often occur in employer-employee relations. But what does transaction cost economics, and more generally economics as a whole, have to say about this? Not much. Transaction cost economics has experienced a rather hard time explaining the existence of unions in firms. The reason is that Williamson sees the union once again through the lens of transaction costs. A union, just like a firm, an exchange of hostages, the public service, etc., is a contractual arrangement. As a result, a union can only owe its existence to one cause only, namely: minimizing transaction costs.

If it is costly to transact, then transaction costs affect equally in the end all those who take part in a transaction. The cost of effecting a transaction therefore has to be shouldered by all those taking part in a transaction. As a result, if some form of contractual arrangement is the one minimizing the costs of completing a given transaction, all the parties involved in that transaction (i.e., the buyer and the seller) should prefer to complete it under this contractual arrangement than under any other. If

this reasoning is applied to unions, this would mean that the employees of a given firm should be unionized only if *both* the employer and the employees of this firm consider they could transact at a lower cost with each other if the employees were unionized. This reasoning raises the following question: why do employers usually resist and, in fact, do everything they can to crush the attempts made by their employees to form a union?

Indeed, about unions, only one of two following statements can be true under the lens of transaction cost economics: either the unionization of the employees of some firm reduces the costs of the transactions effected in it between the employer and the employees or, it does not. Because of this reasoning, Williamson is puzzled by the resistance employers often offer to their employees when they attempt to form a union to negotiate the terms of the contract governing the transactions they effect with him. Williamson cannot even rationalize in an ex post fashion the conflicting aspect of many employer-employee relations. In fact, Williamson is at a loss explaining why employees need the assistance of the state (i.e., coercion) to get their employers to recognize their union. About this question of why employers often resist the attempts made by their employees to form a union, Williamson ends up saying the following:

«The mutual interest between workers and firm in protecting the employment relation against exploitation by the other should have given rise to ‘company unions’ in the pre-Wagner Act era. Although there evidently were some developments along those lines, they were scarcely widespread. Whether that reflected lack of knowledge of the benefits, apprehension over the potential monopoly uses of collective organization, or the fact that the efficiency benefits were rarely great is unclear. » (Williamson, 1985: 255)

In this quote, Williamson offers various reasons that could explain why, unlike his transaction view of the firm leads him to predict, employers seldom make it easy for their employees to form unions in the firms they operate. He even goes as far as suggesting that maybe, just maybe, employers have failed to see the benefits that could be realized in terms of reducing the cost of transacting with their respective employees that their unionization can produce. If this last hypothesis would turn out to be true, this would contradict Williamson's view that parties always opt to transact according to the contractual arrangement having the effect of minimizing the costs they have to incur to do it. As well, in the quote, Williamson alludes to the Wagner Act, and hence to politics and the state. If there is one thing Williamson cannot explain about the firm, and especially about unions, it is certainly why a union usually needs the help of the state and its coercive hand to set foot in the firm.

2.2.5 Conclusions about how power is conceptualized in economics

All this to say that the existence of firms has posed a major problem to standard economic theory, given that the latter considers the market as an efficient mechanism to allocate resources. What economists find troubling about the firm is that, on the one hand, it is undeniable that it plays a part in the economic system by which resources are allocated in society and, on the other hand, power appears at first sight to be a significant feature of the firm. In light of these two considerations, the question that Ronald Coase initially raised some seventy years ago was: does the firm help or hinder the efficient allocation of resources in society?

The prevailing view in economic circles is that the firm does lend a helping hand to the market in the quest that the latter relentlessly pursues to allocate resources efficiently in society. However, one condition that the firm must fulfill to be seen as being a productive (or even desirable) component of the economy is: taking power out of the firm. In order to ascribe to the firm a positive impact on the allocation of resources in society, economists have found it necessary to refute the idea that power is exercised in the firm. To do that, certain economists have argued that the firm and the market are one and the same. More precisely, it has been argued that the boss has no more power on his employees than a buyer has on any of his suppliers. Others, such as Williamson, have decided to retain this idea put forward by Coase that the firm and the market are not alike. To reconcile the firm and the market, they have rather decided to take power out of the firm to replace it by something else such as authority in Williamson's case.

One possibility that economists have not yet explored to shed some light on the firm is the one of changing how they conceptualize power. Indeed, despite all the shortcomings of the transaction cost approach, Williamson remains adamant in his view that power is not the way to go to shed light on the firm, and more generally on society as a whole. In that regard, Williamson says: «I submit that there is less to power than meets the eye. » (Williamson, 1996b: 23) But, good prince that he is, Williamson offers advice to those who would like to use the concept of power to study social events: «Power will not shed its tautological reputation until a unit of analysis has been named and dimensionalized. Conceivably, the transaction is the basic unit of analysis in the power arena as well. » (Williamson, 1996b: 24)

Williamson raises a fundamental point in this last quote. This point is: if power is indeed exercised in certain social events, then what is the object of power? Williamson suggests postulating that the object of power is transactions. However, in the dissertation, we will not follow Williamson's advice of making of transactions the object of power.

Thus far in this literature review we have discussed power only by referring to the literature written by economists concerning this concept. Given that economists usually find it necessary to first of all get rid of power to make sense of any event of a social nature such as the firm to model it we will, at this juncture, part company with economists to investigate further the question of the exercise of power in society. We will now turn our attention to what Michel Foucault has to say about power. Especially, we will consider how Foucault believes power has to be conceptualized to study events in which power is exercised.

2.3 Foucault and power

2.3.1 A general overview of Foucault's researches

Who was Michel Foucault? Foucault was a French philosopher born in 1926, who died in 1984. Foucault is unknown to the vast majority of economists. However, even though Foucault is usually classified as a philosopher, he is well-known in many disciplines of the social sciences such as political science and sociology. Another point worth mentioning about Foucault is that, even though he was French, he is well-known in Anglophone academic circles. Basically all his publications have now been

translated into English. In fact, nowadays, Foucault's work is more often quoted and discussed in English than in French. Foucault is especially appreciated in the US. In fact, in the early nineteen eighties, Foucault taught in the US.

All this to say that Foucault is far from being an unknown in Anglophone academic circles related to the social sciences, with the notable exception of economics. But does Foucault's work have anything to offer to economics? We believe so. The very first time we have realized that Foucault's views concerning power could be transposed in rational theory is when we encountered a small, somewhat out of place, sentence in one of Foucault's most well-known book entitled in English: *Discipline and Punish: The Birth of the Prison*. This book about prisons is more specifically about the 'modern way' to deal with criminals.

In this book, Foucault tries to explain how the criminal has come to be seen as someone who could be reformed in the sense of being shaped or reshaped into someone who can be a productive member of society; as opposed to the previous view of the criminal who was rather seen as being someone who had trespassed against the will of the king and who, for that reason, needed first and foremost to be fittingly punished. In this book, Foucault explores how we have gone from a prison system and, more generally, a judiciary system whose main purpose and *raison d'être* was to punish criminals and offenders in a public fashion by very often using cruel and violent means, to a system hiding convicted criminals from public view in institutions called prisons in order to attempt to re-claim them so to speak. Suffice it to say at this point that Foucault sees in this shift of how criminals are treated by society something other than a humanization of the latter. Foucault is far from being convinced that the reason

why criminals are no longer treated as human wastes who deserve to be inflicted corporal punishment for their crimes is that our society has evolved and progressed because it is more kind and enlightened than before.

In this now classical book about criminality can be found the following sentence which, we believe, flies in the face of everything that economics has thus far had to say about power: «Discipline increases the force of the body (in economics terms of utility).» (Foucault, 1984a: 182) To an economist unfamiliar with Foucault's work, the part of the sentence preceding the brackets may not be very clear. To make it clearer, recall what has been said earlier in this chapter about power. Economists usually define power by using negative terms such as abuse, exploitation, oppression, repression, etc to describe the effects power has on those on whom it is exercised. But, for Foucault, the effects that power has on those on whom it is exercised are better described by terms such as training, disciplining, and teaching than abuse, oppression or repression. Exercising power for Foucault means getting an individual to do something in a specific way.

But the reason why we have quoted this passage from Foucault's work is not to explain how Foucault conceptualizes power. Let us leave aside for the moment how Foucault defines power. No matter how one prefers to define power, the part of the quote reproduced in the previous paragraph that should stand out in the eyes of anyone trained in economics is the one in brackets where Foucault directly associates power with utility. And one thing that can be said about how Foucault links power to utility is that Foucault makes it amply clear what kind of utility he considers power generates by being exercised on anyone: economic utility! Any well-trained economist who reads

this sentence should, upon reading and somewhat understanding it, have the following gut reaction: what? No one has ever included power as an argument in utility functions. Yet this is exactly what Foucault is saying in that sentence. In the sentence, Foucault says: one way to obtain more utility from anybody (more generally: from anyone) is to exercise power on this person.

This idea that an individual could increase his personal welfare or level of utility by exercising power on either himself or, on someone else flies in the face of everything that economics in general, and especially transaction cost economics, presently stand for. Indeed, one thing that Williamson claims must be done to study contracts, institutions, organizations and, more generally, non-market transactions is: the transaction must be made the basic unit of analysis. But, what does Williamson exactly mean by making of the transaction the basic unit of analysis?

Well, Williamson is an economist. Williamson is well aware that the object of study of economics is wealth. That being said, to make sense of contractual arrangements, Williamson believes that one must establish a clear distinction and, in fact, a clear separation between, on the one hand, the logic leading individuals to trade and transact with one another and, on the other hand, what has to be done to effect any transaction. Indeed Williamson believes like all economists that the reason why parties make transactions is to increase their respective level of welfare.

However Williamson considers there are costs that parties have to incur to improve their respective welfare by transacting with each other. What we are attempting to say here is that Williamson considers that parties cannot improve their personal welfare by devising contracts. Contracts, in Williamson's eyes, do not

constitute an argument of utility functions. The utility experienced by any individual is not function of the number of contracts he is able to strike with other people, nor of the complexity of the contracts this individual is able to strike with other people. It is not for nothing that Williamson has given to his theory on institutional choice and contractual arrangements the name: transaction cost economics. Putting time, effort, and energy to elaborate a contract (especially a complex one) can only have one effect on the welfare of any individual: reducing it.

Or course, as explained above, Williamson has found it necessary to take power out of the firm to be able to describe it as a productive mechanism by which resources are allocated in society. Williamson has replaced power by authority in the firm. In this respect, recall that Williamson associates authority with adaptation. Exercising authority in a transaction means, according to Williamson, being able to unilaterally modify the terms of the contracts that govern this transaction. According to Williamson, what a boss does in the firm is precisely exercising authority vis-à-vis his employees. And what happens in the firm according to Williamson when the boss exercises authority in it vis-à-vis one of his employees? The boss changes the terms of the contract specifying what this employee, as one of his suppliers, is in charge to provide him with. Hence, if exercising authority in a transaction means re-writing the terms of the contract governing it, exercising authority in the firm is purely a cost: a transaction cost. Exercising authority in Williamson's eyes is, therefore, not welfare-enhancing at all. It is rather the other way around. That is, it is costly.

In light of these considerations, the reader can better appreciate why the short sentence quoted above from Foucault flies in the face of everything that transaction

cost economics stands for. Williamson takes power out of the firm and replaces it by authority. Yet, even though Williamson does not describe authority in negative terms, Williamson does not go as far as making of authority an argument of utility functions. Williamson describes authority as being a cost, a necessary evil so to speak, that a party must sometimes accept to incur to be able to transact profitably with another.

However, in Foucault's case, not only does he refrain from taking power out of the firm, but he goes as far as suggesting in a manner anything but ambiguous that one thing that must be admitted about power in order to use this concept to study what goes on in society is including power directly in the utility functions of individuals as one of the arguments on which they depend. We do not know if the reader is at this point convinced that it is a great idea to include power as an argument in the utility functions of individuals. But, at any rate, this is precisely what we do in the dissertation. We do it no later than in the next chapter where we develop the games we use to model relations generated by actions. In fact, in chapter three, not only do we include power in the utility functions of individuals who are involved in relations, we also make an important assumption about how the exercise of power in relations may affect the welfare of the individuals involved in them. In that regard, we assume the power that any individual involved in a relation personally exercises in it cannot negatively affect his own welfare. Not only do we directly link power to utility. We also claim that, in certain cases, power can only be positively linked to utility!

The main idea about power put forward by Foucault that we are borrowing him is, therefore, the one of directly linking power to utility. There are, however, a certain

number of other ideas put forward by Foucault we also borrow from him. We acknowledge this in the next subsection.

2.3.2 Foucault's views on power

Above, we have given a short biographical notice of Michel Foucault. We have notably labelled Foucault a philosopher. However, Foucault did not see himself as a philosopher. Foucault was rather inclined to describe his researches as being a history of the present.

In this respect, as mentioned above, Foucault has written about criminality. That is, about how society has dealt with criminals at different points in time in history. Foucault has also written about madness and also, more famously, about sexuality. Concerning this last topic, what Foucault has written is in fact a four volumes series entitled: *A History of Sexuality*.

Foucault's researches are first and foremost empirical. More precisely, they are historical. This in good part explains why Foucault has never wanted to be considered as a 'theoretician' of power. Foucault's interest in the concept of power rather stems from the fact that his researches on the history of the present have led him to encounter many discourses blaming real or perceived shortcomings of either the present or, of the past on Power (with a capital P indeed). A good example of this can be found in the initial chapter of the first volume of Foucault's series on the history of sexuality where Foucault discusses a topic that was fashionable at the time he wrote the book (the mid nineteen seventies): sexual liberation.

«For along time, the story goes, we supported a Victorian regime, and we continue to be dominated by it even today. ... But have we not liberated ourselves from those two long centuries in which the history of sexuality must be seen first of all as the chronicle of an increasing repression? ... We are informed that if repression has indeed been the fundamental link between power, knowledge, and sexuality since the classical age, it stands to reason that we will not be able to free ourselves from it except at a considerable cost; nothing less than a transgression of laws, a lifting of prohibitions, ... » (Foucault, 1984a: 292 and 294)

As this quotation reveals, sexuality has been and still is considered by many as one of the targets of power. Like all the targets of power, sexuality is not improved by the fact that it is the object of power. Sexuality is rather repressed by power. The goal that power pursues vis-à-vis sex is to prevent people to live and express their sexuality as they see fit. The main predatory effect that power has on sex is to take enjoyment and pleasure out of it. One thing this quotation reveals is, therefore, that economists are far from being the only ones having a negative/predatory conception of power.

One thing that Foucault has noted about the discourses of those that talk about power in strictly negative/predatory terms is that these people usually have something in their back-pocket to peddle. Those who see power in purely negative terms usually believe that a world without power is possible and, in fact, that a world without power would be a better one. Economists in that regard illustrate this point very well. Indeed, economists are more than mere students of the economy. Economists are also the main advocates of a particular mechanism to allocate resources. This mechanism is the market. And, as it is well known, economists consider that when a market is competitive, none of those that participate in the transactions that occur in this market are submitted to the power of anyone else.

This sort of discourses held by many economists describing the competitive market as an oasis of freedom and liberty because power in a competitive market is absent also exists in the case of sexuality. In the case of sexuality, people have argued that getting rid of certain laws, prohibitions, and social taboos was all that it took to have what they call: sexual liberation. Throughout the various topics such as sex, criminality, madness, that Foucault has studied in an empirical/historical fashion to write the history of the present Foucault has, each time, encountered this sort of discourses in which power plays the role of the bad guy. Discourses promising that, once power will be defeated, progress and evolution will automatically follow in order to bring society into a state of bliss whose advent will mark the end of history as we know it. That is, the end of all problems, conflicts, and wars of any kind.

It is first and foremost because Foucault found suspicious these discourses that blame power for all the evils of this earth he decided to pay closer attention to the question of the exercise of power in society. Indeed, when one such as Foucault sets out to write a history of the present, one question this person will likely ask herself at one point or the other is certainly: is our society about to enter into some sort of golden age, some sort of state of bliss, where finally all problems are going to be solved once and for all? It is, therefore, most likely because Foucault was not that much impressed by the present and optimistic regarding the future that he started to question the negative conception of power.

And, obviously, the main problem that Foucault had with the negative conception of power is that, no matter the topic to which the negative conception of power is applied, it always comes accompanied with a promise of liberation; a roadmap to the promise

land. Given that Foucault was not convinced we are on our way to the promise land and, in fact, that Foucault had no idea concerning what a perfect world or society would or should be like, Foucault has not replaced the negative conception of power he has encountered in all his researches with another one that would make the effect of making of power the most benevolent and beneficial thing that has ever been given to mankind.

If anything, Foucault has rather developed what could be described as a more neutral (i.e., a less normatively charged) conception of power. Indeed, what is power? Where can it be found? About the first question concerning 'what is power', Foucault has ultimately decided to define it as being: 'the conduct of conduct'. (Foucault, 1984b: 313) In other words, power is what an individual has when he is able to inform, to shape, to determine how anyone acts and behaves. Exercising power means getting someone to act and/or behave in a specific way. That is why, Foucault also defined power as: 'a set of actions upon other actions' (Foucault, 1982: 220).

This definition of power is rather neutral because it does not specify if it is good or bad that anyone acts in a specific way. However this other, more neutral, definition of power has major implications in terms of the kind of questions that will be considered as being worthwhile to investigate about any social event in which power appears to be exercised. Notably: if exercising power means having determined the way an action is performed, it is in such case rather pointless to hope for the advent of a world entirely purged of power. This idea of measuring progress, evolution and enlightenment in society by taking into account the extent to which the exercise of power in it is reduced or, even better, terminated once and for all becomes pointless. The reason is that, each time an

action is performed, it is likely that someone has determined the way this action is performed, and consequently that someone exercises power on whoever performs it.

What Foucault therefore sees in either the end of corporal punishment to deal with criminals or, with the lifting of prohibitions and social taboos regarding certain aspects of sexuality such as homosexuality, abortion, and sexual relations between unwedded couples is not at all an end to the exercise of power concerning these different aspects of social life. What Foucault rather sees in these social changes is rather a change of, notably, the ends pursued by those who exercise power concerning these actions by coming up with new ways to perform them, accompanied with new techniques to do so. In the case of criminality for instance, it is not because criminals are no longer subjected to corporal punishments that they have been freed, especially of power. On the contrary, the power that is exercised on convicted criminals no longer seeks to make them suffer according to a level of intensity equal to the severity of their crimes, but rather to rehabilitate them by imparting them with skills and knowledge which will allow them to become productive members of society once they are freed. Power in this case is certainly exercised with different intentions in mind and by the means of entirely different techniques and instruments, but power is still exercised.

It is because Foucault wanted to write what amounted to a history of the present that he was led to pay closer attention to power, and especially to the theoretical question of how power should be conceptualized in a social context. However, in our case, our goal in what follows is not all to pursue Foucault's project of writing a history of the present. Our goal, as stated in the introduction of the dissertation, is to be able to model relations generated by the performance of actions as games such that it becomes possible

to predict how this sort of events are likely to unfold. That is why, we will not pursue here any further the review of Foucault's historical researches about sexuality, criminality, madness, etc.

What we borrow from, and consequently owe to, Foucault is a certain number of ideas and, in fact, of concepts pertaining to power; starting with the concept of power as such. Above, we have already given the definition we give to the concept of power. Power will be defined in what follows as: *the action of having determined the way an action is performed*. Power is, therefore, an action (something an individual does) whose object is another action. In addition to this way of defining power (which is a slight variation of Foucault's definition of power rather than being the word-for-word definition that Foucault gives to this concept), we also use certain ideas put forward by Foucault concerning how to conceptualize social events in which power is exercised.

One of these other ideas we have borrowed from Foucault is the one of using the word *relation* to refer to events in which power is exercised. Indeed Foucault thought that, whenever individuals are in relation, it is most likely that someone involved in that relation exercises power in it. Foucault was even inclined to think that power is what has the effect of putting individuals in relation. Hence the fact that Foucault often used in his writings the expression 'power relations'. (Foucault, 1984b)

In our case however, we dissociate to some extent the concept of relations from the one of power. More precisely, we do not talk of power relations. What we talk about in the dissertation are rather: relations generated by the performance of actions. What we postulate has the effect of putting two individuals in relation with each other is not that at least one of them exercises power on the other, but rather the fact that at least one of them

performs an action having the effect of affecting not only his own welfare but also the welfare of the other. So, in our case, it is more accurate to talk about relations generated by the performance of actions than power relations.

However, it is not because we replace the concept of power relations by the one of relations generated by the performance of actions that we take power out of relations. On the contrary, we assume that power is exercised in relations generated by the performance of actions. The reason is that, to model relations generated by the performance of actions as game, the main concept we use to do so is power. Defining power as the action of having determined the way an action is performed makes it possible to identify at least two different outcomes any relation generated by the performance of an action can have. Identifying at least two different outcomes an event can have constitutes the main thing that has to be done to be able to model this event as a game.

This literature review was written by having in mind how an economist may react to the idea of including power as an argument in utility functions. But what about members of academia, other than economists, that have an extensive knowledge of Foucault's researches and especially of Foucault's conception of power? One question these people may ask and, hence, raise is whether Foucault would approve to see his conception of power used in researches conducted by using the deductive methodology. This question is legitimate since it has been asked to us many times before.

To those people who think Foucault would not be thrilled at all to see certain of his ideas about power used in researches conducted by the means of a rational/deductive approach, we will conclude this literature review by quoting the following passage from a conference given by Foucault in 1974. In this quote, Foucault discusses his researches,

and especially the methodology he uses to conduct them. In that regard, as mentioned previously, Foucault's researches were empirical and, in fact, historical in nature. To conduct his researches, Foucault therefore had to, first of all, gather data and evidence. The main source from which Foucault got the data he uses to carry out his researches on the history of the present are what he broadly called: discourses. Here is how Foucault describes his method to analyze discourses:

«The second line of research is a methodological one, which might be called 'discourses analysis'. Here again there is, it seems to me, in a tradition that is recent but already accepted in European universities, a tendency to treat discourse as a set of linguistic facts linked together by syntactic rules of construction. A few years ago, it was original and important to say and to show that what was done with languages –poetry, literature, philosophy, discourse in general- obeyed a certain number of internal laws or regularities: the laws and regularities of language. ...

Then, it seems, the moment came to consider these facts of discourse no longer simply in their linguistic dimension, but in a sense –and **here I'm taking my cue from studies done by the Anglo-Americans- as games, strategic games of action and reaction, question and answer, domination and evasion, as well as struggle.** On one level, discourse is a regular set of linguistic facts, while on another level it is an ordered set of polemical and strategic facts. **This analysis of discourse as a strategic and polemical game is, in my judgment, a second line of research to pursue.** » (Foucault, 1974)

We will readily grant that Foucault was not a rational theorist. However, one thing that cannot be denied about Foucault's take on power and, especially, on what Foucault calls power relations is that the main thing to which he compared power relations are games. Foucault frequently warns his reader in his various writings to not conceive power

relations as being fixed, frozen in time, and set up such that they must necessarily have a particular outcome. Foucault rather conceived power relations as being games whose outcomes are the result of the tactics and strategies used by those involved in these relations; and consequently whose outcomes can be changed.

What we like about the quote reproduced above is not so much the fact that Foucault makes reference in it one more time to games, tactics, and strategies. It is rather the fact that Foucault explicitly credits Anglo-Americans literature to have inspired him with this idea of comparing power relations to games. Indeed, even though Foucault does not cite any specific Anglo-American author in this quote, who could he have been really thinking about when he talked about the Anglo-American literature that deals with games of a strategic nature that can be used to model social events? That sounds a lot to us like game theory. Now, which discipline of the social sciences is most associated to game theory? Economics without a doubt. Moreover, game theory can be considered as a branch of rational theory since game theory is first and foremost deductive in nature.

It can thus be argued that Foucault borrowed ideas developed by economists and rational theorists to develop his personal method to analyze discourses. Now, we believe that it is time to return the favour so to speak. It is time (given that it is possible) to borrow certain concepts and ideas developed by Foucault to develop new rational theories of social phenomena such as politics and policymaking. This is precisely what we do in the chapters that follow.

2.4 Power in political science

Power in political science is conceived as being a strictly political phenomenon. Having power in political science is defined as being able to impose one's political views and program despite the fact they are contrary to the interest of others in society⁹. It can therefore be argued that, in political science, power is conceived as being synonymous with winning and, in fact, with ruling. Those who have power in society are essentially those whose interest is protected and promoted by state policies.

The main research question political scientists investigate about power in society is: who has power? That is to say: who rules society? For instance, in *Who Governs*, Robert Dahl seeks to find out who has power in society by:

‘...determin[ing] for each decision which participants had initiated alternatives that were finally adopted, had vetoed alternatives initiated by others, or had alternatives that were turned down. These actions were then tabulated as individual *successes* or *defeats*. The participants with the greatest proportion of successes out of the total number of successes were then considered to be the most influential.’
[Italics added by us]¹⁰

Dahl's interest in power is, therefore, purely empirical and factual. Dahl takes it for granted that, in any society, some have power whereas others do not. Dahl's research program about power in the 1960s essentially consisted into finding out who has power in the United States of America. Dahl's research program about power has, later on, been

⁹ That definition of power in political science is actually one we have synthesized from various definitions of power provided by political scientists. For a thorough review of the various definitions of power provided by political scientists, see for instance Ledyaev (1992: 3-22).

¹⁰ As quoted by Steven Lukes (2005: 17).

criticized by some political scientists¹¹ mainly because Dahl is not critical enough concerning the question of who has power in society in light of the results of the researches he has conducted in that regard and silent about the question who should have power in society. Some political scientists, like Steven Lukes, prefer to investigate about power the question who does not have power in society and also why¹².

Foucault did not believe that power is solely, and in fact primarily, a political phenomenon. In that regard, Foucault rather considered that power is everywhere (1976: 122). About power, Foucault was more concerned by the question how power is exercised in society than by the question who has power in society.

In political science, the question how power is exercised appears to be answered by assuming that power is gained in society by defeating either in the political arena or, on the battle field those whose interest is contrary to one's. Defeating those whose interest is opposed to one's automatically gives power over them. In political science, power is therefore conceived as being one of the main spoils of war.

For his part, Foucault was rather convinced that exercising power requires using technique and also strategy. In his researches, Foucault mainly paid attention to the technical aspect of power. In our case, we mainly pay attention to the strategic aspect of power.

About the strategic aspect of power we demonstrate that, in some cases, exercising power may indeed require waging a conflict of a political nature against someone else. For instance, firm's employees may have to go after the right of their employer to choose who he employs to exercise power in it. To exercise power in the

¹¹ Lukes in that regard states that Dahl was mainly criticized by Peter Bachrach and Morton S. Baratz (2005: 15).

¹² Lukes exposes his view on power and research agenda about it in: *Power: A Radical View* (2005).

firm, employees may therefore have to fight their own employer in the political arena about the policy issue of the formulation of the right he exercises to choose who he employs and, especially, to defeat him on that matter. However, it does not follow from that result that exercising power always requires fighting others. In that regard, we demonstrate that exercising power requires using a strategy only when one depends on someone else to exercise it. In addition, waging war against someone else only constitutes one strategy, among many others, that can be used by someone who depends on someone else to exercise power.

In the dissertation, we therefore do not adopt the view that power is essentially a political phenomenon. Power becomes a political issue only when some have to fight others to exercise it. Whether it is going to make sense or not to fight someone else to exercise power, in turn, depends on the constraints one faces to exercise it.

CHAPTER 3

A MODEL OF RELATIONS GENERATED BY THE PERFORMANCE OF ACTIONS

3.1 Introduction

In this chapter we develop a model of *relations generated by the performance of actions*. Recall that a relation is defined as an event occurring when the performance of an action affects the welfare of not only the one who performs it, but also the welfare of at least one other. Any relation generated by an action therefore, by definition, involves someone whose welfare is affected by the performance by someone else of an action.

We shall model any relation defined in that way as a game. Before going any further, we shall explain what it means to model any social event such as a relation generated by the performance of an action as a game. We explain this in the following subsection.

3.1.1 The model of a game

Games are used in rational theory to model dependency (Mas-Colell et al. 219). Dependency is conceived in rational theory as a phenomenon occurring when an individual has preferences about something he is not able to entirely realize all by himself; that is to say, without the help, concurrence, the assistance of at least one individual other than him. If X cannot realize his preferences about something without Y's concurrence, then X will be considered as being dependent on Y in that regard. Any

case or situation where some individual X depends on another individual Y to realize preferences about something can be modeled as a game that X must play with Y to do so.

From this definition of dependency, it can be seen that dependency is essentially conceived in rational theory as a constraint. Given that dependency is modeled as a game, overcoming this constraint requires on the part of anyone who experiences it to realize preferences about something playing the game which happens to best model it by using the strategy which, among all those that can be used in that regard, has the effect to maximize the chances of realizing these preferences.

There are different kinds of games that can be used to model dependency as defined above. The reason is that, in rational theory, it is always assumed that the individual Y on whom X depends to realize preferences about something entertains preferences of his own too about this same thing. What is constraining when some individual X depends on another individual Y to realize preferences about something is, therefore, not only the fact that X has to go through someone else to realize these preferences. It is also the fact that the individual Y on whom X depends to realize preferences about something is someone who cares too about this same thing to the point of having, just like him, preferences about it.

The kind of game X will have to play with Y to realize preferences about something will mainly be determined by the extent to which X's preferences about this thing *diverge* from the ones of Y. In this respect, there are three different extents according to which the preferences of two individuals X and Y about the same object can possibly diverge. The preferences two individuals X and Y each have about the same thing can either: not diverge at all or, partially diverge or, totally diverge. Let us note that

it is when the preferences two individuals X and Y respectively have about the same thing totally diverge that the game modeling the dependency that at least one of them experiences vis-à-vis the other to realize them could be zero-sum.

The model of a game is, therefore, the one we use to model any relation generated by the performance of an action. Modeling a relation as a game basically means postulating about this relation that, among all those involved in this relation, at least one of them depends on someone else also involved in the relation to realize his preferences about the action generating it. This implies that a relation can objectively be described as an event involving not only someone whose welfare is affected by the performance by someone else of an action, but also as an event involving someone who depends on someone else to realize preferences about an action. Very often, an individual whose welfare is affected by the performance by someone else of an action is going to be dependent on the person other than him who performs this action to realize his preferences about it. The main reason why dependency, and consequently games, occurs about actions in society is, therefore, that the performance of actions sometimes affects the welfare of individuals other than the ones who perform them.

This chapter is technical in nature. What we do here is explaining how to model any relation generated by the performance of an action as a game. The main question we answer in this chapter is: what are the different kinds of games that can be used to model relations. This question can also be expressed in the following way: what are the different kinds of dependency that can occur as a result of the fact that the performance of an action affects the welfare of not only the one who performs it, but also the welfare of someone else.

In the chapter, we demonstrate that there are basically five different kinds of games that can be used to model relations. On this basis of this result, it can be concluded that relations are not all alike. With the help of the games developed in this chapter, it is possible to predict the tactics those who depend on others to realize preferences about an action could rationally use to realize them. We study this question in the chapters that follow.

In this regard, we demonstrate that one of the tactics an individual who depends on someone else to realize preferences about an action can, in certain cases, rationally use to attempt to realize them is to make of the dependency that he experiences toward this other person a political issue by going after a right this other person can exercise about this action. What we demonstrate later on in the dissertation is, therefore, that dependency is what causes controversies of a political nature to occur in society concerning the formulation of rights exercised about actions. It is because individuals sometimes depends on others to realize preferences about actions that controversies of a political nature can occur in society concerning the formulation of rights exercised about actions.

3.1.2 Overview of the model

Games model dependency. In light of the definition of dependency stated above, it can be seen that dependency is first and foremost a subjective phenomenon. Individuals are not born (i.e., individuals are not intrinsically) dependent on anyone else. If X is dependent on someone else such as Y, it is because X has developed preferences about something whose realization requires that Y lends him a hand to be realized. It is,

therefore, X's desire to realize preferences about something that X cannot realize on his own that has the effect of putting X in a situation where he is dependent on someone else.

Despite the fact that dependency is a subjective phenomenon, it is nonetheless possible to describe any game (i.e., any situation of dependency) in a purely objective fashion. Objectively speaking, a game can be described as being constituted of three distinct elements, which are: (1) a structure, (2) a payoffs configuration and finally, (3) a set of rules¹³. The structure of a game is what is obtained by displaying the different outcomes of the game all at once. The structure of a game can be considered as delineating its playing field. The reason is that the structure of a game is the place where the game is played.

The second element of a game is its payoffs configuration. Those who take part in a game are all assumed to receive a payoff in each of the outcomes of the game identified by its structure. The preferences of an individual taking part in a game about the different outcomes of the game are deduced from the value of the payoffs he receives in each of them. Since the preferences of those taking part in a game are deduced from the value of the payoffs they each receive in the different outcomes of the game, it is possible to deduce from the way their payoffs are configured in the structure of the game the extent to which their respective preferences about the outcome the game should ideally have diverge. This implies that it is possible to tell from the payoffs configuration of a game whether this game is one of total divergence or, of partial divergence or, of no divergence.

¹³ Not all game theorists describe the different elements of a game in the same way. For instance, some will include 'the players' as one of the elements or components of a game. For instance, see: (Mac-Colell et al., 1995: 220). However, here, we are developing games to model a specific kind of events, namely: relations generated by actions. In this case, the object (i.e., the issue) of the game and the players involved are revealed by the basic characteristics of the event we seek to model as a game.

The third element of a game is the set of rules according to which the game is to be played. The rules of a game indicate what each of the individuals taking part in the game can respectively do to influence the outcome. The rules of a game reveal who, among all those taking part in the game, depends on whom to realize their preferences about the outcome (i.e., about the object of the game). From the rules of a game, it is possible to assess whether the playing of the game is even or not. In this respect, the less an individual taking part in a game depends, by virtue of the rules of this game, on anyone else also taking part in it to realize his preferences about the outcome, the more the playing field of this game can be said to be tilted or inclined in a manner favouring this individual. The playing field of a game is even when all those who take part in the game *equally* depend on each other to govern the outcome. Otherwise, the playing field of a game has to be considered as being uneven.

The games we want to develop here have to model this sort of events we call relations generated by the performance of actions. The object of the game modeling a relation will be the *action* whose performance is postulated to have the effect of generating this relation. It is about the action generating a relation that each of those involved in this relation are going to have preferences. Moreover, it is the different things that can possibly happen or be done about the action generating a relation that will constitute the different outcomes this event can possibly have.

Figuring out the structure, the payoffs configuration, and the rules of the game modeling a relation can be achieved by answering the following three questions about the action generating this relation: (i) what are the different things that can possibly happen to this action; (ii) what are the preferences each of the individuals involved in the relation

generated by the performance of this action could have about it and finally; (iii) what each of the individuals involved in the relation generated by the performance of this action can respectively do about it to influence the outcome of the relation.

To be able to build a game out of the answers provided to each one of these three questions about the action generating a relation, it is necessary to use a 'common denominator' to express them. The common denominator we use to express the answers provided to each of these three questions about the action generating a relation is the concept of *power*. Given that power is the main concept we use in what follows to model relations generated by the performance of actions as games, we shall next consider how power is conceptualized in the model.

3.2 Power

Power has already been discussed in chapter two. However, what we have done there is, for the most part, reviewing how power is usually conceptualized in the social sciences; especially in economics. What we do in this section is indicating how we define power in the context of relations generated by the performance of actions.

3.2.1 Actions

To explain how power is conceptualized in this study, it is first necessary to explain how actions are going to be conceptualized. Actions will be conceptualized here as objects. What is an object? In science, an object is defined as anything to which it is possible to ascribe at least one measurable dimension. The measurable dimensions of an object are what confer to it the property to not always be identical to itself, and

consequently to vary in terms of how it appears when observed at different points in time. Ascribing to an object at least one measurable dimension therefore confers to the object the capacity to take different sizes or, forms or, shapes or, states, etc. From this definition of an object, it follows that conceptualizing actions as objects requires first of all being able to identify at least one of the measurable dimensions of any action.

Most actions can be performed in many different ways, methods, or techniques. If there does exist different ways to perform an action, the different ways this action can be performed can be considered as constituting some of the different forms, states, or shapes this action, when conceptualized as an object, can be seen as having the capacity to take. But how is it possible to identify, and consequently distinguish, the different ways any action can be performed?

The different ways an action can be performed can be distinguished from each other by taking into consideration the different sets of rules that can be instituted to regulate its performance. If there are different sets of rules that can be alternatively instituted to regulate the performance of an action, then this action can be considered as performable in many different ways. From this, it can be inferred that changing the way any action is performed requires making some change to the set of rules regulating its performance. Changing the way an action is performed can, more specifically, be effected either: (i) by instituting new rules to regulate its performance in addition to the ones already regulating it or; (ii) by suppressing some of the rules which, up to now, were regulating its performance or; (iii) by doing (i) and (ii) in a more or less simultaneous fashion.

The way an action is performed is, therefore, going to be considered here as being revealed by the set of rules regulating its performance. But how is it possible to institute rules to regulate the performance of an action? *Power* is the answer we provide to this last question.

3.2.2 Power

We consider that an individual who has instituted at least one of the rules regulating the performance of an action exercises power on the one who performs it. Power is therefore conceptualized here as being an action. Power is the action of having instituted at least one of the rules regulating the performance of an action. What is peculiar about the action of exercising power is that power is an action whose object is an (other) action, as Foucault (1984: 313) realized. The object of power is, therefore, not individuals. The object of power is rather the actions individuals perform as well as the ones they have the capacity (i.e., the potential) to perform.

Since the way an action is performed is considered here as being revealed by the set of rules regulating its performance, exercising power can also be defined as being *the action of having determined, either totally or partially, the way an action is performed*. What the concept of power as defined here allows us to do is to dissociate the action of performing an action, from the one of determining the way an action is performed. Performing an action and, determining the way an action is performed are going to be considered here as being two entirely different things.

More precisely, what can be dissociated from one another by using the above concept of power is the one who performs a given action from the one who has

determined the way this same action is performed. How power is conceptualized here makes it possible to envisage situations where an action is performed by one person in a way determined by another. Of course, how power is conceptualized here does not rule out a priori the possibility that the way an action is performed was determined by the one who performs it. The concept of power, as defined here, simply allows us to consider situations where the way an action is performed was determined, either in whole or in part, by someone other than the one who performs it.

A relation is an event that occurs when the performance of an action affects the welfare of not only the one who performs it, but also the welfare of at least one other. The concept of power, as defined in this chapter, can be used to identify the different outcomes any relation generated by the performance of an action could have. To be able to express the different outcomes a relation could have in terms of power, certain assumptions must be made about the role that power plays in the process by which any action gets performed. We present these assumptions in the next subsection.

3.2.3 Power and actions

It is one thing to claim that an action can usually be performed in many different ways and also to claim that whoever has determined the way an action is performed exercises power on whoever performs it. But these points would not be of much help to describe what is going on in a relation generated by the performance of an action if it was possible for an action to be performed in no specific or discernable way, and/or if it was possible for an action to be performed in a specific way that no one at all has however determined a priori, and hence chosen, on behalf of the one who performs it.

To make it possible to develop a model of relations by using the concept of power as defined above, we take for granted that any action which is actually performed is *always* performed in a specific way. We therefore rule out from the outset the possibility that an action could be performed, but that no specific way could be said to characterize the performance of this action. Moreover, we take for granted that the way an action is performed is always determined by someone. We therefore also rule out from the outset the possibility that an action could be performed in a specific way, but that no one at all could be said to be responsible for the fact that this action is performed in that specific way rather than any other.

If indeed it is impossible for an action to be performed in a way determined a priori by no one, this implies that any action which is actually performed is always performed by someone on whom power is exercised. This conclusion directly stems from the definition we give to power, which is: the action of determining the way an action is performed. What we therefore assume to develop a model of relations is that power is always exercised on anyone performing any action. This assumption about the process by which any action gets performed leads us to consider that an individual who has the capacity to perform some action either does not, or no longer, perform this action whenever no one (including himself) exercises power on him. As long as nobody exercises power on an individual, this individual will be considered as performing no action.

Determining the way an action is performed (in other words: exercising power on the one who performs this action) is likely going to require on the part of the one or those who will actually do this thing about this action that they spend a positive amount of

time, energy and, resources to do it. This consideration leads us to assume that only an individual who expects to receive a payoff from the performance of an action could rationally find it worthwhile to determine the way this action is going to be performed by exercising power on the one performing it. This assumption implies that an action can only be performed in a way determined by someone who expects to receive a payoff from its performance. For an action to be performed, not only power must be exercised on the one who has the capacity to perform it so as to determine, on behalf of this person, the way she will perform it. In addition, the power exercised on the one who has the capacity to perform some action must, by assumption, be exercised by someone who expects to receive a payoff from it once it is performed.

These considerations about power and the performance of actions can be interpreted as meaning that an action must actually satisfy two conditions to generate a relation by the means of its performance. The first condition any action must satisfy to generate a relation is: affecting the welfare of not only the one who performs it, but also the welfare of someone else. This first condition an action must satisfy to generate a relation via its performance is objective in nature since this condition strictly concerns actions as such.

The second condition an action must also satisfy to generate a relation via its performance is, for its part, more subjective in nature since it stems from the fact we take for granted that an action cannot be performed as long as no one exercises power on the one being able to perform it. This second condition is: among all those who expect to receive a payoff from the performance of an action, at least one of them must be

personally convinced that he could receive a *positive payoff* from its performance by having it performed in a specific way.

Thus providing a payoff to an individual other than the one who performs it is a condition that any action must necessarily satisfy to generate a relation. This condition, albeit necessary, is however not sufficient. This condition is necessary but not sufficient because an action is not likely to ever be performed if no one considers that it is in her personal interest that it be performed in some way, and consequently if no one is ready to do what it takes about this action to get the result that it actually be performed in some way (i.e., exercising power on someone who has the capacity to perform it). It is one thing to receive a payoff from the performance of an action. It is, however, quite another thing to want some action to be performed in a specific way (which is always the case when an action is performed), and to actually do what it takes so that this action eventually gets performed in that way. If exercising power on an individual does indeed mean making this individual perform an action in a specific way, those who exercise power on an individual so that he performs an action in a specific way must be individuals who consider that they are better off when this action is performed in that way than when this same action is either not performed at all or, performed in any other way. This point that anyone having determined the way an action is performed must prefer that this action be performed in that way than it be not performed at all, or performed in any other way is actually one of the main assumptions of the model of relations we develop in the chapter¹⁴.

¹⁴ Later on in the chapter, we call this particular assumption of the model we develop in it the 'no-regret assumption'.

In summary, it can be inferred from what has been said in this section about power and actions that power is conceived here as being the fuel of actions, metaphorically speaking. No individual can actually perform an action without someone (either himself or, someone else) exercising power on him before or while he performs it. Power is necessarily exercised on an individual whenever he performs any action. Power, according to the definition put forward here of this concept, is in fact exercised on an individual *only when he does perform at least one action*. This point is important to stress. The reason is that this point implies that, contrary to what is often said about power, power is not something that can be used against an individual to prevent him from performing an action¹⁵.

It is of course possible, physically speaking, to prevent an individual who either has the capacity to perform some action or, who is actually performing some action from performing it. Exercising power on an individual is, however, not what has to be done to prevent him from performing an action. What has to be done against an individual who performs an action to prevent him from performing it is, rather, using *force* against him. Power and force are therefore conceptualized here as being two (very) different things. What distinguishes power from force is, notably, the fact that the object of power is not the same as the one of force. Whereas the object of power is always an action and, more specifically, the way an action is performed; the object of force is rather always a person as such. Power is, therefore, exercised about actions; whereas force is used against people.

¹⁵As explained in the literature review, the way we define power is heavily influenced by Foucault. Foucault discusses at length in his researches what he calls the 'repressive hypothesis' about power. Foucault has coined this expression of the repressive hypothesis to refer to all the theories and conceptualizations of power describing the latter has what puts someone in position to prevent someone else from doing what this other person would like to do. In that regard, see: (Foucault, 1976).

Exercising power on an individual, therefore, does not at all mean preventing him from performing an action. Power is not at all synonymous with repression. But, power is neither synonymous with freedom. Those on whom power is exercised do perform actions, and consequently they do things. But those on whom power is exercised perform actions in a way determined on their behalf by those who exercise that power on them. When an individual performs an action in a way determined by someone else, it could happen that this be detrimental to the welfare of this individual. This could happen either because of the way this individual is made to perform some action by someone else or, because performing this action at all in any way can only have a detrimental effect on the welfare of this individual.

Power in the view developed here is therefore synonymous neither with repression, nor with freedom. Power is, in itself, necessary to obtain the result that any action be performed. However what is contingent about power is the identity of the one or those who exercise the power having the effect of determining the way any action is performed. An action is always performed in some way, and the way an action is performed is always determined by someone. But, in the case of actions whose performance generates relations, there is always a range of possibilities concerning who could have determined the way these actions are performed. This explains why power can be used to identify the different outcomes of a relation, and consequently why it is possible to use the concept of power to model relations as games.

The model

As mentioned in the introduction, a game can objectively be described as being constituted of three distinct elements: (1) a structure, (2) a payoffs configuration and, (3) rules. To model any relation as a game, we indicate how to proceed to ascribe to the game that will be used to model this relation a structure, a payoffs configuration and a set of rules. Power being the main concept we use to model relations as games, the first thing we do in this section to develop the games that can be used to model relations is introducing a variable denoting the power that any individual involved in a relation exercises in it.

3.3 A variable denoting the power any individual involved in a relation exercises in it

Power is the concept we use to ascribe at least one measurable dimension to any action whose performance is postulated to have the effect of creating a relation between the one who performs it and at least one other. Let $P_{XY} \in [0,1]$ be a variable denoting the power some individual X exercises on some individual Y, with Y being postulated from the outset to be someone who has the capacity to perform the action we want to objectify for research purposes.

The subscripts X and Y of P_{XY} , therefore, both refer to someone. Moreover, the subscript Y of P_{XY} can, by convention, only refer to an individual who is postulated to have the capacity to perform the action we want to objectify. If the subscripts X and Y of P_{XY} both refer to the same person (if $X = Y$), then P_{XY} indicates the power an individual exercises on himself as the one who can perform some action. If the subscripts X and Y

of P_{XY} do not refer to the same person (if $X \neq Y$), then P_{XY} rather denotes the power some individual X exercises on another individual Y who can perform some action.

P_{XY} indicates that X exercises power on Y if $P_{XY} > 0$. Since exercising power means having determined, either in whole or in part, the way an action is performed, the fact that $P_{XY} > 0$ must be interpreted as meaning not only that the individual identified by the subscript Y of P_{XY} performs the action he is postulated to have the capacity to perform, but also that Y performs this action in a way determined either in whole or in part by X . More specifically, $P_{XY} > 0$ indicates that at least one of the rules regulating the action that Y is indicated as performing was instituted by X .

On the other hand, if $P_{XY} = 0$, this indicates that X does not exercise power on Y . The fact that X does not exercise power on Y must be interpreted as meaning that, if Y does perform the action he is postulated to have the capacity to perform, Y however does not perform this action in a way determined at all by X . In other words, $P_{XY} = 0$ indicates that X has instituted none of the rules regulating the action that Y could, however, be performing given that Y is, after all, postulated to have the capacity to perform this action.

P_{XY} is therefore a qualitative variable. The value of any variable P_{XY} indicates whether Y performs the action that Y is postulated to have the capacity to perform. However, P_{XY} cannot indicate that Y performs some action without also revealing the identity of one of those having determined the way this action is performed. The reason why we proceed in that way to indicate whether an action is performed or not in the model is that we assume the way an action is performed is always determined by somebody. When P_{XY} is greater than zero, we therefore know that Y performs the action

that he has the capacity to perform, and also we know that this action is performed by Y in a way that X has contributed determining by instituting at least one rule to regulate its performance.

However, one thing not explicitly revealed by P_{XY} when P_{XY} is greater than zero is the way that X is making Y use to perform the action that Y is denoted as performing. In fact, it is not possible to infer from the information that $P_{XY} > 0$ factual details such as the number of rules X has instituted to regulate the action performed by Y, or the content (i.e., the wording) of any of the rules X has instituted to regulate the performance of this action by Y. The fact that P_{XY} is greater than zero, therefore, does not directly reveal anything about the way Y performs the action he is denoted as performing. P_{XY} 's value reveals only whether a given action is performed or not and, if so, the identity of one of those having determined the way this action is performed. However, as we show in the next section, it is sometimes possible to infer from the fact that P_{XY} 's value has changed that Y does not use the same way anymore to perform the action he is denoted as performing.

3.3 An example of a relation between two individuals generated by the performance of an action

Let R be the set including all the individuals involved in any relation we wish to consider. $R = [A, B]$ indicates that A and B are in relation. $R = [A, B]$ is the main example of a relation we use in this chapter to explain how relations can be modeled as games. This example of a relation is also the one we use most often in the chapters that follow to predict how relations generated by actions can unfold. Now, there are three different reasons or causes that could explain why $R = [A, B]$ exists.

$R = [A, B]$ could exist either because: (i) A can perform an action whose performance by A has the effect of affecting not only A's welfare, but also the welfare of B or because; (ii) B can perform an action whose performance by B has the effect of affecting not only B's welfare, but also the welfare of A or finally because; (iii) A and B can both perform an action (likely the same one) whose performance by either one of them has the effect of affecting the welfare of both. If the relation $R = [A, B]$ exists only when A performs some action, we use the expression '*created by condition 1*' to refer to the fact that A is the only individual involved in $R = [A, B]$ who can perform an action generating it. If $R = [A, B]$ exists only and strictly when B performs some action, we use the expression '*created by condition 2*' to refer to the fact that B is the only individual involved in $R = [A, B]$ who can perform an action giving rise to it. Finally we use the expression '*created by condition 3*' when $R = [A, B]$ exists when either A or, B or, both perform some action. Most of the time, the example of a relation we use to explain how to model any relation as a game is the one of $R = [A, B]$ created by condition 1.

3.4 The structure of the game modeling a relation

If $R = [A, B]$ is postulated to be created by condition 1, two variables of the form P_{XY} will at most suffice in that case to identify the different outcomes this relation could have. Postulating that $R = [A, B]$ is created by condition 1 means postulating that A is the only individual involved in this relation who can perform an action generating it. A could determine the way he performs the action generating the relation. That is, A could exercise power in the relation. The power A exercises in $R = [A, B]$ created by condition 1 can be denoted by the following variable of the form P_{XY} : P_{AA} .

B is also involved in $R = [A, B]$. However, when $R = [A, B]$ is created by condition 1, B is not postulated to be able to perform any action generating the relation. Only A can perform such an action. B could nonetheless want to determine the way A performs the action that puts them in relation since the performance of this action by A affects B's welfare too. P_{BA} denotes the power that B exercises in $R = [A, B]$ created by condition 1. That is, P_{BA} denotes whether B has determined or not the way A performs the action putting them in relation.

If P_{AA} or, P_{BA} or, both are greater than zero, this indicates that A performs the action that gives rise to the relation. The different values P_{AA} and P_{BA} can each take indicate the different things that can happen to the action generating the relation. The different things that can happen to the action giving rise to $R = [A, B]$ created by condition 1 revealed by the different values P_{AA} and P_{BA} can each take can be considered as constituting the different outcomes this relation can have.

Figure 3.1 below depicts some of the different outcomes the relation between A and B created by condition 1 can have that can be identified by using P_{XY} ; more specifically, by using P_{AA} and P_{BA} . Figure 3.1 has been constructed by assuming that P_{AA} and P_{BA} are both dichotomous variables.

**Figure 3.1: Structure of the game
Modeling the relation between
A and B created by condition 1**

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$		
$P_{AA} = 0$		

What are the different things that can happen to the action giving rise to the relation between A and B created by condition 1 according to Figure 3.1? Let us begin with the outcome located in the bottom-right corner of Figure 3.1: ($P_{AA} = 0, P_{BA} = 0$). When P_{AA} and P_{BA} are both zero, this indicates that neither A nor B exercise power in the relation. By assumption, an action is considered as being not performed when no one exercises power on the one who having the capacity to perform it. The outcome of the game modeling a relation where each of the variables P_{XY} used to denote what can possibly happen to the action giving rise to this relation are zero invariably represents the situation where this action is not or no longer performed. The outcome of Figure 3.1 corresponding to the situation where the action giving rise to the relation between A and B created by condition 1 is not, or no longer, performed by A is therefore: ($P_{AA} = 0, P_{BA} = 0$).

The three other outcomes of Figure 3.1 are all outcomes corresponding to the situation where A performs the action generating the relation. The reason is that, when the relation has any of these three outcomes, at least one of the individuals involved in the relation is depicted as exercising power in it. The outcome ($P_{AA} = 1, P_{BA} = 0$), located in the top-right corner of Figure 3.1, is the one corresponding to the situation where A performs the action generating the relation in a way that A has entirely determined. The reason is that, when the outcome of the relation is ($P_{AA} = 1, P_{BA} = 0$), A is depicted as being the only individual involved in the relation exercising power in it.

The outcome ($P_{AA} = 0, P_{BA} = 1$), located in the bottom-left corner of Figure 3.1, is the outcome of the relation corresponding to the situation where A performs the action that generates it in a way entirely determined by B. The reason is that, when this outcome

occurs, B is depicted as being the only individual involved in the relation exercising power it. Finally the outcome ($P_{AA} = 1, P_{BA} = 1$), located in the top-left corner of Figure 3.1, corresponds to the situation where A performs the action generating the relation in a way A and B have both contributed determining. The reason is that, when this outcome occurs in the relation, A and B are both depicted as exercising power in it.

What can possibly happen to the action giving rise to the relation between A and B created by condition 1 according to Figure 3.1 is, therefore, that this action can either be not performed by A or, performed by A in a way determined by either A or, B or, both A and B. The outcome of Figure 3.1 reveals whether the action generating the relation represented by this figure is performed or not and also, if this is the case, who among A and B has determined the way this action is performed. However, one thing that is not directly revealed by the outcome of Figure 3.1 when this outcome is one of those corresponding to the situation where the action generating the relation represented by it is performed is the actual way this action is performed.

For instance, if the outcome is ($P_{AA} = 1, P_{BA} = 0$), this indicates that A performs the action generating the relation in a way that A has entirely determined. However, this information does not as such reveal the way A is actually using to perform this action. But, if the outcome of Figure 3.1 ever shifts, this shift of outcome may indicate that the way the action giving rise to the relation is performed is no longer the same. For instance, if the outcome of Figure 3.1 shifts from ($P_{AA} = 1, P_{BA} = 0$) to ($P_{AA} = 1, P_{BA} = 1$), it would be necessary to infer from this shift of outcome that the action generating the relation is no longer performed in the same way by A. The reason is that this particular shift of outcome from ($P_{AA} = 1, P_{BA} = 0$) to ($P_{AA} = 1, P_{BA} = 1$) indicates that B has just instituted

at least one new rule to regulate the performance of the action that gives rise to the relation. By instituting at least one new rule to regulate the performance of the action generating the relation in addition to the ones that A had already institute previously to regulate its performance, B has necessarily modified the way this action is performed. This is because the way an action is performed is considered here has having been changed whenever at least one rule is either added or suppressed to regulate its performance.

The model therefore identifies the different outcomes of any relation by indicating *who*, among those involved in the relation considered, has instituted at least one rule to regulate the performance of the action generating it. The different outcomes that any relation could have identified by using P_{XY} can be used to construct the structure of the game that will be used to model it. Figure 3.1 constitutes just one particular example of a structure (a 2x2 structure) that can be given to the game that will be used to model the relation between A and B created by condition 1. Once the structure of the game modeling a relation is built, the next element that has to be added to this structure to turn it into a game is a payoffs configuration. This is what we do in the next section.

3.5 Payoff Functions

Let $V_i(P_{XY})$ with X, Y and $i \in R$ be a payoff function assigning to some individual i involved in the relation R the payoff he receives in each of the outcomes of the relation as identified by P_{XY} . In the case of $R = [A, B]$ created by condition 1, $V_A(P_{AA}, P_{BA})$ generates the payoffs that A receives in the different outcomes of the relation. $V_B(P_{AA}, P_{BA})$ generates the payoffs that B receives in the different outcomes of this same relation. Certain assumptions are made about $V_i(P_{XY})$.

Assumption 1: P_{XY} always has the same value in all the different payoff functions in which P_{XY} simultaneously appears.

An important thing to note about the respective payoff functions of the individuals involved in a relation is that these payoff functions all depend on the exact same variables of the form P_{XY} . For instance, in the case of the relation between A and B created by condition 1, the payoffs that A and B respectively receive from the action that puts them in relation are, in both cases, function of P_{AA} and P_{BA} . The reason why the payoffs that the different individuals involved in the same relation each receive all depend on the same variables P_{XY} is that P_{XY} is variable of a qualitative nature whose value indicates the outcome of the relation. The outcome of a relation at any given point in time is assumed to be the same for all those involved in it. This explains why we assume that any variable P_{XY} , such as P_{AA} , appearing simultaneously in the payoff functions of different individuals cannot at any specific point in time take different values in them. For instance, if at a given point in time $P_{AA} = 1$ in V_A , then P_{AA} will also have to be one at this same point in time in V_B .

Assumption 2: Linearity of V_i in P_{XY}

The second assumption that we make about $V_i(P_{XY})$ is that $V_i(P_{XY})$ is linear in P_{XY} ¹⁶. This implies that the general form of $V_A(P_{AA}, P_{BA})$ and $V_B(P_{BA}, P_{BA})$ can be expressed in the following way:

$$V_A(P_{AA}, P_{BA}) = \alpha P_{AA} + \beta P_{BA} + C_A \quad (3.1)$$

$$V_B(P_{BA}, P_{BA}) = \zeta P_{BA} + \sigma P_{AA} + C_B \quad (3.2)$$

Here α and σ are the parameters of P_{AA} in V_A and V_B respectively. β and ζ are the parameters of P_{BA} in V_A and V_B respectively. C_A and C_B are for their part constants indicating the payoffs A and B respectively receive when the action generating their relation is not, or no longer, performed by A.

¹⁶ This assumption of linear payoff functions is standard in game theory. The reason is that, in game theory, players have preferences about outcomes. The different outcomes of a game are each mutually exclusive. A game either has one outcome or, an entirely different one. This implies that preferences about outcomes must be expressed such that how any individual ranks any pair of outcomes one vis-à-vis the other must be independent from any other (i.e., third) possible outcome. This property of preferences concerning outcomes is called in economic theory the *independence axiom*. To express preferences concerning outcomes such that the independence axiom is satisfied, it is necessary to generate the payoffs that outcomes provides to anyone taking part in a game by using linear payoff functions. This is exactly what von Neumann and Morgenstern did in their seminal work on game theory by developing the now well-known concept of expected utility functions. Expected utility functions are linear. More on this topic can notably be found in Mas-Colel et al. (1995: 172).

Assumption 3: The no-regret assumption

The last assumption we make about $V_i(P_{XY})$ concerns how the value of certain variables P_{XY} appearing in V_i can possibly affect the value of the payoff generated by V_i . We assume that:

$$dV_i/dP_{XY} \geq 0, \text{ if } i = X \quad (3.3)$$

This critical assumption essentially states that the value of the payoff that any individual i receives from the performance of an action cannot be negatively affected by the power that this individual i exercises on whoever performs this action. In the case of the relation between A and B created by condition 1, this assumption implies that:

$$dV_A/dP_{AA} = \alpha \geq 0 \quad (3.4)$$

$$dV_B/dP_{BA} = \zeta \geq 0 \quad (3.5)$$

This assumption implies in the particular case of $R = [A, B]$ created by condition 1 that an increase of P_{AA} 's value (i.e., an increase of the power that A exercises in the relation) cannot have the effect of negatively affecting the value of the payoff generated by V_A . That is, an increase of the power A exercises in the relation cannot have the effect of negatively affecting the payoff that A receives by performing the action generating it. If P_{AA} 's value does affect the value of the payoff generated by V_A , this effect can only be

positive. Similarly, if P_{BA} 's value does affect the value of the payoff generated by V_B , this effect on V_B can only be positive.

(3.1), however, has no impact on how P_{AA} 's value can potentially affect the value of the payoff generated by V_B , nor on how P_{BA} 's value can possibly affect the value of the payoff generated by V_A . That is,

$$dV_A/dP_{BA} = \beta \text{ can be } >, <, \text{ or } = 0 \quad (3.6)$$

and

$$dV_B/dP_{AA} = \sigma \text{ can be } >, <, \text{ or } = 0 \quad (3.7)$$

The reason why this last assumption is made is that, when $P_{XY} > 0$, this indicates that X has contributed determining the way an action is performed. If X receives a payoff from the performance of the action he has contributed determining the way it is performed, then X would not have acted rationally by making the one who performs this action performing it according to rules having the effect of reducing the value of the payoff that he, X, receives from its performance. This third and last assumption about $V_i(P_{XY})$ can, thus, be dubbed: the no-regret assumption. If some individual i involved in a relation does get the chance of determining the way the action generating the relation is performed, it is assumed via this so-called no-regret assumption that whatever this individual is going to do in terms of 'tinkering' with the way this action is performed is

not going to have a negative impact on the value of the payoff that he receives from its performance.

It is important to note here that if it is assumed that an individual cannot reduce the value of the payoff he receives from the performance of an action by exercising power on the one who performs it, it is however not conversely assumed that an individual can always increase the value of the payoff he receives from the performance of an action by always exercising more and more power on the one who performs it. That is to say, by instituting new rules ad infinitum to regulate the performance of this action. For instance, one thing that is assumed to be possible about the value of the payoff A receives from the performance of the action that puts B in relation with him is that:

$$dV_A/dP_{AA} = \alpha = 0 \quad (3.8)$$

According to equation (3.8), A could not increase at all the value of the payoff he receives from the action that he performs generating the relation between him and B by determining the way he performs it. For instance, in light of (3.8), A could not increase the value of the payoff he receives by performing the action generating the relation by choosing to perform it in a way other than the one that someone else, such as B, is making him perform it in the present moment.

In summary, $V_i(P_{XY})$ with X, Y and $i \in R$ indicates the payoffs that some individual i involved in the relation R receives in the different outcomes of the relation as identified by P_{XY} . The payoffs that any individual i taking part in a game receives in each of the outcomes of the game are used in game theory to deduce his preferences about

them. The outcome that any individual i taking part in a game prefers most is always postulated to be in game theory the one in which this individual i receives his highest/best payoff. Conversely the outcome that any individual i taking part in a game prefers the least is always postulated to be in game theory the one in which this individual i receives his lowest/worse payoff.

To model a relation as a game, we will also assume that the individuals involved in a relation all have preferences about the different outcomes the relation can have. We also deduce the respective preferences of the individuals involved in a relation about the different outcomes it can have from the value of the payoffs they personally receive in each one of them. What we show in the next section about the preferences of the individuals involved in a relation is that the no-regret assumption made in this section about $V_i(P_{XY})$ rules out the possibility of ascribing to any individual i involved in a relation certain sets of preferences about the different outcomes of the relation, more specifically: certain outcomes orderings. This, in turn, has the effect of discarding a large number of payoffs configurations that, otherwise, could have been used to construct the game modeling a relation.

3.7 Preferences of individuals involved in a relation

Because of the no-regret assumption, an individual involved in a relation cannot receive his lowest or worse payoff of the relation in anyone of the outcomes it can have. This implies that an individual involved in a relation cannot consider anyone of the outcomes of the relation as being the worse or least preferable one of it. There are certain outcomes a relation can have that some individual i involved in it cannot, because of the

no-regret assumption, consider as being the worse outcome of the relation. To illustrate in a concrete manner how the no-regret assumption affects the preferences of any individual i involved in a relation, let us consider once again the example of the relation between A and B created by condition 1 as modeled by Figure 3.1.

Figure 3.1 (reproduced):

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$		
$P_{AA} = 0$		

Let us forget for a brief moment that Figure 3.1 is the structure of the game used to model the relation between A and B created by condition 1. Let us rather see Figure 3.1 as simply the structure of ‘some game’ played by A and B. The game whose structure is depicted by Figure 3.1 is, more specifically, a 2x2 game. A 2x2 game is defined as a game whose different outcomes are evenly distributed on two rows and also two columns such that the game can only have four different outcomes in total. 2x2 games constitute a format of games which, mainly because of their relatively small size, have been thoroughly studied by game theorists. Anatol Rapoport, Melvin J. Guyer and David G. Gordon have published in 1976 a book solely dedicated to the study of so-called 2x2 games. This book is fittingly entitled: *The 2x2 game*. One question investigated by Rapoport et al. in this book is the one of the different preferences¹⁷ that can be ascribed to any i individual taking part in *some* 2x2 game such as Figure 3.1.

To investigate this matter, Rapoport et al. do not have recourse to payoff functions similar to the ones devised in the previous section. They rather postulate that

¹⁷ We use the word preferences here as synonymous with outcomes orderings.

any i individual involved in a 2×2 game such as Figure 3.1 can only have *strict* preferences about the four different outcomes of the game. This assumption of strict preferences made by Rapoport et al. to study 2×2 games lead them to use the following ordinal ranking system to express the preferences of any individual i taking part in a 2×2 game. 4 is the payoff that any i individual taking part in a 2×2 game receives in the outcome of the game he strictly prefers to any of the three other outcomes the game can also have. 3 is the payoff any i individual taking part in a 2×2 game receives in the outcome of the game he strictly prefers to any of the other outcomes of the game except for one of them. 2 is the payoff any i individual taking part in a 2×2 game receives in the outcome of the game he strictly prefers to only one of the three other outcomes of the game. Finally, 1 is the payoff any i individual taking part in a 2×2 game receives in the outcome of the game he strictly considers as being the least desirable outcome of the game.

The assumption of strict preferences made by Rapoport et al. to study 2×2 games (the only assumption they make to do so) lead them to conclude that any i individual taking part in *some* 2×2 game such as Figure 3.1 can order the four different outcomes of the game according to 24 different ways ($4 \times 3 \times 2 \times 1 = 24$). This implies that, in theory, any individual i taking part in some 2×2 game can be ascribed 24 different sets of preferences concerning the four different outcomes of the game. However if the no-regret assumption presented in the previous section is made in addition to the assumption of strict preferences made by Rapoport et al. to ascribe preferences to any individual i taking part in the 2×2 game depicted by Figure 3.1 (with $i \in R = [A, B]$), this has the effect of

reducing the total number of ways according to which this individual i can respectively order the four different outcomes of Figure 3.1 from 24 to 6!

Table 2 below indicates the six different ways A can order the four different outcomes of Figure 3.1 such that the assumption of strict preferences and the no-regret assumption are both satisfied. Table 3 appearing right after Table 2 for its part presents the six different ways B can order the four outcomes of Figure 3.1 such that the assumption of strict preferences and the no-regret assumption are both satisfied¹⁸.

Table 2: The six different ways A can order the four outcomes of Figure 3.1 given the assumption of strict preferences and the no-regret assumption

Outcomes	Orderings (#)	#1	#2	#3	#4	#5	#6
$(P_{AA} = 1, P_{BA} = 0)$		4	4	4	3	3	2
$(P_{AA} = 1, P_{BA} = 1)$		3	3	2	4	4	4
$(P_{AA} = 0, P_{BA} = 0)$		2	1	3	2	1	1
$(P_{AA} = 0, P_{BA} = 1)$		1	2	1	1	2	3

Table 3: The six different ways B can order the four outcomes of Figure 3.1 given the assumption of strict preferences and the no-regret assumption

Outcomes	orderings (#)	#1	#2	#3	#4	#5	#6
$(P_{AA} = 0, P_{BA} = 1)$		4	4	4	3	3	2
$(P_{AA} = 1, P_{BA} = 1)$		3	3	2	4	4	4
$(P_{AA} = 0, P_{BA} = 0)$		2	1	3	2	1	1
$(P_{AA} = 1, P_{BA} = 0)$		1	2	1	1	2	3

¹⁸ Note that the four outcomes of Figure 3.1 do not appear in the same order in Tables 2 and 3. This choice has been made in order to be able to stress an important point about the preferences of any individual i involved in a relation which is made below.

On the first two rows of Table 2 appear the payoffs that A can receive in the outcomes of the relation corresponding to the situation where he performs the action generating it in a way that he, A, has contributed determining; given the assumption of strict preferences and the no-regret assumption. What is peculiar about these two outcomes of the relation according to Table 1 is that A cannot receive his lowest payoff of the relation (i.e., 1 according to Rapoport et al.'s ranking system) in any of these two outcomes. This implies that, by virtue of the no-regret assumption, A cannot consider neither $(P_{AA} = 1, P_{BA} = 0)$ nor $(P_{AA} = 1, P_{BA} = 1)$ as being the worse outcome of the relation.

Because of the no-regret assumption, any individual i involved in a relation cannot consider that the worst thing that could happen to the action giving rise to the relation would be that this action is performed in a way he has contributed determining. The same goes for B. On the first two rows of Table 3 appear the payoffs that B can receive in the two outcomes of Figure 3.1 corresponding to the situation where the action that gives rise to the relation is performed in a way B has contributed determining. Because of the no-regret assumption, B cannot consider neither $(P_{AA} = 0, P_{BA} = 1)$ nor $(P_{AA} = 1, P_{BA} = 1)$ as the worse outcome of the relation between him and A created by condition 1.

Observe that, in total, Figure 3.1 contains three different outcomes corresponding to the situation where the action giving rise to the relation between A and B created by condition 1 is performed by A. The main result that can be inferred from the information jointly provided by Tables 2 and 3 is, therefore, that A and B cannot *unanimously* consider one of the outcomes of their relation corresponding to the situation where the

action generating it is performed in some way by A as being the worse outcome of their relation. The reason is that, when any of these three outcomes occurs, either A or, B or, both are precluded by the no-regret assumption to consider this outcome as being the worse outcome of their relation.

Because of the no-regret assumption, the structure of the game modeling a relation cannot include an outcome corresponding to the situation where the action generating the relation is performed which would be considered by *all* those involved in the relation as being the worse outcome of it. Another way to say this is that: if the structure of the game modeling a relation includes an outcome corresponding to the situation where the action generating it is performed, this outcome must be considered by at least one of the individuals involved in the relation as being preferable to at least one of the other outcomes the relation can also have. In the case of the outcome ($P_{AA} = 1, P_{BA} = 0$) of Figure 3.1 for instance, A is the one who is precluded by the no-regret assumption to consider it as being the worse outcome of the relation between him and B created by condition 1.

The reason why an outcome of a relation corresponding to the situation where the action generating it is performed cannot be unanimously considered by all those who are involved in the relation as being the worse outcome of it is that, when the action giving rise to a relation is actually performed, it is always somebody involved in the relation who has made the choice of having it performed in some way. An individual involved in a relation would not have acted rationally if he would have made the one who can perform the action generating the relation perform it in a way having the effect of providing him a worse payoff than when this action is not performed at all. Thus, if the

structure of the game modeling a relation does include an outcome corresponding to the situation where the action generating it is performed, at least one of the individuals involved in the relation will not consider this outcome as the worse one of it.

What the no-regret assumption ultimately implies about relations is that the structure of the game modeling any relation is actually built, piece by piece (except for one outcome), by none other than those who are involved in it. The structure of the game modeling a relation, therefore, does not just fall off from the sky. The structure of the game modeling a relation is not at all a given; that is to say an aspect of the relation over which none of those involved in it has any say or control. It is rather the individuals involved in a relation who create the structure of the game modeling it by, if they want to, adding to it outcomes corresponding to the situation where the action that puts them in relation is performed in a way they have contributed determining. An individual involved in a relation will put in the structure of the game modeling it one or certain outcomes corresponding to the situation where the action generating it is performed in a way he has personally contributed determining only if this individual knows at least one way to perform this action allowing him to receive a better payoff from its performance than when this action is not performed at all, or performed in ways entirely determined by others.

The structure of the game modeling a relation can only include outcomes that could realistically occur. It would not be realistic to expect that the action giving rise to the relation between A and B created by condition 1 could be performed in a way entirely determined by B if B is not assumed to be aware of at least one way to perform this action allowing him to receive a positive payoff from its performance. This implies that

the game modeling the relation between A and B created by condition 1 can be given a structure similar to the one depicted by Figure 3.1 only if it is assumed that A and B are *both* aware of a way (not necessarily the same) to perform the action generating the relation allowing them to receive, on a personal basis, a positive payoff from its performance. The reason is that, according to Figure 3.1, the action giving rise to the relation between A and B created by condition 1 could be performed in a way entirely determined by A, as well as in a way entirely determined by B. An action such as the one giving rise to a relation between A and B is not likely to be performed in a way entirely determined by, say, B if B is not aware of at least one way to perform this action allowing him to receive a positive payoff from its performance.

If, for instance, B would be assumed to not be aware of a way to perform the action generating the relation between him and A created by condition 1 allowing him to receive a positive payoff from its performance, it would be necessary in such a case to model this relation by using a game whose structure includes no outcome where $P_{BA} > 0$. Figure 3.2 below depicts the structure of the game modeling the relation between A and B created by condition 1 when B is assumed to be unaware of a way to perform the action generating the relation allowing him to receive a better payoff from its performance than when this action is not performed at all by A.

Figure 3.2:

	$P_{BA} = 0$
$P_{AA} = 1$	
$P_{AA} = 0$	

Figure 3.2 represents the relation between A and B created by condition 1. What Figure 3.2 reveals about what could happen to the action giving rise to the relation it represents is that, if this action is ever performed, it can only be performed in a way entirely determined by A. If Figure 3.2 is used to model the relation between A and B created by condition 1, simply looking at the figure reveals that B does not know a single way A could use to perform the action that puts them in relation that would allow him to receive a positive payoff from its performance.

If neither A nor B know a way to perform the action that puts them in relation that would allow them to receive, on a personal basis, a positive payoff from its performance, then the only outcome their relation could realistically have in that case is the one corresponding to the situation where the action generating it is not performed by A. This case is represented by Figure 3.3 below.

Figure 3.3:

	$P_{BA} = 0$
$P_{AA} = 0$	

What Figure 3.3 depicts is not a game per se. The reason is that, among the criteria that an event must satisfy to be seen from an objective standpoint as being a game, one of these criteria is that this event must have the capacity to have at least two different outcomes. Figure 3.3 can only have one outcome: ($P_{AA} = 0, P_{BA} = 0$). This is the outcome corresponding to the situation where the action that gives rise to the relation is not performed. The outcome of a relation corresponding to the situation where the action generating it is not performed is the only one appearing in the structure of any game used to model it. This outcome is, in fact, the only outcome that all relations have in common.

No matter the relation considered, one thing that can be predicted about what could happen to the action that gives rise to this relation is that this action could be not performed.

Another insight on relations that can be drawn from the no-regret assumption is that a game cannot occur in a relation between the different individuals involved unless at least one of them knows, or suddenly comes up with, a way to perform the action generating it allowing him to receive a positive payoff from its performance. What has the effect of creating a game in a relation is, therefore, the fact that one of the individuals involved in this relation has suddenly discovered a way to perform the action that gives rise to it allowing him to personally receive a positive payoff from its performance. Once an individual involved in a relation creates a game about the action that generates it by coming up with a way to perform this action allowing him to personally receive a positive payoff from its performance, this game can take many different forms. This is what we show in the next section.

3.8 Kinds of games that can be used to model relations

In game theory, games are distinguished from one another on the basis of the extent to which the preferences of those who take part in a game diverge. In the previous section, we have shown how the no-regret assumption affects the preferences any i individual involved in a relation can have about the different outcomes of the relation.

In the case of the relation between A and B created by condition 1 we have shown that, if it was not from the no-regret assumption, A and B could respectively order the four outcomes of Figure 3.1 according to 24 different ways each. If A and B could both be ascribed 24 different sets of preferences about the different outcomes of Figure 3.1,

this would imply that A's and B's payoffs in the structure of the game could be configured according to 576 different ways (i.e., 24×24). 576 is a rather large and impressive number of payoffs configurations.

But, because of the no-regret assumption, A and B can only be ascribed 6 different sets of preferences each about the four outcomes of Figure 3.1. This implies that, in total, there are only 36 (6×6) different payoffs configurations that can be given to Figure 3.1 to turn it into a game modeling the relation between A and B created by condition 1. The no-regret assumption, therefore, has the effect of considerably reducing the total number of payoffs configurations, and consequently the total number of games as such, that can be used to model a relation generated by an action such as the one between A and B created by condition 1¹⁹.

However, as mentioned earlier on in the chapter, the most important information revealed by the payoffs configuration of any game is the extent to which the preferences of those taking part in this game diverge. Despite the fact that the no-regret assumption considerably reduces the total number of payoffs configurations that can be used to build the game modeling a relation such as the one between A and B created by condition 1 (from 576 to 36 in the case of the total number of 2×2 games that can be used to model this relation), the no-regret assumption has no impact on the extent to which the respective preferences of A and B about the outcome that their relation should have can possibly diverge. The preferences of two individuals involved in a relation about the

¹⁹ The 36 2×2 games that can be used to model the relation between A and B created by condition 1 are listed in the appendix of this chapter.

action that puts them in relation can, given the no-regret assumption, either: (i) not diverge at all or, (ii) partially diverge or, (iii) totally diverge²⁰.

Recall that Figure 3.1 is far from being the only structure that can be given to the game modeling the relation between A and B created by condition 1. The main characteristic of the structure depicted by Figure 3.1 is that it has two dimensions; namely: one dimension in which P_{AA} takes at least one value greater than 0 and another one where P_{BA} takes at least one value greater than zero. It will make sense to give to the game modeling the relation between A and B created by condition 1 two dimensions only if A and B are both assumed to know a way to perform the action that puts them in relation allowing them to receive a positive payoff from its performance.

However if, for instance, A is postulated to be the only party involved in $R = [A, B]$ created by condition 1 who knows a way to perform the action generating the relation allowing him to receive a positive payoff from its performance, a structure similar to the one depicted by Figure 3.2 will have to be used in such a case to model the relation as a game. If Figure 3.2 is the structure used to build the game modeling the relation between A and B created by condition 1, then the game thus constructed will only be able to take two different forms, namely: (i) the form of a nonzero-sum game of no divergence or, (ii) the form of a zero-sum game of total divergence.

²⁰ Certain game theorists talk about the extent to which the preferences of the individuals taking part in a game are opposed. Others talk about the extent to which the preferences of the individuals taking part in a game are conflicting. For our part, we prefer to use the adjective divergent to express whether the individuals taking part in a game have the same preferences or not about the outcome the game should have. The reason is that, in the following chapters, we use the notion of conflict to study the government of relations. For us, there is a considerable difference between (a) not having the same preferences as someone else about something and (b) to be in conflict with someone else about something.

Figure 3.2 (reproduced)

	$P_{BA} = 0$
$P_{AA} = 1$	A's preferred outcome of the relation
$P_{AA} = 0$	

Figure 3.2 includes only one outcome corresponding to the situation where the action generating the relation it represents is performed in some way by A: ($P_{AA} = 1, P_{BA} = 0$). ($P_{AA} = 1, P_{BA} = 0$) is the outcome of the relation corresponding to the situation where A performs the action generating it in a way A has entirely determined. By virtue of the no-regret assumption, A must prefer ($P_{AA} = 1, P_{BA} = 0$) to ($P_{AA} = 0, P_{BA} = 0$). The only preferences A can have about the two outcomes of Figure 3.2 are, therefore, that the outcome ($P_{AA} = 1, P_{BA} = 0$) is preferable to the outcome ($P_{AA} = 0, P_{BA} = 0$).

Taking this point into account, the game depicted by Figure 3.2 will take the form of a nonzero-sum game of no divergence if B too prefers ($P_{AA} = 1, P_{BA} = 0$) to ($P_{AA} = 0, P_{BA} = 0$). Otherwise, if B rather prefers ($P_{AA} = 0, P_{BA} = 0$) to ($P_{AA} = 1, P_{BA} = 0$), the game depicted by Figure 3.2 will rather take the form of a zero-sum game of total divergence. In chapter four, we study the government of relations taking the form of zero-sum games of total divergence which, for short, we most of the time call zero-sum relations. That is why it is worthwhile to take the time here to briefly explain what is meant by the concept of a zero-sum relation.

If B prefers ($P_{AA} = 0, P_{BA} = 0$) to ($P_{AA} = 1, P_{BA} = 0$), this can only be because B receives a lower payoff when A performs the action that gives rise to their relation in any way A has entirely determined than when A does not perform this action at all. In other

words, the only reason why B could prefer the outcome corresponding to the situation where the action giving rise to the relation is not performed at all by A to any other outcome the relation could also have corresponding to the situation where this same action is performed in some way by A is that the performance of this action by A in any way always has the effect, in B' eyes, of providing him a negative payoff²¹.

From these considerations, it can be inferred that a relation will take the form of a zero-sum game if the performance of the action generating this relation always has the effect of providing a negative payoff to at least one of those involved in it, no matter the way this action is performed. If Figure 3.2 is a zero-sum game, A and B will therefore have radically different views concerning whether the action that puts them in relation should be performed by A. A prefers to perform the action generating the relation in a way he has entirely determined than not performing this action at all. On the other hand, B prefers that the action generating the relation be not performed at all by A than performed by the latter in any possible way, method or, technique.

As we will see in chapter four, relations of total divergence can be used to study policymaking in the case of rights to perform actions. The reason is that the issue at stake in a relation of total divergence, and especially in a zero-sum relation, is whether the action generating the relation should be performed at all or not. On the political scene, the issue of whether a specific action should be performed or not can be debated and fought in terms of whether it should be allowed or not to perform this action. Any debate whose issue is whether the performance of a specific action should be allowed or not is really,

²¹ In the case of zero-sum games, we often use the expression 'a negative payoff', even though this expression has no sense in a context where the value of the payoffs is assumed to be ordinal. By a negative payoff, what we more rigorously mean is a payoff provided to some individual by the performance of an action which is less than the one that this individual receives when this same action is not performed at all.

policy-wise, a debate concerning how the right to perform this specific action should be formulated. Studying the government of relations of total divergence, therefore, puts one on the track to consider policymaking in the case of rights to perform actions.

If A and B are both assumed to know a way to perform the action that puts them in relation allowing them to personally receive a positive payoff from its performance, this has the effect of almost totally ruling out the possibility that their relation be zero-sum. This is so since if A and B both know at least one way to perform the action that puts them in relation allowing them to personally receive a positive payoff from its performance, this implies that A's and B's preferred outcomes of the relation are, in both cases, outcomes corresponding to the situation where this action is performed in some way by A. If A and B both prefer that the action that puts them in relation be performed in some way by A rather than not performed at all by A, then the only issue about which A and B could have diverging preferences in the context of their relation is the way the action putting them in relation should be performed.

For instance, if Figure 3.4 below is used to model the relation between A and B created by condition 1, this relation will take the form in such a case of a nonzero-sum game of total divergence.

Figure 3.4: Nonzero-sum game of Total divergence modeling the relation Between A and B created by condition 1

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	2,2	4,1
$P_{AA} = 0$	1,4	3,3

In the game depicted by Figure 3.4, the payoff A receives in any of the four outcomes of the game is the number appearing on the left-hand side of the coma dividing each outcome in half. B's payoff in any of the four outcomes of the game depicted by Figure 3.4 is the number appearing on the right-hand side of the coma dividing each outcome in half. For instance, when the outcome of Figure 3.4 is $(P_{AA} = 1, P_{BA} = 0)$, A's payoff is 4 whereas B's payoff is 1.

Figure 3.4 depicts A and B as both preferring the action putting them relation be performed in some way rather than not at all. This is so since A's preferred outcome of the relation according to Figure 3.4 is $(P_{AA} = 1, P_{BA} = 0)$: which is, an outcome of the relation corresponding to the situation where the action that generates it is performed in some way. B's preferred outcome of the relation in Figure 3.4 is $(P_{AA} = 0, P_{BA} = 1)$. $(P_{AA} = 0, P_{BA} = 1)$ is also an outcome of the relation corresponding to the situation where the action that gives rise to it is performed in some way by A.

Figure 3.4 however indicates that A prefers the outcome corresponding to the situation where he does not perform the action generating the relation to the outcome of the relation that B prefers most. That is, A prefers $(P_{AA} = 0, P_{BA} = 0)$ to $(P_{AA} = 0, P_{BA} = 1)$. The same goes for B. That is, B prefers $(P_{AA} = 0, P_{BA} = 0)$ to $(P_{AA} = 1, P_{BA} = 0)$. Moreover, according to Figure 3.4, A and B both prefer that the action that puts them in relation to be not performed at all than performed in a way that they would have both contributed determining. That is, in Figure 3.4, A and B both prefer $(P_{AA} = 0, P_{BA} = 0)$ to $(P_{AA} = 1, P_{BA} = 1)$.

What Figure 3.4 therefore reveals about what is going on in the relation between A and B created by condition 1 is that A and B have very different preferences about the

way the action that puts them in relation should be performed. A and B both consider to be better off when the action that puts them in relation is not performed at all than when it is performed in any way the other has contributed determining. Since their relation is generated by the performance of only one action, at least one of them is bound to be extremely disgruntled whenever this single action is actually performed in some way.

The real problem of A and B in the context of their relation as depicted by Figure 3.4 is, therefore, not so much the fact that they have diverging preferences about the way the action that puts them in relation should be performed. The real problem faced by A and B in the context of their relation as represented by Figure 3.4 is, rather, the fact that there is only one action about which each of them can realize his preferences about the way it should be performed. If A and B are both adamant to realize their respective preferences about this action, one of them will have to leave the relation in order to find another action about which to realize them. The one who is the most likely to leave the relation in this particular case is B since B is not the one who performs the action that gives rise to the relation.

This reasoning, therefore, suggests the conclusion that a relation generated by the performance of a single action should not last very long when it takes the form of a nonzero-sum game of total divergence. A relation between two parties such as A and B taking the form of a nonzero-sum game of total divergence is more likely to stand the test of time (to last) if this relation is postulated to be created by condition 3, rather than condition 1 or 2. Recall that when the relation between A and B is postulated to be created by condition 3, this means that A and B are both postulated to have the capacity to perform an action (likely the same one) having the effect of putting them in relation.

When each of the parties involved in a relation performs an action generating it, each of these parties will be able to realize their personal preferences about the way these actions should each be performed about at least one of these actions, namely: the one each of these individuals personally perform.

The preferences of two parties in relation can also be postulated to partially diverge. The preferences of A and B about the action that puts them in relation are going to partially diverge if A and B do not have the same preferences about the way this action should be performed; yet at least one of them (either A or, B or, both) prefer this action to be performed in the way the other prefers rather than not at all. Figure 3.5 depicts a possible game of partial divergence that could model the relation between A and B created by condition 1.

**Figure 3.5: Game of partial divergence
Representing the relation between
A and B created by condition 1**

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	2,4	4,3
$P_{AA} = 0$	1,2	3,1

Figure 3.5 depicts A and B as having diverging preferences about the way the action putting them in relation should be performed. A's preferred outcome of the relation according to Figure 3.5 is ($P_{AA} = 1, P_{BA} = 0$). B's preferred outcome of the relation according to Figure 3.5 is rather ($P_{AA} = 1, P_{BA} = 1$). B, however, prefers the outcome of the relation A prefers most, ($P_{AA} = 1, P_{BA} = 0$), to the outcome corresponding to the situation where the action giving rise to the relation is not performed: ($P_{AA} = 0, P_{BA} = 0$). The fact that B does not have the same preferences as A concerning the way the action generating their relation should be performed, yet prefers this action to be

performed in the way A prefers most rather than not at all, explains why B's preferences about this action are considered as diverging only partially from the ones of A. Figure 3.6 below describes the opposite case.

**Figure 3.6: Game of partial divergence
Representing the relation between
A and B created by condition 1**

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	4,2	2,1
$P_{AA} = 0$	3,4	1,3

Figure 3.6 also describes a possible game of partial divergence that could be used to model the relation between A and B created by condition 1. In fact Figure 3.6 is a game whose payoffs configuration is the mirror image of the one depicted by Figure 3.5. In the case of Figure 3.6, it is A's preferences that partially diverge from the ones of B. The reason is that, even though A has different preferences than B concerning the way the action that puts them in relation should be performed, A prefers that this action be performed in the way that B prefers rather than not at all.

The fact that Figures 3.5 and 3.6 depict games whose respective payoffs configurations are the mirror image of each other lead Rapoport et al. to consider these two games as being identical from an analytical standpoint. More specifically, given that the respective payoffs configurations of these two games make of each of them games of partial divergence, Rapoport et al. expect these two games to unfold in exactly the same way in terms of the tactics that those taking part in each of them should use to govern their outcome. Rapoport et al. more precisely predict that the strategy A should rationally use to play the game depicted by Figure 3.5 should be the same as the one B should

rationally use to play the game depicted by Figure 3.6, and vice-versa. For Rapoport et al., one would waste his time by studying successively the government of the games depicted by Figure 3.5 and 3.6 since these two games are essentially one and the same from a strategic standpoint as far as they are concerned.

The reason why Rapoport et al. come to this conclusion regarding the government of these two games of partial divergence is that they ascribe to all the 2x2 games they consider in their opus on 2x2 games the exact same set of rules in each case. Recall that there are no less than 576 2x2 games in total. The government of each of these 576 2x2 games is considered by Rapoport et al. by ascribing to each of them the exact same rules. The set of rules Rapoport et al. arbitrarily ascribe to any 2x2 game that can arise between two parties such as A and B is one having the effect of giving to each of these games a totally even playing field. That is to say, they give to any 2x2 game a set of rules that has the effect of making the two parties taking part in the game equally dependent on the other to govern the outcome. The fact that they assume that the playing field of the game whose structure is depicted by Figure 3.1 is totally even explains why they come to the conclusion that interchanging A's and B's preferences about the four outcomes of the game (like it is done by going from Figure 3.5 to Figure 3.6 and vice-versa) does not affect at all the underlying logic of the game.

Nothing we have said thus far about the different structures and payoffs configurations that can be used to build the game modeling a relation can be considered as being something especially original or innovative in terms of 'game-building' in comparison to what is done elsewhere in game theory²². However, with respect to the

²² Except, maybe, for the no-regret assumption.

rules we ascribe to the games that can be used to model a relation, we bring something new to the table in terms of how games are usually built in game theory. In the next section, we indicate the general rule of any game that can be used to model a relation. We show that the rules of the games that can be used to model relations have, in most cases, the effect of giving to these games, and consequently to the relations they model, an uneven playing field.

3.9 Rules of games that can be used to model relations

The rules of a game specify who, among those taking part in the game, depends on whom to govern the outcome. The rules of a game modeling a relation, therefore, indicate who, among those involved in this relation, depends on whom to realize their preferences about the action generating it. Being dependent on someone else to realize preferences about something such as an action means not being able to realize these preferences entirely by oneself; that is, without the help or assistance of someone else. Devising the rules of the game modeling a relation, therefore, essentially comes down to establishing who, among the different individuals involved in this relation, can do what about the action that generates it.

We have already made the choice of representing the different things that can be done about an action by having recourse to P_{XY} . Answering the question 'who can do what about the action that gives rise to some relation' requires knowing or establishing who, among the individuals involved in this relation, can modify the value of each of the variables P_{XY} used to denote the different things that can happen or be done about this action. To discuss this matter, we will initially make an assumption which is however going to be relaxed later on in this section as well as in the following chapters. We will

initially assume that any individual involved in a relation who can perform an action generating it already has all he needs to use to perform this action.

Indeed performing an action usually requires using certain things such as tools, equipments, material, etc to be able to perform it. The word most often used in the literature to designate anything that must be used to perform an action is capital. To discuss the rules of the game modeling a relation such as the one between A and B created by condition 1, we will initially assume that the individual involved in this relation postulated to be the one who can perform the action generating it already has the capital he has to use to perform this action. Given this assumption, the general rule of any game used to model a relation can be stated in the following way:

General Rule: P_{XY} 's value cannot be raised above zero without the explicit consent of X and Y.

Recall that the subscripts X and Y of P_{XY} can either refer the same individual, or to two different individuals. For instance, the subscripts X and Y of P_{AA} both refer to the same individual, namely: A. However the subscripts X and Y of P_{BA} respectively refer to two different individuals, namely: B in the case of the subscript X of this variable and A in the case of the subscript Y of it. The general rule stated above implies in the case of variables P_{XY} such as P_{AA} whose subscripts X and Y both refer to the same individual that:

Only the individual to whom the subscripts X and Y of this variable P_{XY} both refer can be assumed to have the capacity to unilaterally modify the value of this variable. That is, only this individual can be assumed to unilaterally be able to raise the value of this variable above zero, or to reduce it until it reaches its minimum value: zero.

P_{AA} is a variable that can be used to indicate certain things that can be done about the action generating the relation between A and B created by condition 1. P_{AA} is a variable whose value can only be modified by A. Only A can raise P_{AA} 's value above zero in V_A and V_B . Moreover, only A can make P_{AA} 's value fall in V_A and V_B , notably make P_{AA} reach back its minimum value: zero.

In the case of variables P_{XY} such as P_{BA} whose subscripts X and Y respectively refer to two different individuals, the general rule stated above implies that:

Neither the individual identified by the X subscript of this variable P_{XY} nor the one identified by the Y subscript of it can unilaterally raise its value above zero. These two individuals (X and Y where $X \neq Y$) will have to act in concert to give to this variable a value greater than zero in their respective payoff functions by reaching an agreement in that regard. However, if these two individuals ever reach at some point in time an agreement to give to this variable P_{XY} a value greater than zero in their respective payoff functions, they will both be able afterward to unilaterally break off this agreement by unilaterally reducing the value of this variable back to its minimum value: zero.

In the case of P_{BA} , the general rule implies that neither A nor B can unilaterally raise the value of this variable above zero in their respective payoff functions. A and B will have to talk to each other, and especially reach an agreement, to give to P_{BA} a value greater than zero in their respective payoff functions. The corollary of this rule is that, if

A and B ever agree to raise P_{BA} above zero in V_A and V_B , A and B will both be able afterward to unilaterally break off this agreement by unilaterally reducing P_{BA} 's value back to zero.

When a matrix such as Figure 3.1 is used to display the structure of the game modeling a relation, the rules of the game depicted by this figure can be expressed by stating who, among the different individuals taking part in the game, can make its outcome shift in any direction in the different dimensions of the structure of the game.

Figure 3.1 (reproduced):

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$		
$P_{AA} = 0$		

Figure 3.1 has two dimensions. On the rows of Figure 3.1 appear the different values that P_{AA} can take in V_A and V_B . According to the general rule stated above, A is the only individual taking part in the game depicted by Figure 3.1 who can make the outcome shift up and down from one row to the next in the structure of the game. Only A can raise P_{AA} 's value above zero (only A can make the outcome of the game move up in the structure of the game). Moreover, only A can reduce P_{AA} 's value and, notably, set P_{AA} 's value back to zero (only A can make the outcome of the game move down in the structure of the game). A is therefore the only individual taking part in the game depicted by Figure 3.1 who can make the outcome of the game shift up and down in its structure.

On the columns of Figure 3.1 appear the different values that P_{BA} can take in V_A and V_B . According to the general rule stated above, neither A nor B can unilaterally make the outcome of the relation depart from the far-right column of the structure of the game

depicted by Figure 3.1 where P_{BA} is zero without the explicit consent of the other. This implies that neither A nor B can unilaterally give to the game modeling their relation an outcome corresponding to the situation where P_{BA} is greater than zero. A and B must first reach an agreement with each other to give to their relation an outcome where $P_{BA} > 0$.

The fact that neither A nor B can unilaterally make the outcome of their relation depart from the section of the structure of the game modeling it where P_{BA} is zero can be interpreted as meaning that A and B both have a veto over the value taken by P_{BA} in their respective payoff functions. This veto over P_{BA} 's value that A and B both have can be used by any of them to unilaterally prevent the other to increase P_{BA} above its minimum value, and also to unilaterally reset P_{BA} to zero when P_{BA} happens to be set in the present moment at a value greater than zero in their respective payoff functions.

The rules of the game representing the relation between A and B created by condition 1, therefore, confer to A the capacity to unilaterally give to P_{AA} any value the domain of this variable allows. The rules of the game also confer to A a veto on the value that P_{BA} takes in his own payoff function such that B cannot raise P_{BA} above zero in it without his consent. From these considerations, it can be concluded that the rules of the game modeling the relation between A and B created by condition 1 confer to A the capacity to unilaterally give certain outcomes to the relation. The outcomes of the relation between A and B created by condition 1 that A can unilaterally give to it are all those where P_{BA} is zero. When the relation is represented by Figure 3.1, the outcomes where $P_{BA} = 0$ are the ones located in the far-right column of the figure.

Among the outcomes of the relation between A and B created by condition 1 where $P_{BA} = 0$, there is notably $(P_{AA} = 0, P_{BA} = 0)$. $(P_{AA} = 0, P_{BA} = 0)$ is the outcome of

the relation corresponding to the situation where A does not, or no longer, performs the action generating it. The rules of the game modeling the relation between A and B created by condition 1, therefore, confer to A the capacity to unilaterally decide to not perform the action generating the relation as well as, in the same vein, the capacity to unilaterally choose to no longer perform this action. The far-right column of Figure 3.1 where $P_{BA} = 0$ also includes all the outcomes of the relation corresponding to the situation where A performs the action that gives rise to it in a way that he, A, has entirely determined such as ($P_{AA} = 1, P_{BA} = 0$). By virtue of the rules of the game modeling the relation, A can also unilaterally decide to perform the action that gives rise to it in a way he has entirely determined.

This last result (or rule) however holds only when A already has the capital he needs to use to perform the action that gives rise to the relation between him and B. A does not need to own the capital he has to use to perform the action that gives rise to the relation between him and B to be able to unilaterally decide to not, or no longer, perform it. However A has to own or, at the very least, he has to have a free access to the capital he must use to perform the action that gives rise to the relation between him and B to be able to unilaterally make the choice of performing it in a way he will have entirely determined. If this is the case, it can be concluded that the column of Figure 3.1 where $P_{BA} = 0$ constitutes a section of the playing field of the game modeling the relation in which, in essence, A plays the game 'all by himself'. This is because the outcome of the relation cannot depart from this section of the structure of the game modeling the relation without A's consent, and also the outcome of the relation can be shifted back to this section of the structure of the game in a unilateral fashion by A. The fact that A can

unilaterally give to the relation between him and B created by condition 1 any outcome where $P_{BA} = 0$ is going to be especially advantageous for A when A's preferred outcome of the relation will happen to be one where $P_{BA} = 0$.

If A can unilaterally do about the action that gives rise to the relation between him and B all the things that must be done about this action to realize the preferences he has about it, this must be interpreted as meaning that A does not depend at all on B to govern the outcome of the relation. If A does not depend at all on B to govern the outcome of the relation, this in turn implies that A will not see the relation between him and B as a game. However B will see the relation as a game if A does not depend at all on him to govern the outcome since this implies that B conversely depends entirely on A to do so.

In the context of the relation between A and B created by condition 1 B cannot, unlike A, unilaterally give to the relation any outcome. The only thing that B can unilaterally effect about the action that gives rise to the relation is to reset P_{BA} to zero. This is a thing that B can do about this action only when P_{BA} happens to be taking in the present moment a value greater than zero in V_A and V_B . Since the no-regret assumption rules out the possibility that P_{BA} 's value could negatively affect the value of the payoff generated by V_B , it can be inferred from this consideration that B would have to be pretty 'fed up' with whatever A is for his part doing about the action that puts them in relation to unilaterally elect to reset P_{BA} to zero in their respective payoff functions.

The government of the relation between A and B created by condition 1 becomes especially interesting to consider in terms of the strategic interaction that should logically occur in it when either A's preferred outcome of the relation or, B's or, both happens to be an outcome where $P_{BA} = 1$. The fact that neither A nor B can unilaterally raise P_{BA} 's

value above zero in their respective payoff functions suggests the conclusion that the one among them who will be the first to approach the other to ask him to consent to raise P_{BA} 's value above zero is likely to have to pay him a price to get his consent in that regard. For instance if B approaches A to ask him to raise P_{BA} 's value to one in their respective payoff functions, A could tell to B he is willing to do it, but only if B gives him something valuable in return for his cooperation in this matter.

The most interesting case occurs when A's as well as B's preferred outcomes of the relation are not the same, yet they are both outcomes where $P_{BA} = 1$. This case is interesting to consider since it raises the following question: which one of them will end up paying a price to the other to get P_{BA} 's value raised above zero in their respective payoff functions? The answer to this question is likely going to be: the one among them who stands to lose the most by not having P_{BA} set to a value greater than zero in his personal payoff function.

The game that can take place in the relation between A and B created by condition 1 that we have just described in the previous paragraph where A and B both prefer that $P_{BA} > 1$ in their personal payoff functions, but they nonetheless have diverging preferences about the outcome that their relation should have is actually one of the possible games of partial divergence that can occur in a relation we have identified in the previous section. This game is more precisely the game depicted by Figure 3.6. Figure 3.6 is reproduced below.

Figure 3.6 (reproduced)

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	4,2	2,1
$P_{AA} = 0$	3,4	1,3

B's preferred outcome of the relation when the latter is represented by Figure 3.6 is: ($P_{AA} = 0, P_{BA} = 1$). This outcome is the one corresponding to the situation where the action generating the relation is performed by A in a way B has entirely determined. A prefers ($P_{AA} = 0, P_{BA} = 1$) to ($P_{AA} = 0, P_{BA} = 0$). That is, A prefers performing the action that puts him in relation with B in a way entirely determined by B rather than not performing this action at all. However, A's preferred outcome of the relation is: ($P_{AA} = 1, P_{BA} = 1$). This is the outcome of the relation corresponding to the situation where A performs the action generating it in a way that he and B have both contributed determining. The variable P_{XY} appearing simultaneously in V_A and V_B about which A and B have diverging preferences concerning the value it should take in the context of the game depicted by Figure 3.6 is, therefore, P_{AA} . B prefers that $P_{AA} = 0$, whereas A prefers that $P_{AA} = 1$.

According to the general rule, only A can determine P_{AA} 's value in V_A and V_B . Let us note that, once A and B agree to raise P_{BA} 's value above zero in their respective payoff functions, their relation will have to be considered as being 'underway' so to speak since, when $P_{BA} > 0$, this indicates from a factual standpoint that A performs the action generating the relation. A relation exists only when the action that generating it is performed since it is only when an action is performed that it can affect the welfare of anybody.

If B is aware of the fact that only A can determine P_{AA} 's value in their respective payoff functions, B will therefore have, in the context of the game depicted by Figure 3.6, to tell A *before* he consents that P_{BA} be raised above zero in their respective payoff functions that he does not want him to raise P_{AA} above zero once their relation gets underway (that is, after they agree to raise P_{BA} above zero in their respective payoff functions). If B suspects it is in A's interest to set P_{AA} to a value greater than zero, B will have to serve some sort of argument to A to convince him to not raise P_{AA} above zero once their relation gets underway. The argument B could serve to A to convince him to keep P_{AA} to zero once their relation is underway is, before consenting to raise P_{BA} 's value above zero in their respective payoff functions, to threaten A of unilaterally resetting P_{BA} back to zero if A ever chooses to unilaterally give to P_{AA} a value greater than zero in their respective payoff functions.

The game depicted by Figure 3.6 is, therefore, conducive to threats. It is especially in B's interest to make use of threats against A to attempt to govern the outcome of the relation as modeled by Figure 3.6 since B is the one who, to realize his preferences about the action that gives rise to the relation, has to convince someone else (i.e., A) of not doing something about this action this other person can, physically speaking, do about it. This thing A can unilaterally do about the action is to raise P_{AA} 's value above zero. That is, determining the way he performs this action.

In chapter five, we study the government of the game of partial divergence depicted by Figure 3.6 by, first, paying attention to how B could put himself in a position to credibly threaten A in the context of the relation once it is underway. In that regard, we come to the conclusion that it is when B owns the capital A has to use to perform the

action that puts them in relation that B can punish A in the most damaging manner for failing to do what he is asking him to do about it, and consequently that B can threaten A in the most credible manner possible in the context of the relation. Indeed if B owns the capital A has to use to perform the action that gives rise to the relation, this implies that A cannot perform this action without B's consent. That is, A must first be hired by B to perform the action that puts them in relation. If A needs to be hired, and consequently to be employed, by B to perform the action generating the relation, then B can threaten A of not being the one he employs to perform this action if A refuses or fails to perform it in the way that he, B, prefers. In short, it is when B organizes the relation between him and A created by an action performed by A as an employer-employee relation in which B ascribes to himself the role of the employer and asks A to fulfill the role of the employee (more precisely: the role of his employee) that B can put the greatest amount of pressure on A to convince him to perform the action that gives rise to it in a way that he, B, will have entirely determined.

At the end of section 3.7, we have presented two possible games of partial divergence that can alternatively be used to model a relation such as the one between A and B created by condition 1. One of these two games was Figure 3.6 reproduced above. The other was Figure 3.5. Figure 3.5 is reproduced below.

Figure 3.5: Game of partial divergence

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	2,4	4,3
$P_{AA} = 0$	1,2	3,1

We have already mentioned in the previous section that Rapoport et al. consider the games of partial divergence depicted by Figures 3.5 and 3.6 as being identical from a strategic standpoint. Rapoport et al. see these two games as being identical since the payoffs configurations of these two games are the mirror image of each other. This leads them to classify these two games into the same category of games.

However these two payoffs configurations produce games that are analytically different from each other when they are both assumed to be played according the rules that we have presented and explained in this section. The main difference between the games depicted by Figures 3.5 and 3.6 is that, in the case of Figure 3.5, one of the individuals taking part in the game (A) can unilaterally give to the game the outcome he prefers: ($P_{AA} = 1, P_{BA} = 0$). But, in the case of Figure 3.6, A cannot unilaterally give to the game (and, thus, to the relation) the outcome he prefers (nor can B) since, in the case of this other game of partial divergence, A's preferred outcome of the relation is: ($P_{AA} = 1, P_{BA} = 1$). This is a major difference between these two games which arises solely because of the rules according to which we assume they are each played. This difference between these two games of partial divergence is going to heavily impact the strategic interaction that should logically occur between A and B in each of them. This explains why, unlike Rapoport et al., we classify the two games of partial divergence depicted respectively by Figures 3.5 and 3.6 into different categories of games. We classify the game of partial divergence described by Figure 3.6 as *a game of partial divergence of the first kind*, and the game depicted by Figure 3.5 as *a game of partial divergence of the second kind*.

3.10 Conclusions

The main objective of this chapter was to develop a model of relations generated by the performance of actions. We model any relation generated by the performance of an action as a game. What we have done in this chapter is indicating how to proceed to model any relation as a game. The main result of the chapter is that there are five different kinds of games that can be used to model relations generated by the performance of actions.

Table 4: Kinds of games that can be used to model a relation

Games of Total Divergence		Games of Partial Divergence		Games of No Divergence
Zero-sum game of total divergence	Nonzero-sum game of total divergence	Games of partial divergence of the first kind	Games of partial divergence of the second kind	

Any relation generated by the performance of an action can be modeled as any of the five different kinds of games appearing in Table 4. This result suggests the conclusion that relations generated by the performance of an action are not all alike. There are different kinds of relations. What distinguishes two relations from one another is not the

fact that different people are involved in each of them or, the fact that these two relations are respectively generated by the performance of different actions. What all relations have in common is that they all involve at least one individual who depends on someone else to realize preferences about an action. However, from one relation to next, the dependency that someone may experience towards someone else to realize preferences about an action may take the form of different kinds of games. In a given relation, the dependency someone involved in it to realize preferences about an action may take the form of a zero-sum game whereas, in another relation, the dependency someone involved it experiences to realize preferences about an action may take the form of a nonzero-sum game of no divergence.

Table 4 basically divides the different kinds of games that can be used to model relations in three broad categories. There are relations: (i) of total divergence, (ii) of partial divergence and, (iii) of no divergence. Relations of total divergence and relations of partial divergence constitute two categories of relations which can each be divided into two subcategories. In the case of relations of total divergence, this category of relations is divided into the following two subcategories: zero-sum relations of total divergence and nonzero-sum relations of total divergence. In the case of relations of partial divergence, this category of relations is subdivided into the following two subcategories: relations of partial divergence of the first kind and relations of partial divergence of the second kind. All in all, this gives us five different kinds of relations generated by the performance of actions in total. That is to say, this gives us five different kinds of games that can be used to model the dependency anyone experiences towards another to realize preferences about an action.

If X depends on Y to realize preferences about an action, the game modeling X's dependency towards Y about this action is going to be a game of total divergence if X and Y do not have the same preferences concerning whether this action should be performed or not. The game of total divergence between X and Y about this action is more specifically going to be zero-sum game if this action cannot be performed in way providing to both X and Y a better payoff than when this action is not performed at all. A zero-sum relation is, therefore, a relation generated by an action whose performance always has the effect of providing a negative payoff to at least one of those involved in the relation, no matter the way this action is performed. The fact that the performance of an action giving rise to a zero-sum relation always negatively affects someone's welfare explains why controversies of a political nature are likely to occur in zero-sum relations concerning the issue of how the rights to perform the actions giving rise to them should be formulated.

A nonzero-sum relation is, conversely, a relation generated by an action whose performance in at least one way positively affects the welfare of all those involved in the relation. If the performance of an action in some way provides a positive payoff to all those whose welfare is affected by its performance, all those whose welfare is affected by the performance of this action should prefer this action to be performed in that way rather than not at all. However, it could happen that none of those involved in a nonzero-sum relation consider that the best way to perform the action generating the relation is one of those providing to each of them a better payoff than when this action is not performed at all. If there is a way to perform an action having the effect of providing to all those whose welfare is affected by its performance a better payoff than when it is not performed at all

but these individuals all prefer this action to be performed in a way having the effect of providing a positive payoff to no one except for themselves, the game modeling the relation generated by the performance of this action is going to be a nonzero-sum game of total divergence. For instance, X and Y could each prefer that some action be not performed at all by one of them than performed in the way preferred by the other, even though this action could be performed in a way having the effect of providing to each of them a better payoff than when this action is not performed at all.

A relation between two parties is going to take the form of a game of partial divergence if the two parties involved in it do not have the same preferences concerning the way the action generating the relation should be performed, but at least one of them prefers this action to be performed in the way preferred by the other rather than not at all. If X does not have the same preferences as Y concerning the way an action should be performed but X nonetheless prefers this action to be performed in the way preferred by Y rather than not at all, then X's preferences about this action are going to be considered as diverging partially from the ones of Y. If X is the one who performs the action about which his preferences concerning the way it should be performed partially diverge from the ones of Y, then the relation between X and Y generated by the performance by X of this action is going to be considered as being one of the first kind. If Y is rather the one who performs the action about which X's preferences concerning the way it should be performed partially diverge from the ones of Y, then the relation generated by the performance of this action by Y is going to be classified as being one of partial divergence of the second kind.

In the two following chapters, we study the government of relations generated by the performance of actions. That is, in the next two chapters, we predict how certain kinds of relations should be observed to unfold. In chapter four, we pay attention to the government of relations of total divergence. To do so, we mainly consider the government of zero-sum relations. In chapter five, we consider the government of relations of partial divergence of the first kind.

The reason why we pay special attention to the government of these two kinds of relations is that studying their government allows us to consider policymaking in the case of rights exercised about actions. More specifically, studying the government of relations of total divergence puts us on the track to consider policymaking in the case of rights to perform actions. In chapter five, we study the government of relations of partial divergence of the first kind. Studying the government of this other kind of relations leads us to consider the topic of policymaking in the case of employers' rights to choose who they employ to perform any action on their respective behalf.

APPENDIX TO CHAPTER 3

A LIST OF THE 36 2X2 GAMES SATISFYING THE ASSUMPTION OF STRICT PREFERENCES AND THE 'NO-REGRET' ASSUMPTION

A relation such as the one between A and B created by condition 1 can be modeled as a game whose structure is 2x2 (i.e., 2 rows and 2 columns). Figure 3.1 of chapter 3 for instance is a 2x2 game.

Figure 3.1

	P_{BA} = 1	P_{BA} = 0
P_{AA} = 1		
P_{AA} = 0		

In chapter 3, it has been established that A and B can, given the assumption of strict preferences and the no-regret assumption, order the four different outcomes of Figure 3.1 according to six different ways each. Tables 1 and 2 are reproduced below.

Table 2: The six different ways A can order the four outcomes of Figure 3.1 given the assumption of strict preferences and the no-regret assumption

Outcomes	Orderings (#)	#1	#2	#3	#4	#5	#6
P _{AA} = 1 and P _{BA} = 0		4	4	4	3	3	2
P _{AA} = 1 and P _{BA} = 1		3	3	2	4	4	4
P _{AA} = 0 and P _{BA} = 0		2	1	3	2	1	1
P _{AA} = 0 and P _{BA} = 1		1	2	1	1	2	3

Table 3: The six different ways B can order the four outcomes of Figure 3.1 given the assumption of strict preferences and the no-regret assumption

Outcomes	Orderings (#)	#1	#2	#3	#4	#5	#6
$P_{AA} = 0$ and $P_{BA} = 1$		4	4	4	3	3	2
$P_{AA} = 1$ and $P_{BA} = 1$		3	3	2	4	4	4
$P_{AA} = 0$ and $P_{BA} = 0$		2	1	3	2	1	1
$P_{AA} = 1$ and $P_{BA} = 0$		1	2	1	1	2	3

Ascribing a payoffs configuration to Figure 3.1 can be done by ascribing to A anyone of the 6 outcomes orderings appearing in Table 1 and anyone of the 6 outcomes orderings to B appearing in Table 2. There are, therefore, 36 2x2 games in total (6x6) that can be used to model the relation between A and B created by condition 1. Each one of these 36 games appear below (this is purpose of this appendix). Note that the payoffs matrix appearing in the top-left corner of the next page has been constructed by ascribing the outcomes ordering #1 from Table 1 to A, and the outcomes ordering #1 from Table 2 to B. The matrix appearing directly below it has been constructed by ascribing the outcomes ordering #1 from Table 1 to A, and the outcomes ordering #2 from Table 2 to B. The matrix appearing to the right of this first matrix was, for its part, obtained by giving the outcomes ordering #2 from Table 1 to A, and the outcomes ordering #1 from Table 2 to B. And so on... Hence, in the games that appear side by side one each page, B's outcomes ordering is always the same, but A's is not; whereas, in the games that appear on top of one another, A's outcomes ordering is always the same, but B's is not.

3,3	4,1	3,3	4,1	2,3	4,1	4,3	3,1
1,4	2,2	2,4	1,2	1,4	3,2	1,4	2,2
3,3	4,2	3,3	4,2	2,3	4,2	4,3	3,2
1,4	2,1	2,4	1,1	1,4	3,1	1,4	2,1
3,2	4,1	3,2	4,1	2,2	4,1	4,2	3,1
1,4	2,3	2,4	1,3	1,4	3,3	1,4	2,3
3,4	4,1	3,4	4,1	2,4	4,1	4,4	3,1
1,3	2,2	2,3	1,2	1,3	3,2	1,3	2,2
3,4	4,2	3,4	4,2	2,4	4,2	4,4	3,2
1,3	2,1	2,3	1,1	1,3	3,1	1,3	2,1
3,4	4,3	3,4	4,3	2,4	4,3	4,4	3,3
1,2	2,1	2,2	1,1	1,2	3,1	1,2	2,1

4,3	2,1
3,4	1,2

4,3	3,1
2,4	1,2

4,3	2,2
3,4	1,1

4,3	3,2
2,4	1,1

4,2	2,1
3,4	1,3

4,2	3,1
2,4	1,3

4,4	2,1
3,3	1,2

4,4	3,1
2,3	1,2

4,4	2,2
3,3	1,1

4,4	3,2
2,3	1,1

4,4	2,3
3,2	1,1

4,4	3,3
2,2	1,1

CHAPTER 4

RELATIONS OF TOTAL DIVERGENCE: A THEORY OF POLICYMAKING IN THE CASE OF RIGHTS TO PERFORM ACTIONS, INCLUDING RESULTS ON STATE REGULATION

4.1 Introduction

In this chapter, we consider policymaking in the case of rights to perform actions. The main question investigated is: how a welfare state should proceed to decide how to formulate the right to perform any action. Now recall that, in chapter one, policymaking was defined as making policy choices in a goal-oriented fashion by the means, if necessary, of a process to do so.

Defining policymaking in that way has led us to make two assumptions about policymaking. The first of these assumptions highlights which ones of its policies any state is most likely to want to formulate in a goal-oriented fashion. The second reveals what is the goal the state seeks to achieve whenever it uses a process to decide how to formulate one of its policies. These assumptions are:

- (1) The only rights exercised about actions the state decides how to formulate them by the means of a goal-oriented process are the ones about which there are controversies in civil society concerning the issue of how these rights should be formulated.

- (2) When it is not possible to formulate a right in a way that would entirely please all members of civil society, the state instead attempts, as a second best, to formulate this right in a way having the effect of realizing an objective expressed in terms of welfare about its object like, for instance, maximizing the contribution this object can make to social welfare.

The first of these two assumptions about policymaking explains what triggers policymaking in the case of rights. In that regard, we assume that policymaking in the case of rights is basically triggered by disgruntlement. That is we assume that, in the case of rights, the state waits for disgruntlement to be expressed concerning how any of them is in the present moment formulated to put in place a process to decide how to formulate it. This amounts to assuming that the state carries out policymaking in the case of rights only upon request.

Given that it is only 'upon request' the state carries out policymaking in the case of rights, this research assumption raises the question of whether it could happen that disgruntlement be expressed concerning how rights to perform specific actions are formulated. Empirical observations show that controversies often occur in civil society concerning the formulation of rights to perform specific actions. For instance, abortion is an action whose performance generates a fair amount of debates and controversies in many western societies. States that have to have a policy about abortion, like the Canadian federal government for instance, are constantly petitioned to change the policy they have about this issue.

However, when an issue like abortion is controversial, it is not possible for the state to formulate the policy it has to have about this issue in a way which would entirely please all those who care about this issue. This consideration explains why we make the

second assumption about policymaking in the case of rights. This second assumption is: when the state is unable to formulate some right in a way that would entirely please members of civil society all at once, the state instead attempts to formulate this right such that its object contributes as much as possible to social welfare.

It is therefore not difficult at all to find empirical evidence showing that controversies often occur in civil society about the formulation of rights to perform specific actions. However, in the chapter, we demonstrate this result that controversies can occur in civil society about the issue of whether the performance of specific actions should be allowed or not deductively by using the concept of relations generated by the performance of actions. What we use to demonstrate this result is, more specifically, the concept of relations of total divergence.

4.1.1 Relations of total divergence

Recall that, in the case of actions, the preferences of two individuals about the same action totally diverge if these two individuals have different preferences concerning whether this action should be performed or not. For instance, if Y prefers some action to be performed in a specific way rather than not at all, then X preferences about this same action are going to totally diverge from the ones of Y if X rather prefers this action to be not performed at all than performed in the way Y wants it to be performed.

A relation of total divergence is going to be zero-sum if, no matter the way the action generating this relation is performed, at least one of those involved in the relation receives a negative payoff from its performance. Consequently, whenever someone considers that her personal welfare is and can only be negatively affected by the

performance of some action, the only kind of game that can ever occur in society about this action because of this person having such views about it is a zero-sum game of total divergence.

Any zero-sum game/relation is necessary going to be a game/relation of total divergence. Nonzero-sum relations can also take the form of games of total divergence. A relation is nonzero-sum if it is possible to perform the action generating it in at least one way allowing all those involved in the relation to receive a better payoff from its performance than when this action is not performed at all. A nonzero-sum relation will take the form of a game of total divergence if, even though the action giving rise to this relation can be performed in at least one way allowing all those involved in the relation to receive a better payoff from the performance of this action than when it is not performed at all, they all prefer the action giving rise to the relation to be not performed at all than performed in the way preferred by anyone else also involved in the relation. That is, a nonzero-sum relation of total divergence basically involves two individuals having preferences so different concerning the way the action generating the relation should be performed that they both prefer this action to be not performed at all than performed in the way preferred by the other; this in a context where there is a way to perform this action, considered by none of them as the ideal way to perform it, but that nonetheless has the effect of providing to each of them a better payoff than when this action is not performed at all.

In the chapter, we mainly pay attention to the government of zero-sum relations. That is, we mainly pay attention to relations in which is involved at least one individual who considers that his personal welfare is, and especially can only be, negatively affected

by the performance of an action. In the chapter, we more specifically consider cases where at least one individual considers that his personal welfare is and can only be negatively affected by the performance by *someone else* of an action.

The reason why we focus our attention on cases where at least one individual considers that his personal welfare can only be negatively affected by the performance by someone else of an action is that such an individual should be against that anyone be allowed to perform this particular action. If it is in the present moment allowed to perform the action that certain individuals consider as being one whose performance should ideally be forbidden, these individuals should, sooner or later, be led to petition the state to change the policy that it has about the performance of this particular action such that performing it is going to be forbidden rather than allowed. If the one who performs the action that others want forbidden conversely receives a positive payoff by performing it, this person or party should be against any plan to forbid its performance. This explains why controversies are likely to occur in zero-sum relations concerning the issue of whether the performance of the actions generating these relations should be allowed or not. When there is a controversy in civil society concerning the issue of whether the performance of a specific action should be allowed or not, what this controversy is really about from a policy standpoint is the formulation of the right to perform this particular action.

On the basis of the result demonstrated in chapter three that actions can become the object of zero-sum games/relations in society, it can therefore be predicted that conflicts and controversies can occur in civil society concerning the policy issue of the formulation of rights to perform various actions. In the chapter, we model any

controversy whose issue is whether performing some action should be allowed or not as a zero-sum relation. On the basis of this model, it is possible to predict how a welfare state should handle this sort of controversies. That is, it is possible to predict how a welfare state should proceed to formulate the right to perform any action when there is a controversy, modeled as a relation of total divergence, in civil society concerning the issue of how this right should be formulated.

4.1.2 Overview of the chapter

The argument in the chapter is divided in four sections. In section 4.2, we begin our investigation of policymaking in the case rights to perform actions by, first of all, studying the government of relations of total divergence. The first standpoint from which we study the government of any kind of relations is the one of those who are involved in a relation of some kind because their personal welfare is affected by the performance of the action generating it. The example of a relation we use throughout the chapter to study the government of relations of total divergence is the same as was used in chapter 3 -the relation between A and B created by condition 1²³. To study the government of relations of total divergence with the help of this particular example of a relation, we more specifically give to it the form of a zero-sum game. The main conclusion reached at the end of section 4.2 about the government zero-sum relations is that any relation of this kind should involve someone disgruntled by how the right to perform the action generating the relation is formulated. This result explains why it can be predicted that, whenever the performance of an action generates between the one who performs it and

²³ Recall that when the relation between A and B is postulated to be created by condition 1, this means that A is the only individual involved in the relation postulated to be able to perform an action that gives rise to it. That is, an action whose performance affects the welfare of both A and B.

someone else a zero-sum relation, the formulation of the right to perform this particular action is likely to become sooner or later the issue of a political controversy in society.

We use this prediction that controversies can occur in society concerning the formulation of rights to perform actions as a stepping stone to consider policymaking in the case of this type of rights. The first question we investigate in that regard is the one of the different policy choices that can be made to formulate the right to perform any action. We investigate this question in section 4.3. We demonstrate in that section there are three different policy choices that can be made about any action to formulate the right to perform it. The right to perform any action can be formulated such that performing this action is going to be: (i) allowed or, (ii) regulated or, (iii) forbidden. Moreover, we demonstrate that there are two different things that can be done to regulate the performance of any action. The performance of any action can be regulated either: (i) by imposing a minimum or maximum limit on the intensity this action can be performed and/or, (ii) by making it mandatory to use a specific way or technique to perform it.

In section 4.4, we use the results obtained in 4.3 concerning how it is possible to formulate the right to perform any action to investigate how the right to perform any action is formulated affects the payoff this action provides to anybody. In 4.4, we especially investigate how the right to perform an action being the object of a zero-sum game in society has to be formulated to maximize the contribution this action can make to social welfare. On the basis of the results we obtain concerning this question, several conclusions are drawn in 4.4 concerning how welfare states should carry out policymaking in the case of rights to perform actions. Notably, we predict that a welfare state should always handle separately controversies occurring in society about different

actions whose issues are all: whether performing these actions should be allowed or not. We also draw the conclusion that a 'true welfare' should never cast in stone once and for all the formulation of the right to perform any action by spelling it out in an unalterable law or policy like a Constitution or a Bill/Charter of rights and freedoms.

The last section of the chapter is entirely devoted to the topic of state regulation. In section 4.5, the results obtained in 4.3 concerning how it is possible to regulate the performance of any action are used in conjunction with the ones obtained in 4.4 concerning how an action is regulated should affect the payoff its performance provides to anybody to predict how policymaking in the case of rights to perform actions should be observed to unfold when, in the case of a particular action about which there is a controversy in society concerning whether its performance should be allowed or not, the state wants to settle it by regulating the action being its object.

The most interesting predictions we make in the chapter concerning policymaking in the case of rights to perform actions concern state regulation. In that regard, we first of all come to the conclusion that regulation should not be seen as a kind or sort policies per se, on par with other kind or sort of policies such as the fiscal policy for instance. That is, we come to the conclusion that there are no such things as regulation or regulatory policies like economic regulation policies or, social regulation policies. Regulation, in our eyes, is rather a policy choice that can be made to formulate the right to perform any action. When the state regulates, what the state does policy-wise is formulating the right to perform some action such that performing this action is going to be regulated.

The most important result we demonstrate about regulation is no doubt that there are two different things that can be done about any action to regulate its performance.

The performance of an action can be regulated either in terms of the intensity beyond or below which it will not be allowed to perform it and/or, in terms of the way or technique it will be made mandatory to use to perform it. In that regard, we demonstrate that those who play a game of total divergence about an action should not be indifferent concerning whether the performance of this action is regulated in terms of the intensity or, the way it can be performed. We predict that any time there is a controversy in society concerning the issue of whether it should be allowed or not to perform some action, the two parties involved in that controversy should have different views not only about whether it should be allowed or not to perform this action, but also about what should be regulated about this action.

If it is known which one of the two parties involved in a controversy whose issue is whether the performance of a specific action should be allowed or not is the one whose welfare the state wants to protect by making the policy to regulate its performance, we can even predict how these two parties should each want this action to be regulated. In that regard, we predict that anyone whose welfare would be improved by the regulation of the performance of any action should prefer this action to be regulated in terms of the intensity it can be performed rather than in terms of the technique it will be mandatory to use to perform it. Anyone whose welfare would be negatively affected by the fact that the performance of an action would be regulated should prefer this action to be regulated in terms of the technique that will be made mandatory to use to perform it rather than in terms of the intensity it will have to be at most or at least performed.

These twin-predictions concerning who should prefer what when an action is about to be regulated or, is actually regulated by some state can easily be tested

empirically by the means of illustrative cases. This is precisely what we do at the end of this chapter by paying attention to actual cases of actions whose performance is either regulated, or it has been openly considered by some state to regulate their performance. The main actual case of regulation we consider at the end of the chapter is the one of the regulation of the extraction of oil from tar sands in Alberta. To do so, we reproduce in its entirety an open-letter written in 2008 by Alberta's premier Ed Stelmach concerning how he wants the federal government to regulate the extraction of oil from tar sands in Alberta to reduce greengases emissions.

In this letter, Stelmach argues that the best solution to the environmental problems caused by the extraction of oil from tar sands is: technology. Stelmach explains that it is how the province of Alberta presently addresses the issue of climate change. The technological solution to global warming, Stelmach clearly opposes it and, in fact, prefers it by far to the one of regulating the intensity the action of extracting oil from tar sands can at most be performed. This case conforms to our prediction that anyone whose welfare is affected by the performance of an action should not be indifferent between whether this action is regulated in terms of the intensity, or the technique it has to be performed. This case is also in line with our prediction that anyone who expects the payoff he receives from the performance of an action to be reduced if the performance becomes regulated should prefer that, if that happens, this action be regulated in terms of the technique that has to be used to perform it, rather than in terms of the intensity this action can (in this particular case: at most) be performed. At the end of the chapter, we also consider the cases of the regulation of the logging industry in British Columbia and

the case of the supply by the Ontario provincial government of public education in French to its francophone population.

4.2 The government of relations of total divergence

In this section, we investigate the government of relations of total divergence. The example of a relation we use throughout the chapter to study the government of relations of total divergence is, as mentioned above, the one of the relation between A and B created by condition 1. In the chapter, we study the government of relations of total divergence by more specifically giving to the relation between A and B created by condition 1 the form of a zero-sum game of total divergence.

4.2.1 A numerical example of a zero-sum relation

A good way to study the government of any kind of games is to use a numerical example. This is how we proceed throughout the chapter to study the government of relations of total divergence. However it is important to point out from the outset that the results demonstrated in the chapter apply not only to the particular case of the numerical example of a relation of total divergence that we explicitly consider, but also to the case of any relation which, just like the numerical example explicitly considered in what follows, satisfies the criteria defining what is a relation taking the form of a zero-sum game of total divergence.

If the following payoffs functions are ascribed to A and B respectively, the game modeling their relation will be zero-sum:

$$V_A(P_{AA}, P_{BA}) = 20P_{AA} \quad (4.1)$$

$$V_B(P_{BA}, P_{AA}) = -10P_{AA} \quad (4.2)$$

Recall that P_{AA} and P_{BA} are variables of a qualitative nature. What the values taken by P_{AA} and P_{BA} indicate is the outcome of the relation between A and B created by condition 1. That is, the values taken respectively by P_{AA} and P_{BA} at any point in time indicate whether, at this point in time, the action generating the relation is performed or not by A and, if so, who among A and B has determined the way this action is performed.

Given these considerations concerning the information conveyed by the values of P_{AA} and P_{BA} , what should immediately stand out concerning how V_A and V_B are expressed by (4.1) and (4.2) respectively is that neither V_A nor V_B depend at all on P_{BA} . Recall that P_{BA} denotes the power B exercises in the relation. When $P_{BA} > 0$, this means that A performs the action generating the relation in a way determined either in whole or in part by B.

The fact that P_{BA} 's value affects neither the payoff generated by V_A nor the one generated by V_B has to be interpreted as meaning that it is not realistic, given B's preferences about the action generating the relation, to expect that this action could ever be performed in a way determined either partially or totally by B. The reason is that $dV_B/dP_{BA} = 0$. This means that B is assumed here to be unaware of a single rule that could be instituted to regulate the performance of the action performed by A putting them in relation which, if instituted, would have the effect of positively affecting the payoff B receives from its performance.

The way an action is performed is considered here as being revealed by the set of rules regulating its performance. The fact that B is assumed here to not know a single rule

that could be instituted to regulate the performance of the action that puts him in relation with A that would have the effect, if instituted, of positively affecting the payoff that he receives from its performance, therefore, more generally means that B does not know a single way to perform this action which would allow him to receive a positive payoff from its performance.

The only variable whose value affects the payoffs generated respectively by V_A and V_B in the example of a zero-sum game considered here is, therefore, P_{AA} . P_{AA} affects the payoff generated by V_A positively, and the payoff generated by V_B negatively. It is the fact that P_{AA} 's value affects the payoffs generated by V_A and V_B in opposite manners (in combination with the fact that P_{BA} 's value does not affect the payoffs generated V_A and V_B) that has the effect of giving to the game modeling the relation between A and B created by condition 1 the form of a zero-sum game.

Figure 4.1 below depicts, in matrix format, this particular numeral example of a zero-sum relation.

**Figure 4.1: Numerical example
Of a zero-sum relation**

	$P_{BA} = 0$
$P_{AA} = 1$	20,-10
$P_{AA} = 0$	0,0

The payoffs configuration of the game depicted by Figure 4.1 reveals that B's preferred outcome is: $(P_{AA} = 0, P_{BA} = 0)$. $(P_{AA} = 0, P_{BA} = 0)$ is the outcome of the relation corresponding to the situation where the action generating it is not performed by A. A's preferred outcome of the relation according to Figure 4.1 is rather: $(P_{AA} = 1, P_{BA} = 0)$.

($P_{AA} = 1, P_{BA} = 0$) is the outcome of the relation corresponding to the situation where the action generating the relation is performed by A in a way A has entirely determined.

In the context of this particular numerical of a zero-sum relation, B's preferences about the action generating the relation are the ones which are the most interesting to consider in details. According to B's preferences, only one thing can happen to him as a result of the fact that A performs the action putting them relation. This thing is: incurring a negative payoff. As mentioned above, B is postulated to be personally unaware of a single way that could be used to perform the action that would allow him to receive a positive payoff from its performance.

From these considerations about B's preferences, it can be inferred that B most likely does not care at all about the way A either uses or, could be using to perform the action that puts them in relation. Rightly or wrongly, B does not consider the way A uses to perform the action that puts them in relation as a variable affecting the payoff he receives from its performance. Hence the issue of the way that A uses or, could be using to perform the action generating the relation is a moot point for B. All that B really knows for sure about this action is, aside from the fact that A is the one who performs it, the value of the payoff he receives from its performance. This payoff, as mentioned above, can only be negative in B's eyes. B is therefore likely not a big fan of the action that has the effect, whenever A performs it, of putting him in relation with A.

4.2.2 The rules of the zero-sum game depicted by Figure 4.1 and the legal context in which this game is assumed to be played by A and B

Figure 4.1 depicts the structure as well as the payoffs configuration of the game modeling the relation between A and B created by condition 1. The last thing that must

be established about the game used here to model the relation to be able to deduce the outcome that it should logically have (i.e., the natural outcome of the game) are its rules. As explained in chapter three, the rules of the game modeling a relation indicate what each of those who are involved in this relation can respectively do about the action generating it. This question of 'who can do what' about some action is closely related to the one of the rights the state will have no choice but to institute and enforce about this same action. The reason is that the state, by definition, has no choice but to make of each thing that any of its subjects can do about any object the object of a right. Accordingly, in this subsection, we first indicate the rules of the game depicted by Figure 4.1. Then, on the basis of the rules we give to the game, we discuss the legal context in which the game is assumed to be played by A and B.

According to Figure 4.1, there is only one thing that can happen to the action generating the relation between A and B created by condition 1 other than not being performed by A. This thing is: this action can be performed by A in a way entirely determined by A. This thing is represented by the model as having being done whenever $P_{AA} > 0$. Establishing the rules under which the game depicted by Figure 4.1 is played by A and B, therefore, essentially comes down to answering the following question: who can give to P_{AA} values greater than zero?

In chapter three, a general rule was designed to establish a priori who can possibly give to any variable P_{XY} values greater than zero. The general rule is that the consent of each of the individuals identified by the subscripts X and Y of any variable P_{XY} is required to give to it values greater than zero. The general rule implies, in the particular case of P_{AA} , that only A can be assumed to be able to unilaterally give to P_{AA} values

greater than zero. That is, only A can be assumed to have the capacity to unilaterally make the choice to perform the action generating the relation in a way that he, A, has entirely determined.

From a physical standpoint, an individual such as A will be able to unilaterally choose to perform some action in a way he will have entirely determined if this individual owns or, has free access to the capital he must use to perform it. If, for some reason, A does not have access to the capital he must use to perform the action generating the relation between him and B, then neither A, nor anybody else for that matter, can be assumed to have the capacity to unilaterally make A perform this action in any way. More precisely, when A does not have the capital he must use to perform the action that puts B in relation with him when he performs it, A needs to obtain a priori the consent of whoever owns this capital to, first of all, have access to it and, once this is done, being able to unilaterally make the choice to perform this action in a way he has entirely determined. Here we will assume from the outset that A already has the capital he must use to perform the action. The rules of the game depicted by Figure 4.1 are, therefore, such that A can unilaterally give to the game any outcome where $P_{AA} > 0$ such as, notably, $(P_{AA} = 1, P_{BA} = 0)$.

It is one thing for A to be physically able to perform some action. It is, however, another thing for A to have 'the right' to perform this action; in the sense of being allowed by the state to perform it. Here we will assume for research purposes that the action whose performance by A has the effect of creating a relation between him and B taking the form of a zero-sum game is not an action falling into the category of making use of force in an offensive manner against anybody else such as B. The fact that this

action is not violent in nature implies that, a priori, the state has no reason to forbid it. That is why we will begin to study the government of the relation between A and B created by condition 1 in a case where this relation is modeled as a zero-sum game by assuming that the state has made of the fact that A is able to perform the action generating the relation the object of a right, and also by assuming that the right to perform this action has been formulated by default by the state such that it is allowed for anyone to perform it.

4.2.3 The outcome of the game depicted by Figure 4.1

It was established in subsection 4.2.1 that A's preferred outcome of the relation is ($P_{AA} = 1, P_{BA} = 0$). This outcome is the one corresponding to the situation where A performs the action generating the relation in a way A has entirely determined. In subsection 4.2.2, it has been assumed that A has the necessary capital to perform the action, and it is allowed to perform it. By taking all these points into consideration, it can be deduced that the logical outcome of the relation as represented by Figure 4.1 is: ($P_{AA} = 1, P_{BA} = 0$). The logical outcome of the relation, given the game used here to model it, is therefore going to be considered as being the one corresponding to the situation where A performs the action generating it in a way A has entirely determined.

Figure 4.1: (reproduced)

	$P_{BA} = 0$
$P_{AA} = 1$	20,-10
$P_{AA} = 0$	0,0

$(P_{AA} = 1, P_{BA} = 0)$ is the outcome A prefers. $(P_{AA} = 1, P_{BA} = 0)$ is, however, considered by B as being the worse outcome the relation can have. B should therefore be disgruntled by this outcome. In the next subsection, we investigate the tactics that B could use to play the zero-sum game he has to play with A in the context of their relation to realize his preferences about the outcome it should have in a context where B's preferences about this matter are assumed to be unrealized in the present. That is, we will seek to deduce the tactics that B could use to deal with A in the context of their relation taking the form of a zero-sum to convince A to no longer perform the action generating it under the following constraints: (i) A has the capacity and also the right to perform this action and also, (ii) A gets a positive payoff by performing this action. Looking at how B could rationally attempt to govern the dependency he experiences toward A as modeled by the game depicted by Figure 4.1 will lead us to investigate questions pertaining to policymaking in the case of rights to perform actions.

4.2.4 Tactics to play a zero-sum game about an action

The reason why the relation between A and B created by condition 1 is modeled as a game is that someone involved in the relation depends on someone else who is also involved in the relation to realize her preferences about the action generating it. However, in the previous subsection, the game modeling the relation as been set up in a way such that A is assumed to be physically able to unilaterally give to the relation the outcome he prefers. That is, the relation in the previous section has been set up such that A does not depend on anyone else to realize his preferences about the outcome. This implies that, even though the relation as a whole is modeled as a game, B is the only party involved in

it for whom it is actually rational to see and treat the relation as a game to govern the outcome. The reason is that B is the only party involved in the relation who depends on someone else also involved in the relation to realize his preferences about the action generating it.

In fact B does not simply depend on A to realize his personal preferences about the action generating the relation. B entirely depends on A in that regard. B's preferred outcome of the relation is that A does not perform the action generating it. Given the rules of the game modeling the relation, only A can make the choice of not performing the action that gives rise to the relation. Since B is the only party involved in the relation for whom it is rational to see the relation as being a game to realize his preferences about the outcome, this implies that B is the only party involved in the relation who must have recourse to a *tactic* to attempt to govern the outcome. The tactic that B is looking for to govern his dependency toward A here is, more specifically, one which would have the effect of convincing A to stop performing the action providing him a negative payoff.

The first thing that B should do to attempt to govern the outcome of the relation in a way coherent with the preferences that he has about the outcome is: checking out how the right to perform the action generating the relation is presently formulated. If the right to perform this action is presently formulated in a way such that performing it is forbidden, then all that B would have to do in this case to realize his preferences about it is to inform the state A presently performs an action it forbids. This should prompt the state to punish A for having violated one of its laws. Hopefully, as far as B is concerned, the punishment administered to A by the state for having illegally performed this action is going to have the effect of deterring A from performing it ever again.

However, what should B do if the right to perform the action generating the relation is presently formulated by the state in a way such that it is allowed to perform it? When this occurs, there are two tactics B could use vis-à-vis A to attempt to convince him to stop performing the action. B could, on the one hand, choose to deal with A on the basis of how the right to perform the action generating the relation is presently formulated. This right is assumed to be in the present moment formulated by the state such that it is allowed to perform it. Given that A is postulated here to receive a positive payoff by performing this action, B would most likely have to compensate A to convince him of no longer exercising the right to perform it.

The other course of action that B could choose to pursue to govern the relation is by going over A's head so to speak. Instead of trying to convince A of no longer performing the action that gives rise to their relation by offering A some reward or payoff to do so, B could ask the state to reformulate the right exercised by A to perform this action such that it would be forbidden rather than allowed to perform it.

Economists are well aware of the fact that a transaction can take place between two parties about some object they both care about only when the rights that they can respectively exercise about this object are clearly formulated, and also thoroughly enforced by the state²⁴. Where there are rights that are at once well formulated and thoroughly enforced by some state, it makes more sense to deal with other members of society by taking account of the existence as well as the formulation of these rights than attempting to proceed as if they did not exist at all. This point is especially true when the

²⁴ This matter was discussed in chapter two. Economists consider all costs that have to be incurred to formulate and enforcing rights as ex ante transaction costs. Ex ante transaction costs are costs that have to be incurred before two parties ever realize that they could both benefit by making a transaction with each other.

right to do some thing about a given object is either formulated or, could be formulated in a way having the effect of realizing one's preferences about the latter. In B's case, his preferences about the action generating the relation are realized when this action is not performed. B's preferences about this action could, therefore, be entirely realized if it was forbidden to perform it.

On the basis of these considerations it can be concluded that, if the state is open to the idea of changing how rights like the one exercised by A to perform the action that provides a negative payoff to B are formulated, B should rationally prefer to, first, use the strategy of making of this right a political issue by asking the state to change its formulation than dealing with A, right off the bat, by offering him a compensation, and consequently a reward, to attempt to convince him of freely renouncing to perform this particular action. One reason why it would be rational for B to follow such a course of action is that if B is ultimately unable to convince the state to forbid the performance of the action providing him a negative payoff, the strategy of offering a reward to A to attempt to convince him to stop performing it will still be in the offing. Thus if there exists a possibility for B to attempt to convince the state to reformulate in a more restrictive manner the right exercised by A to perform the action that provides him a negative payoff, it would make sense for B to use this tactic first.

It is one thing for the state to be open to the idea of formulating rights to perform actions in a way other than by allowing their performance. But what are the other policy choices that can be made about the formulation of rights to perform actions? In the following section, we investigate the different policy choices that can be made to

formulate the right to perform any action. To do so, we use the model of relations generated by the performance of actions developed in chapter three.

4.3 Policy choices to formulate the right to perform any action

One of the things that must be done to model any relation such as the one between A and B created by condition 1 as a game is to identify the different outcomes this relation can have. The different outcomes a relation can have indicate the different things that can happen or be done about the action whose performance generates it. Given that the model highlights the different things that can be done about any action, it is therefore possible to use the model to deduce how the right to perform any action can be formulated. In this section, we use the particular example of the action whose performance by A has the effect of creating a relation between A and B to deduce the different policy choices that can be made to formulate the right to perform any action.

4.3.1 Identifying the different policy choices that can be made to formulate the right to perform any action

By looking at Figure 4.1, it is possible to see some of the things that could happen to the action giving rise to the relation between A and B created by condition 1. But it is important here to recall that games are used in rational choice theory to model dependency. Dependency is a phenomenon which is subjective in nature. That is, it is always someone who depends on someone else to realize preferences about something. A game, therefore, always models how some individual sees the dependency he experiences towards someone else to realize preferences about something. These considerations about what is modeled by a game raise the following question: from whose perspective does

Figure 4.1 shed light on what can possibly happen to the action generating the relation between A and B created by condition 1? Figure 4.1 is reproduced below.

Figure 4.1: (reproduced)

	$P_{BA} = 0$
$P_{AA} = 1$	20,-10
$P_{AA} = 0$	0,0

Two different things can happen to the action giving rise to the relation represented by Figure 4.1: either this action is performed by A in a way entirely determined by A or, this action is not performed at all by A. Given how Figure 4.1 depicts what could possibly happen to the action generating the relation between A and B, it would not be possible to infer from this figure, simply by looking at it, that this action could be performed in different ways or techniques by A. Or that A could perform this action according to different intensities.

This is so since if Figure 4.1 depicts a game played repeatedly and if, each time this game is played, the outcome is always ($P_{AA} = 1, P_{BA} = 0$), then it could not be inferred from this information about the outcomes this game has yielded in repeated plays that the way used by A to perform the action generating the relation is different from one round of play to the next, nor that A has performed this action according to different intensities from one round of play to the next. The reason is that ($P_{AA} = 1, P_{BA} = 0$) is the only outcome of Figure 4.1 corresponding to the situation where the action generating the relation is performed in some way and according to a positive intensity by A. The structure of the game modeling a relation must have at least two different outcomes both

corresponding to the situation where the action generating the latter is performed to be able to infer from it, simply by looking at it, that the action generating this relation can be performed in different ways and/or according to different intensities. This is not the case in Figure 4.1. That is why, when the relation is represented by Figure 4.1 and the outcome of the relation is ($P_{AA} = 1$, $P_{BA} = 0$), it is not possible to infer from this information anything about the way and the intensity A performs the action generating the relation.

Now, who among the parties involved in this relation is assumed to have no clue whatsoever concerning the way the action generating this relation is performed when it is actually performed by A? This party is likely not A since, when the action giving rise to the relation is performed, A is depicted here as having entirely determined the way he performs it. If A is the one who has single-handedly determined the way he performs some action, there is a good chance A knows the way that he has chosen to use to perform it. There is in fact a good chance A is aware there exist different ways as well as different intensities according to which he can perform this action. What Figure 4.1 therefore really depicts is the relation between A and B created by condition 1 as it appears from B's standpoint.

According to B, the right exercised by A to perform the action that puts them in relation can only be formulated in two different ways by the state. The state can either forbid the performance of this action or, alternatively, the state can forbid it. Are these two policy choices that can be made to formulate the right to perform an action such as the one that puts A and B in relation really the only two available? The answer to this question is negative. To identify the other policy choices that can also be made to

formulate the right to perform any action by using, as an example, the action generating the relation between A and B created by condition 1 modeled as a zero-sum game, it is necessary to look at what is going on in this relation from a perspective other than B's.

If the relation was instead depicted as it likely appears from A's standpoint, it would most likely look something like Figure 4.2 below.

**Figure 4.2: The zero-sum game
Representing the relation
Between A and B depicted
From A's perspective**

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	20,-10	20,-10
$P_{AA} = 0.5$	10,-5	10,-5
$P_{AA} = 0$	0,0	0,0

Figure 4.2 depicts the game modeling the relation between A and B created by condition 1 if equations (5.1) and (5.2) are used once again, just as in the case of Figure 4.1, to generate the payoffs A and B respectively receive in the different outcomes of it. The main difference between Figure 4.2 and Figure 4.1 is that the structure of the game depicted by Figure 4.2 contains three times more outcomes in total (6 outcomes in total) than the structure of the game depicted by Figure 4.1 (2 outcomes in total). The game depicted by Figure 4.2, despite the fact that its structure has more outcomes than Figure 4.1, is also, just like Figure 5.1, a zero-sum game. The reason is that Figure 4.2 does not have a single outcome A and B both *strictly* prefer to at least one of the other outcomes the game can also have.

The difference between Figures 4.1 and 4.2 is that Figure 4.2 includes three pairs of outcomes about which A and B are both indifferent. All the outcomes located on the same row of Figure 4.2 leave A and B indifferent concerning whether the game should have the outcome located in the column where $P_{BA} = 0$ or, the one rather located in the other column where $P_{BA} = 1$. The reason is, as mentioned previously, that P_{BA} 's value is not assumed here to affect at all the payoffs generated by V_A and V_B . Given that P_{BA} affects neither the payoff A receives from the performance of the action that gives rise to the relation nor the one that B receives from it, A and B are both, technically speaking, indifferent concerning the issue of the power B should exercise in the relation.

Actually, A and B are not indifferent about the issue of the power that B should exercise in the relation. It is rather that they have no preferences to speak of concerning this matter. The reason why neither A nor B has any preferences about the power that B should exercise in the relation is that B has no desire to exercise any power in the relation in the first place, and consequently B has never, thus far, manifested the desire to exercise power in the relation.

As long as B does not manifest the desire of determining the way A performs the action that puts them in relation, neither A nor B can really have an opinion or preferences concerning this matter. That is why, the correct way to see and interpret the outcomes appearing in Figure 4.2 where $P_{BA} > 0$ is to see them as being outcomes the relation cannot *realistically* have. The outcomes where $P_{BA} > 0$ are rather outcomes the relation can have in theory only. It is because, in what follows, we want to consider *all* the outcomes that a relation such as the one between A and B could theoretically have, rather than only the ones B personally considers his relation with A can possibly have,

that we use Figure 4.2 instead of 4.1 to represent it. So, for the sake of argument, let us model the relation for a while by the means of Figure 4.2 rather than Figure 4.1; while keeping in mind that, as far as A and B are both concerned, the outcomes where $P_{BA} > 0$ are not outcomes their relation can realistically have.

A and B are, therefore, both indifferent between $(P_{AA} = 1, P_{BA} = 0)$ and $(P_{AA} = 1, P_{BA} = 1)$ of Figure 4.2. However since neither A nor B sees how their relation could have $(P_{AA} = 1, P_{BA} = 1)$, let us continue to consider $(P_{AA} = 1, P_{BA} = 0)$ as the logical, and consequently initial, outcome of the relation even when it is represented by the means of Figure 4.2. Let us also consider that B's preferred outcome of the relation is still $(P_{AA} = 0, P_{BA} = 0)$, even though B is depicted by Figure 4.2 as being indifferent between $(P_{AA} = 0, P_{BA} = 1)$ and $(P_{AA} = 0, P_{BA} = 0)$.

If the present outcome of the relation is $(P_{AA} = 1, P_{BA} = 0)$, then the fastest way to go from the outcome $(P_{AA} = 1, P_{BA} = 0)$ to the outcome $(P_{AA} = 0, P_{BA} = 0)$ that B wants the relation to have would be to make the outcome of the relation shift downward in the column of the structure of the game modeling it where $P_{BA} = 0$ until the outcome $(P_{AA} = 0, P_{BA} = 0)$ is reached. This is certainly what B wants the state to do for him in terms of playing a part in the government of the relation. The other way to modify the present outcome of the relation according to Figure 4.2 would be to make the latter shift leftward in the row of the structure of the game where $P_{AA} = 1$ toward a column where P_{BA} is greater than zero.

There is, conceptually speaking, a considerable difference between making the initial outcome of the game depicted by Figure 4.2, $(P_{AA} = 1, P_{BA} = 0)$, shift in a downward manner in the column where $P_{BA} = 0$, versus making it shift leftward in the

row where $P_{AA} = 1$. Making the initial outcome of the relation shift downward toward the outcome ($P_{AA} = 0, P_{BA} = 0$) means, conceptually speaking, reducing the *intensity* the action generating the relation is performed by A. On the other hand, making the initial outcome of the relation shift leftward toward the outcome ($P_{AA} = 1, P_{BA} = 1$) means getting A to use a different *way* to perform the action generating the relation. To see why this is the case, let us temporarily discard the column of Figure 4.2 where $P_{BA} = 1$. Doing such a thing basically amounts to representing the relation in a manner closer to how B personally sees it.

**Figure 4.3: The zero-sum game
Representing the relation
Between A and B as it appears to B**

	$P_{BA} = 0$
$P_{AA} = 1$	20,-10
$P_{AA} = 0.5$	10,-5
$P_{AA} = 0$	0,0

Figure 4.3 depicts the relation between A and B created by condition 1 in a way such that, if the action generating the relation is ever performed by A, this action can only be performed in a way entirely determined by A. This is because, in Figure 4.3, only P_{AA} can take values greater than zero. This implies that, in all the outcomes of Figure 4.3 corresponding to the situation where the action generating the relation is performed, the way this action is performed is, in each case, entirely determined by A.

One of the postulates of the model is that changing the way an action is performed requires changing at least one of the rules regulating its performance. That is, to change

the way some action is performed, it is necessary to either add or suppress at least one of the rules regulating the performance of this action. However, the model does not represent the different outcomes a relation can have by explicitly identifying, and subsequently by listing one after the other, each of the different sets of rules that can possibly be instituted to regulate the performance of the action generating it. The model rather represents the different outcomes a relation can have by indicating *who* could possibly have instituted the rules regulating the performance of the action generating it.

In light of these technical points concerning how the model represents the different outcomes any relation can have, it would not be logical to infer from the fact that the outcome of Figure 4.3 has shifted downward from $(P_{AA} = 1, P_{BA} = 0)$ to $(P_{AA} = 0.5, P_{BA} = 0)$ that the way the action giving rise to the relation represented by it is performed is no longer the same following this shift of outcome. The reason is that $(P_{AA} = 1, P_{BA} = 0)$ and $(P_{AA} = 0.5, P_{BA} = 0)$ both represent the action giving rise to the relation as being performed in a way entirely determined by A. If A's preferences about the way he should ideally perform the action generating the relation are assumed to be fixed, then there is no reason to expect that, in all the outcomes of the relation corresponding to the situation where A entirely determines the way he performs this action, A is going to make different choices concerning the way he performs it. That is, if the outcome of the relation moves from one outcome like $(P_{AA} = 1, P_{BA} = 0)$ where A is represented as having entirely determined the way he performs the action giving rise to the relation to some other outcome such as $(P_{AA} = 0.5, P_{BA} = 0)$ where A is also represented as having entirely determined the way he performs this action, A should make the exact same choice in these two outcomes concerning the way he performs it. As a result, if the

outcome of the relation does shift from $(P_{AA} = 1, P_{BA} = 0)$ to $(P_{AA} = 0.5, P_{BA} = 0)$, it would be erroneous to infer from this shift of outcome that A does not use the same way anymore to perform the action generating the relation. As long as A is represented by the model as being the one who has entirely determined the way he performs the action generating the relation, the way used by A to perform this action should remain the same.

But what does happen to the action giving rise to the relation when the outcome of Figure 4.3 modeling it shifts down from $(P_{AA} = 1, P_{BA} = 0)$ to $(P_{AA} = 0.5, P_{BA} = 0)$? What happens is that the outcome of the relation is shifting down in the most straightforward manner possible toward the outcome corresponding to the situation where the action generating the relation is not performed: $(P_{AA} = 0, P_{BA} = 0)$. Concretely speaking, the most straightforward thing that can be done about any action which is in the present moment performed to bring it closer to the status of not being performed is to reduce the intensity it is performed. A shift of the outcome of the relation between A and B created by condition 1 operated strictly in the dimension of the structure of the game modeling it where P_{AA} 's different values are listed, therefore, does not represent a change of the way or technique A uses to perform the action generating the relation. What is represented by such a shift of outcome of the relation is, rather, a modification of the *intensity* A performs the action generating it.

On the other hand, if the outcome of the relation (as represented this time by Figure 4.2) would shift from $(P_{AA} = 1, P_{BA} = 0)$ to $(P_{AA} = 1, P_{BA} = 1)$, it would be necessary to infer from such a turn of events that the way the action giving rise to the relation is performed has been changed, and hence is no longer the same. This is so since, when P_{BA} 's value is increased from zero to any positive value allowed by its domain, this

indicates that B has just instituted at least one new rule to regulate the performance of the action generating the relation. By instituting at least one new rule to regulate the performance by A of the action putting them in relation, B has necessarily modified the way this action is performed. A shift of the outcome of Figure 4.2 from $(P_{AA} = 1, P_{BA} = 0)$ to $(P_{AA} = 1, P_{BA} = 1)$, therefore, represents a change that has been made by B or, for B's benefit (if doing such a thing is actually possible) to the way A uses to perform the action putting them in relation.

Another way to explain this result is to take into consideration the fact that, when the outcome of the relation shifts leftward from $(P_{AA} = 1, P_{BA} = 0)$ to $(P_{AA} = 1, P_{BA} = 1)$ in Figure 4.2, the outcome of relation does not move any closer to the one corresponding to the situation where the action generating it is not performed. That is why it would be erroneous, logically speaking, to infer that A has been forced or has, on his own, elected to perform the action giving rise to the relation according to a lesser intensity than before from the fact that the outcome of the game modeling it has shifted, within the row of the structure of the game where $P_{AA} = 1$, from right to left. The outcome of the relation has to move downward (at least when the relation is represented by Figure 4.2) to shift toward the outcome of the relation corresponding to the situation where the action generating it is not performed.

All this to say that what the model of relations developed in chapter three allows us to see is that there are two different things that can be done about any action to regulate its performance. Any action can be regulated by making it mandatory to use a specific way, method, or technique to perform it and/or, by making it illegal to perform this action beyond or below some intensity. Regulation therefore constitutes one of the

policy choices that can be made about any action to formulate the right to perform it. Regulation in fact constitutes an alternative to the two others policy choices that can also be made to formulate the right to perform any action identified earlier in this section by the means of Figure 4.1. Recall that these two other policy choices (i.e., other than regulation) that can be made about any action to formulate the right to perform it are: (i) entirely forbidding the performance of an action and, (ii) allowing the performance of an action in an unconditional manner (i.e., without regulating any aspect of its performance). Table 5 below indicates the different policy choices that can be made to formulate the right to perform any action by using, as an example, the action generating the relation between A and B created by condition 1.

**Table 5: Policy choices that can be made
About any action to formulate the right to perform it**

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	Option 3a	Option 1
$P_{AA} = 0.5$	Options 3a + 3b	Option 3b
$P_{AA} = 0$		Option 2

- Option 1: The state allows the performance of the action generating the relation in any way as well as according to any intensity anyone such as A may want to perform it. (A's preferred policy choice)
- Option 2: The state forbids the performance of the action generating the relation. (B's preferred policy choice)
- Option 3: (3a) The state makes it mandatory to use a specific way, method or, technique to perform the action generating the relation and/or, (3b) the state makes it illegal to perform the action generating the relation beyond or below some intensity.

Regulation is a policy choice that can be made to formulate the right to perform any action which, if the three different policy choices that can be made in that regard would be put side-by-side on a horizontal axis, would most likely be placed roughly in the middle of this axis between the other two. The reason is that regulation should appear in the eyes of an individual who can and wishes to exercise the right to perform any action as being a policy choice that can be made in that regard more coercive toward him

than the one of being allowed to perform this same action according to any way and intensity he may want to perform it. However, once again from the standpoint of an individual who can and wants to exercise the right to perform some action, the policy of regulating the performance of it should appear in his eyes as being less coercive toward him than the one of being entirely forbidden to perform it. Regulation is, therefore, the 'middle-of-the-road' policy choice in the case of rights to perform actions.

4.3.2 Differences between regulating the way and the intensity any action is performed

It is one thing to show that the state can do two different things to regulate the performance of any action. However, does it really matter whether the performance of any action is regulated by the state in terms of the way or, the intensity it can be performed? In what follows, we demonstrate that what the state chooses to regulate about any action should greatly matter to those who play a game of total divergence about it. The reason is that the payoff any individual receives from the performance of an action is more likely to be affected by a modification of the intensity this action is performed than by a modification of the way it is performed.

It is always possible to predict what will happen to the payoff that the performance of any action provides to anybody if the intensity this action is performed is modified in a specific manner. For instance, reducing the intensity an action is performed will have the effect, in the case of any action, of reducing the value of all the payoffs (negative and positive) the performance of this action provides to anybody. Conversely, increasing the intensity an action is performed will always have the effect, in the case of any action, of increasing the value of all the payoffs the performance of this action

provides to anybody. On the other hand, it is impossible to predict what will happen to the value of the payoffs the performance of any action provides if the way this action is performed is modified. In fact, in this latter case, there is no guarantee that the value of any of the payoffs the performance of an action provides will be modified at all if the way it is performed is changed.

To explain these results concerning regulation, let us come back to the example of the relation between A and B created by condition 1 as modeled by the numerical example of a zero-sum game depicted by Figure 4.2.

Figure 4.2: (reproduced)

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	20,-10	20,-10
$P_{AA} = 0.5$	10,-5	10,-5
$P_{AA} = 0$	0,0	0,0

Recall that the intensity the action giving rise to relation represented by Figure 5.2 is performed has to be considered as having been reduced whenever the initial outcome of the relation, $(P_{AA} = 1, P_{BA} = 0)$, shifts down in the column where $P_{BA} = 0$. Notice that when the initial outcome of the relation starts tumbling down in the column where $P_{BA} = 0$, the value of the payoffs A and B respectively receive from the performance of the action generating the relation both *changes* each time the outcome shifts down on a lower row. As the initial outcome of the relation slides down in the column of Figure 4.2 where $P_{BA} = 0$, A's and B's payoffs both take a hit value-wise, until they both become zero

when the outcome of the relation finally reaches the last row of the structure of the game modeling it where P_{AA} and P_{BA} are both zero.

One conclusion that can be drawn from these observations made by the means of this particular numerical example is that modifying the intensity an action is performed always has the effect of modifying the value of all the payoffs the performance of this action provides. None of the payoffs that the performance of an action provides remain the same when the intensity it is performed is either increased or, decreased. In fact, it can always be predicted what will happen to the value of any of the payoffs provided by the performance of an action if it is known how it is projected to modify the intensity it is performed. For instance, reducing the intensity an action is performed will have, in the case of any action, the effect of reducing the value of all the payoffs its performance provides. It is, therefore, impossible to fail at the task of reducing the value of the negative payoff the performance of an action provides to anybody by reducing the intensity this action is performed. No need to know any empirical information about an action to predict what will happen to the value of the payoffs its performance provides if the intensity this action is performed is modified in a specific manner.

From these results, two major conclusions can be drawn concerning the policy choice of regulating the intensity any action is performed. The first conclusion is that making the policy choice of regulating the intensity any action is performed will for sure have the effect of modifying the value of all the payoffs the performance of this action provides. It is impossible to regulate (in the sense of changing) the intensity an action is performed without modifying the value of all the payoffs (either positive or negative) the performance of this action provides. The policy choice of regulating the intensity an

action can be performed can, therefore, be described as a rather imprecise, blunt, or even as an unsophisticated policy instrument to attempt to modify the value of only one of the payoffs the performance of this action provides. The reason is that, with the help of this particular policy instrument, it is not possible to modify the value of only one of the payoffs the performance of an action provides to somebody without also, in the process, modifying the value of the payoffs that others also receive from the performance of this same action.

The second major conclusion arising from the points made above about regulating the intensity any action is performed is that those who play a game of total divergence about some action should all know what will happen to the value of the payoff they personally receive from the performance of this action if the intensity it is performed is ever modified by the state by regulatory means. For instance, in the case of the example of a relation taking the form of a zero-sum game considered in the chapter, it is B who receives a negative payoff from the performance by A of the action that puts them relation. Now suppose for the sake of argument that the state suddenly declares that the negative payoff B receives from the performance by A of this action is unacceptable socially speaking because it is 'too high'. At the moment that the state makes this declaration, A should know what will happen to the value of the positive payoff he receives by performing this same action if the state ever elects to improve the payoff B receives from its performance by using the policy instrument of reducing the intensity it is performed. A should know from the outset that the positive payoff he receives by performing this action will inevitably be reduced too in the process if the state chooses to protect B's welfare by reducing the intensity he can, at most, perform it.

But what would happen to the payoffs an action provides to each of those who play a zero-sum game about it if the state would instead make the policy choice to change the way this action is performed by using regulatory means to do so? It is theoretically speaking *impossible* to predict what would result from that policy choice. To see why this is the case, let us first consider Figure 4.2 once again.

Figure 4.2: (reproduced)

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	20,-10	20,-10
$P_{AA} = 0.5$	10,-5	10,-5
$P_{AA} = 0$	0,0	0,0

Figure 4.2 depicts the game modeling the relation. Let us also assume that the present outcome of the relation, as represented by Figure 5.2, is $(P_{AA} = 1, P_{BA} = 0)$; that is, the outcome corresponding to the situation where A performs the action generating the relation in a way A has entirely determined. To change the way this action is performed, it would therefore be necessary that someone other than A determines the way it is performed. In Figure 4.2, it is shown what happens when B determines the way the action generating the relation is performed.

According to Figure 4.2, nothing happens to the payoffs A and B respectively receive from the action that puts them in relation when B is able to determine the way it is performed. However, it is important here to recall that the outcomes of Figure 4.2 where $P_{BA} > 0$ are, because of B's preferences, outcomes that the relation could have in theory only. In theory, the payoffs that A and B each receive from the performance of the

action that gives rise to the relation when B exercises power in it could be different than the ones appearing in Figure 4.2. Concerning this question, recall from chapter three that:

$$dV_A/dP_{BA} >, < \text{ or, } = 0 \quad (4.3)$$

$$dV_B/dP_{BA} \geq 0 \quad (4.4)$$

According to (4.3), P_{BA} can affect the payoff generated by V_A either positively or, negatively or, not at all. In the case of V_B , P_{BA} can affect the value of the payoff generated by this payoff function either positively or, not at all according to (4.4). Figure 4.2 constitutes a case where the power that B exercises the relation has no effect on the payoffs that B and A each receive from the performance of the action generating it. But, as mentioned above, what is depicted by Figure 5.2 is just a possible case. The information that must be taken into consideration to predict what could happen to the payoffs that the performance of an action provides if the way used to perform it is changed is the one provided by (4.3) and (4.4).

According to (4.3) and (4.4), there are many outcomes that can occur as a result of the fact the way an action is performed is changed. Notably, in A's case, a modification of the way he uses to perform the action generating the relation initiated either by B or by somebody else who has B's interest at heart could have the effect of either increasing or, reducing or, leaving unchanged the payoff he receives by performing it. In B's case, predicting what will happen to the value of the payoff that he receives from the performance by A of the action that gives rise to the relation if the way used by A to perform it is changed requires knowing who has made this change. If B is the one who has changed the way the action giving rise to the relation is performed then, by virtue of

our no-regret assumption, B should not be made worse off by this change. However if this change is made by someone else than B then, like in A's case, all bets are off concerning how this change will affect B's welfare.

The only thing that can be predicted concerning how a change of the way an action is performed should affect the payoffs the performance of this action provides to anybody is that this change should not negatively affect the welfare of the one who has made it. In a sense, one who is in the habit of seeing things in a positive light could say that 'the sky is the limit' concerning what can be hoped to achieve in terms of modifying the value of one or, some or even, all the payoffs the performance of an action provides by changing the way it is performed. For instance, in theory at the very least, it would not be wrong to claim that the negative payoff provided by the performance of some action could be totally eradicated by devising a new way to perform it. It is, of course, just a matter of devising this new way to perform this action whose performance negatively affects the welfare of some and also, once this new way is devised, one will also most likely have to convince those whose welfare is negatively affected by the performance of this action that, by using this new way to perform it, they will no longer be negatively affected by its performance. Doing such a thing is not impossible according to our model of relations generated by the performance of actions. However, it is far from being a sure thing that anything will happen at all to the payoffs the performance of any action provides if the way used to perform it is changed. Nor is it a sure thing that the consequences one intends to cause, and consequently claims will be caused, by changing the way an action is performed will indeed be the ones that will occur once this change is made.

There are two major conclusions that can be drawn from these results about the policy choice of regulating the performance of an action by making it mandatory to use a specific way or technique to perform it. First of all, an individual who is asking the state to change how the right to perform an action is formulated because this individual is disgruntled by the payoff he personally receives in the present moment from its performance should not consider that the best thing that the state can do for him in that regard would be to regulate the way this action has to be performed. Given that modifying the way an action is performed is, *ceteris paribus*, less likely to modify the payoffs its performance provides than, instead, modifying the intensity this same action is performed, any individual who wants the value of the payoff he receives from an action to be improved should prefer that the state attempts to accommodate him in that regard by regulating the intensity rather than the way this action is performed. Conversely, any individual who is satisfied by the payoff he presently receives from an action should, in a case where it has become clear the state is about to regulate the performance of this action, be on the side of those who say that it is the technique this action is performed which should be regulated, rather than on the side of those who rather claim it is the intensity this action is performed which should be regulated.

A second conclusion that can be drawn from the points made above is that regulating the way an action is performed is, at least potentially, a more refined and precise policy instrument than regulating the intensity an action is performed. Only the policy instrument of regulating the way or technique an action is performed could have the effect of changing the value of only one of the payoffs the performance of this action provides (either the positive one or, the negative one) without affecting the value of the

other. This point is important to stress since it is highly unlikely that the state will ever consider the negative and positive payoffs the performance of an action provides to be both socially unacceptable. If the state considers regulating the performance of an action, it is because the state considers one of the two payoffs of opposite signs the performance of this action provides as being 'problematic'.

If such is the case, then one conclusion that can be drawn from the fact that the state has made the policy choice to regulate the way an action is performed rather than the one of regulating the intensity it is performed is that the state is in 'full-compromise mode' so to speak. Despite the fact that the state is dealing with a game of total divergence about an action whose performance provides payoffs of opposite signs to two distinct parties, the state is nonetheless attempting to modify the value of only one of these two payoffs without affecting too much the value of the other; at the risk of not improving at all the value of the payoff that it openly considers as being 'problematic'. In other words, the state is basically saying: the value of the payoff that the performance of some action provides to somebody is unacceptable. This problem must be rectified. Yet, to rectify the problem, the state uses the means or policy instrument least likely to succeed. If the state really considered the value of the payoff that certain individuals receive from the performance of some action as being problematic, then it would have taken the means to correct this problem most likely to get the job done. This means being: regulating the intensity this action can at most or at least be performed. If the state attempts to modify the value of the payoff that one of the two parties playing a zero-sum game about an action receives from its performance by regulating the way this action is performed, it can only be because the state is not willing to impose to the other party

taking part in the game the losses it would incur if the payoff of its opponent was improved by regulating the intensity the action being the object of the game can be performed. One sign that should be interpreted as meaning that the state wants to settle a controversy whose issue is the formulation of the right to perform an action such that the difference between the two parties involved in the controversy is split more or less in half (a sure sign that the state is in what we call 'full-compromise mode') is that, among all the policy choices the state could have made to settle this controversy, the state has chosen the one whose effects on the action being the object of this controversy are the hardest to predict a priori. This policy choice is: regulating the way the action being the object of the controversy is performed.

4.3.3 Conclusions about the different policy choices that can be made to formulate rights to perform actions

There are three different ways to formulate the right to perform any action. The right to perform any action can be formulated such that performing this action will be: (i) allowed or, (ii) forbidden or, (iii) regulated. Under the light of this result, state regulation is not depicted as a kind or sort of public policies as such, on par with other kinds or sorts of public policies such as taxation or, public ownership. What state regulation is according to the theoretical lens of our model of relations generated by the performance of actions is rather a policy choice, among others, that can be made about any action to formulate the right to perform it. Hence, this result leads to the conclusion that there are no such things as regulation or regulatory policies like economic regulation policies or, social regulation policies. What exist policy-wise are, rather, rights to perform actions.

The right to perform any action can be formulated by choosing to regulate the performance of the particular action being the object of this right.

The policy choice of regulating the performance of an action is a little different from the other two that can also be made to formulate the right to perform any action. The reason is that, to regulate the performance of an action, the state can actually do two different things. The state can regulate the performance of an action either: (i) by making it illegal to perform this action beyond or below a specific *intensity* and/or, (ii) by making it mandatory to use a specific *way, method, or technique* to perform it. But, given the points made in this section concerning how regulating the way versus the intensity an action is performed each affect the value of the payoffs the performance of any action provides, why not consider these two different things that can be done to regulate the performance of any action as being entirely different policy choices that can be made to formulate this sort of rights? The only thing that stops us from considering these two things that can be done to regulate the performance of an action as being totally distinct policy choices is that they can both be made concurrently to formulate the right to perform an action.

Indeed, the state can regulate the performance of an action by regulating at once the intensity, and the way this action is performed. These two things that can be done to regulate the performance of an action are, therefore, not mutually exclusive. This non-mutual exclusivity is in fact what distinguishes them from the other policy choices mentioned above. The performance of an action cannot, at the same time, be allowed and forbidden. Nor can the performance of an action be regulated and forbidden at the same time. In the case of these three things that can be done about an action, doing anyone of

them about any action automatically excludes the possibility of also doing any of the other two about it. This explains why we consider each one of these three things that can be done about an action as being the *different* policy choices that can be made to formulate the right to perform any action.

Even though we have already discussed at length the topic of regulation in this section, another section follows later on in the chapter entitled: Regulation. In this other section on regulation, we predict how should unfold policymaking in the case of rights to perform actions when the state is about to make the policy choice about an action whose performance is the object of a controversy in society to regulate its performance. To predict how policymaking in the case of rights to perform actions should unfold when regulation appears to be the most likely outcome of the process, we use the results derived in this section concerning the different things that can be done to regulate the performance of any action, and also the ones we derive in the next section. In the next section, we investigate how the right to perform any action is formulated affects the payoff it provides to anyone. This leads us to investigate how the right to perform an action being the object a zero-sum game in society has to be formulated in order to maximize the contribution it can make to social welfare.

4.4 Formulating rights to perform actions in light of welfare considerations: predictions concerning how a welfare state should proceed to carry out policymaking in the case of rights to perform actions

In the previous section, we have demonstrated there are three different policy choices that can be made about any action to formulate the right to perform it. This result raises the question of how the state should choose to formulate the right to perform an

action when there is a controversy in civil society about the policy issue of the formulation of this right. When there is a controversy in civil society concerning whether performing any action should be allowed or not, how should a welfare state proceed to identify the policy choice that can be made about this policy issue being the most compatible with the objective of maximizing social welfare? To investigate this question, we first investigate how the formulation of the right to perform any action affects the payoff that it provides to anybody.

4.4.1 How the right to perform any action is formulated affects the value of the payoff it provides?

Does the formulation of right to perform an action affect the value of the payoffs this action provides? The answer to this question is positive. Figure 4.1 demonstrates this result.

Figure 4.1: (reproduced)

	$P_{BA} = 0$
$P_{AA} = 1$	20,-10
$P_{AA} = 0$	0,0

Figure 4.1 depicts a game that can only have two outcomes. Nonetheless the two outcomes of Figure 4.1 correspond, from a policy standpoint, to two different policy choices that can be made about any action to formulate the right to perform it. ($P_{AA} = 1$, $P_{BA} = 0$) is the outcome of Figure 4.1 which, from a policy standpoint, corresponds to the policy choice of formulating the right to perform the action generating the relation represented by the figure such that it is allowed to perform it in an unconditional manner;

that is, it is allowed to perform this action in any way and also according to any intensity. ($P_{AA} = 0, P_{BA} = 0$) on the other hand is the outcome of Figure 4.1 which, from a policy standpoint, corresponds to the policy choice of formulating the right to perform the action generating the relation represented by the figure such that it is forbidden to perform it.

A receives different payoffs in the two outcomes of Figure 4.1. So does B. These observations, albeit drawn from a particular numerical example, nonetheless suffice to demonstrate the result that how the right to perform any action is formulated affects the value of the payoffs this action provides to anybody.

4.4.2 Formulating the right to perform an action being the object of a game of total divergence in society such that this action contributes as much as possible to social welfare

How the right to perform an action is formulated, therefore, does affect the value of the payoffs this action provides to those whose welfare is affected by its performance. We now ask if it is possible to know a priori how the right to perform an action being the object of a game of total divergence in society has to be formulated in order to maximize the contribution this action can make to social welfare.

Among the three different policy choices that can be made to formulate the right to perform any action that have been identified in the previous section, is there one which, in the case of any action being the object of a game of total divergence in society, would invariably have the effect of maximizing the contribution this action can make to social welfare? That is, in the case of the different actions which are made the object of games of total divergence in society over the course of time, should it be expected that a welfare state will choose to formulate the rights to perform all these actions in the exact

same way each? Or is it more likely that a welfare state will not choose to formulate the rights to perform all these actions in the exact same way each? In what follows, we predict that welfare states will most likely not be able to maximize social welfare by formulating the rights to perform all the actions that become the object of controversies in society concerning the issue of whether performing these actions should be allowed or not in the exact same way each.

A welfare state can be defined as a state that makes policy choices by first and foremost taking into consideration the individual and collective welfare of members of civil society. In the case of actions, the welfare (i.e., the payoff) any individual i receives from the performance of an action is given by $V_i(P_{XY})$. Social welfare is defined in the present context as the value obtained by aggregating together the personal levels of welfare of each of those who are part of society. The contribution that an action whose performance has the effect of putting at least two members of society in relation makes to social welfare is given by: $\sum V_i(P_{XY})$, with i, X and $Y \in R^{25}$. In the case of a relation such as the one between A and B created by condition 1, $\sum V_i(P_{XY})$ can be called a Relation Welfare Function (a RWF).

The general form of the RWF associated with the relation between A and B created by condition 1 is:

²⁵ Recall that R is the set including all the individuals or parties who receive a payoff from the performance of a specific action.

RWF = $\sum V_i(P_{XY})$, with i, X and $Y \in R = [A, B]$

$$V_A(P_{AA}, P_{BA}) = \alpha P_{AA} + \beta P_{BA} + C_A \quad (4.5)$$

$$V_B(P_{BA}, P_{AA}) = \zeta P_{BA} + \sigma P_{AA} + C_B \quad (4.6)$$

$$RWF = \alpha P_{AA} + \beta P_{BA} + C_A + \zeta P_{BA} + \sigma P_{AA} + C_B \quad (4.7)$$

$$RWF = P_{AA}(\alpha + \sigma) + P_{BA}(\beta + \zeta) + C_A + C_B \quad (4.8)$$

$V_i(P_{XY})$ has been assumed in chapter three to be linear in P_{XY} . $\sum V_i(P_{XY})$ is therefore also going to be linear in P_{XY} . Maximizing the value of a linear function requires giving to each of the variables on which this function depends one of the *extreme values* these variables can each take, given their respective domains (Chiang 655). Maximizing $V_i(P_{XY})$ as well as $\sum V_i(P_{XY})$, therefore, requires giving to each of the variables P_{XY} on which these two functions respectively depend either the value 0 or, the value 1. The reason is that, in chapter three, the domain of P_{XY} has been defined as being comprise in-between 0 and 1 inclusively.

It has been demonstrated previously in the case of the numerical example of a zero-sum game used here to model the relation between A and B created by condition 1 that A's and B's preferred outcomes of the relation are: $(P_{AA} = 1, P_{BA} = 0)$ in A's case and $(P_{AA} = 0, P_{BA} = 0)$ in B's case. These results about A's and B's preferences concerning the outcome their relation should have demonstrate that $V_i(P_{XY})$ is maximized when P_{XY} is given one of the two extreme values of its domain. However what about $\sum V_i(P_{XY})$? Which one of the extreme values that can be given to P_{XY} will have the effect of maximizing the value of the payoff generated by $\sum V_i(P_{XY})$?

In the case of the particular numerical example of a zero-sum game considered in this chapter, P_{BA} 's value is not assumed to affect the value of the payoffs generated by V_A and V_B . C_A and C_B are for their part constants in V_A and V_B both assumed to be zero. The RWF associated with the relation between A and B created by condition 1 when the game modeling it is the particular numerical example of a zero-sum game depicted by Figure 4.1 can, therefore, be expressed as:

$$\mathbf{RWF} = \mathbf{P_{AA}(\alpha + \sigma)} \quad (4.9)$$

Maximizing the value of (4.9) will require that P_{AA} takes the highest value of its domain if: $\alpha > |\sigma|$. (4.9) will be maximized by giving to P_{AA} the lowest value of its domain if: $\alpha < |\sigma|$.

To find out what value of P_{AA} will maximize (4.9), it is necessary to know the values of each of the two parameters of P_{AA} in V_A and V_B respectively, namely: the values of α and σ . This information has to be obtained to be able to tell which one of these two parameters is greater than the other in absolute value. Concretely speaking, comparing the values of α and σ to find out which one of them is greater than the other in absolute value means trying to find out who, among A and B, receives in absolute value the greatest payoff from the performance of the action that puts them in relation. This conclusion raises the following question: is it possible to know a priori who, among the different parties involved in any relation, receives in absolute value the greatest payoff from the performance of the action generating the relation?

The answer to this last question is negative. The model of relations developed in chapter three has no assumption determining a priori who, among the different parties involved in any relation, is the one receiving the greatest payoff in absolute value from the performance of the action which generates it. That is, it is not because a party involved in some relation is the one who performs the action generating it that this party is necessarily going to be the one, among all those who are involved in this relation, receiving the greatest payoff in absolute value from the performance of this action. Nor is it assumed in the model that the party involved in any relation receiving the greatest payoff in absolute from the performance of the action generating it is necessarily going to be someone other than the one performing this action.

Now, in a case where the relation between A and B created by condition 1 takes the form of a zero-sum game, A and B each receive payoffs of opposite signs from the performance by A of the action that puts them in relation. Since it cannot be known a priori whether the party involved in this relation receiving the greatest payoff in absolute is A or B, this implies that what really cannot be known a priori about the action generating this relation taking the form of a zero-sum game is whether the greatest payoff the performance of this action provides in absolute value is the positive one (i.e., the one A receives from its performance) or, the negative one (i.e., the one B receives from its performance). How the model is built, therefore, does not rule out a priori the possibility that, in the case of an action being the object of a zero-sum game in society, the greatest payoff the performance of this action provides in absolute value is the negative one.

This implies that, in the case of certain actions being the object of zero-sum games in society, the policy choice that can be made about the performance of these

actions that will best serve the objective of maximizing social welfare could be the one of entirely forbidding it. However, it is not because an action is the object of a zero-sum game between two parties in society that the value of the negative payoff the performance of this particular action provides will necessarily be greater in absolute value than the one of the positive payoff its performance also provides. In the case of an action being the object of a zero-sum game in society between two parties whose performance provides, overall, a greater positive payoff than a negative one in absolute value, the policy choice that can be made about its performance which will best serve the objective of maximizing social welfare is going to be the one of allowing it in an unconditional manner (i.e., without regulating its performance at all). All that can therefore be known a priori about the business of formulating the right to perform any action being the object of a zero-sum game in society such that the action being the object of this game contributes as much as possible to social welfare is that this will require either:

- (1) Allowing the performance of this action in an unconditional manner or;**
- (2) Entirely forbidding the performance of this action.**

When the state is informed by members of civil society that the performance of some action negatively affects their personal welfare, the state will not be able to deduce, strictly on the basis of this information, which one of the two totally opposite policy choices listed above is the one it will have to make about the performance of this action so as to maximize the contribution this action can make to social welfare. It is not because the performance of action provides a negative payoff to somebody that the best thing that can be done about this action from a policy standpoint to maximize social

welfare is to forbid its performance. It could happen that, even though the performance of a particular action does indeed provide a negative payoff to someone, the performance of this action also provides a positive payoff to someone else and that, in absolute value, the positive payoff provided by the performance of this action be greater than the negative one. However, the opposite could also be true. That is, it could happen that the performance of an action provides to the one who performs it a positive payoff which, in absolute value, is less than the negative payoff someone else also receives from the performance of this same action.

In the case of an action being the object of a zero-sum game between two parties, what must be done to determine how the right to perform this action has to be formulated to maximize the contribution it can make to social welfare is finding out *the cardinal value* of the positive and negative payoffs the two parties playing a zero-sum game about this action each receive from its performance. Thus, what a welfare state will have to do to formulate the right to perform any action being the object of a game of total divergence in society in a way compatible with the objective of maximizing social welfare is: (i) identifying all those whose welfare is affected by the performance of this action and also, (ii) assessing the cardinal value of the payoffs the performance of this action provides to each of those whose welfare is considered as being affected by its performance. This sort of information about an action is purely empirical; in the sense that the only way to obtain this sort of information is by observing it. It is, therefore, necessary to know information of an empirical nature about any action being the object of a game of total divergence in society to be able to tell which one of the policy choices that can be made about its performance is the one most compatible with the objective of maximizing social

welfare. On the basis of this result, several predictions can be made about how welfare states should proceed to formulate rights to perform actions. We state these predictions in the next subsection.

4.4.3 Predictions concerning how welfare states should proceed to decide how to formulate rights to perform actions

Observe that in the case of certain actions which are the object of games of total divergence, the policy choice that can be made about their performance most compatible with the objective of maximizing social welfare should, at least in theory, be the one of entirely forbidding it. From this result, it is possible to put forward the following hypothesis:

Result 1: A society whose welfare is maximized should be one in which the performance of certain actions, although not violent in nature, is nonetheless entirely forbidden.

There should be actions, though not violent in nature, whose performance should nonetheless be forbidden by welfare states. The reason why the performance of these actions will have been forbidden is that it is considered (rightly or wrongly) that their performance has a negative impact on social welfare.

On the other hand, welfare states should also be observed to allow the performance of actions about which it is known for a fact that their performance negatively affects the welfare of certain members of civil society. The reason why a welfare state could be led to allow the performance of an action whose performance undeniably negatively affects the welfare of certain individuals is that, despite this established empirical fact about this action, it is however considered that, on an

aggregated basis, the performance of this action provides a greater positive payoff than a negative one. This result is noteworthy given that the welfare state is sometimes nicknamed by economists: the benevolent state. Dennis Mueller takes this view of the welfare state as a benevolent/harmless entity a step further by dubbing it: the Nirvana state (Mueller 4). For Mueller, the welfare state is literally the 'too good to be true state'.

However, on the basis of this last result that a welfare state could allow the performance of actions that negatively affect the personal welfare of certain members of civil society, it is doubtful that an individual receiving a significant negative payoff from the performance by someone else of a particular action will consider the welfare state allowing that for the sake of maximizing social welfare as being especially kind or benevolent toward him. An individual being a subject of a state allowing the performance of an action providing him a substantial negative payoff (such as, for instance, a negative payoff which, in the eyes of this individual, takes the form of endangering his health or even, his life) in the name of maximizing the welfare of the society which he is a member of will likely not feel like he is living in a 'Nirvana-like' or 'too good to be true' society. One thing that must therefore be realized about the objective of maximizing social welfare is, therefore, that reaching this social objective may require sacrificing the personal welfare of certain members of society along the way.

But what are the actions welfare states should forbid the performance of for the sake of maximizing social welfare? On the basis of the model, it is possible to predict there should be actions whose performance produces more harm than good on an aggregated basis. But it is not possible to deduce from the model the list of actions that fit this description of producing more harm than good via their performance. Only

information of an empirical nature obtained one way or the other about a given action can reveal that, on an aggregated basis, allowing the performance of this particular action is a policy choice detrimental to the objective of maximizing social welfare.

The state would likely have a hard-time projecting to members of civil society the image of a welfare state committed to the objective of maximizing their collective level of welfare if it did not forbid them to perform a certain number of actions which do not fall at all into the category of using force in an offensive manner against someone else. There should be a certain number of actions, albeit non-violent in nature, whose performance makes a negative contribution to social welfare. However there is just no way to identify a priori the actions any state will have to forbid to protect and promote social welfare. The reason is twofold. The first is that it cannot be predicted which actions will be made over the course of time the object of games of total divergence in any society or jurisdiction. That is, it is impossible to predict the actions about which some will one day claim their performance negatively affects their personal welfare. Any action that can be thought of is therefore, at least in theory, as likely as any other to, one day, be made the object of a game of total divergence in society; and consequently the object of a controversy concerning whether performing it should be allowed or not.

In fact, it is not because some action can be observed to be the object of a zero-sum game between certain members of some society or jurisdiction that this will also be the case in all the other societies or jurisdictions. If an action is the object of a zero-sum game in one jurisdiction but not in another, the right to perform this particular action could very well be formulated differently in each of these two jurisdictions; even though these two jurisdictions are each governed by a welfare state. Given that it is impossible to

predict which actions are going to be made the object of games of total divergence at any given place and point in time, one should therefore *never* be surprised by the fact that the right to perform some action is formulated differently in two different jurisdictions. In fact, in light of these results, one should expect a fair amount of *diversity* in terms of how different welfare states each formulate the rights of their respective subjects to perform actions.

Another factor which should also have the effect introducing some diversity in terms of how different welfare states each formulate rights to perform actions is the fact that assessing and comparing welfare across individuals is anything but a scientific enterprise. There exists no reliable means or method to observe the welfare anyone receives or derives from some object like an action. Consequently it is impossible to compare in any accurate or undisputable manner the welfare that two different individuals each derive from the same object. These considerations imply that it could happen that different welfare states arrive at different conclusions concerning the contribution that certain actions make to social welfare by the means of their performance. If this happens, this should also have the effect of leading these different welfare states to formulate differently the rights to perform certain actions.

For the same reason that assessing and comparing welfare is not at all a scientific enterprise, it can also be predicted that welfare states may revise many times over the course of time the formulation of rights to perform specific actions. Since it is impossible to come up with any definitive and undisputable empirical information about the actual value of the payoffs the performance of any action provides, it should happen from time to time that new information of an empirical nature is discovered about the value of either

the positive or, the negative payoff the performance of certain actions provides, and that this 'discovery' has the effect of tipping the balance in the opposite direction concerning the contribution the performance of these action is perceived to make to social welfare. Certain actions whose performance had been forbidden in the past could be allowed once again because new information discovered about them has revealed that, after all, their performance provides a greater positive payoff than a negative one on an aggregated basis, and vice-versa. Smoking constitutes a great example of an action about which perceptions have greatly evolved over the course of time concerning the value of the payoffs (especially the value of the negative payoff) its performance provides. Smoking is an action whose performance has for a long time been allowed, and even encouraged by certain states. But smoking is an action whose performance is now slowly but surely on the way of being entirely forbidden.

Given the difficulties associated with predicting how rights to perform actions each have to be formulated to maximize social welfare, it can be concluded that a 'true welfare state' should always be open to the idea of reformulating the right to perform any action. That is, a 'true welfare state' should refrain from casting in stone once and for all by the means of some unalterable law or policy like a Constitution or, a Bill/Charter of Rights and Freedoms the formulation of the right to perform *any* action. Given that it is impossible to predict which actions are going to become, in the future, the object of games of total divergence in society and that, even when it is known for a fact about some action that it is the object of a game of total divergence in society it is still impossible to predict how the right to perform it must be formulated to maximize social welfare, a welfare state should refrain from developing any preconceived, and especially

definitive or immutable, opinions concerning how the right to perform any action should ideally be formulated. Casting in stone once and for all the formulation of the right to perform any action is, therefore, not a policy choice that can be justified by the normative objective of maximizing social welfare.

Thus a major prediction emerging from the various points made thus far in this section concerning how rights to perform actions are formulated affects the payoffs they provide is that the process used by a welfare state to formulate rights to perform actions should be one designed to gather, and also publicly diffuse, empirical information about the actions being the objects of these rights. We state this prediction more formally as:

Result 2: Policymaking in the case of rights to perform actions should be carried out by welfare states by the means of a process designed to gather and publicly diffuse information of an empirical nature about the actions being the objects of these rights. The information of an empirical nature a welfare state should especially look to obtain about an action being the object of a game of total divergence in society to formulate the right to perform it is: (i) the identity of those whose welfare is affected by the performance of this action and, (ii) the cardinal value of the payoffs the performance of this action provides to each of those whose welfare is considered as being affected by its performance.

Because welfare states must have information of an empirical nature about any action to be able to formulate the right to perform it in a way compatible with the more general objective of maximizing social welfare, they should be observed to treat the formulation of rights to perform different actions as entirely distinct policy issues. The reason why a welfare state should treat the formulation of rights to perform different actions as entirely distinct policy issues is that the information of an empirical nature

characterizing any action in particular will usually not reveal much about any other action. For instance, the information of an empirical nature a welfare state will have collected about the action of extracting oil from tar sands to formulate its policy about this issue will likely not be of much help to formulate the right to perform any other action such as abortion or, the traffic code.

If indeed there is not much similarity between the information of an empirical nature characterizing different actions, welfare states should therefore be observed to undertake all over again from scratch this process of collecting empirical information about each one of the actions which are made the object of a controversy in society concerning the issue of whether performing them should be allowed or not. This conclusion implies that a welfare state which is confronted either simultaneously and/or frequently with many controversies of a political nature whose issues are all whether performing some action should be allowed or not will not benefit from much economies of scale in terms of the time, energy and, resources it will have to spend to settle each of them. Even though a welfare state has already dealt not long ago with a controversy concerning the issue of whether the performance of a particular action should be allowed or not by diligently and thoroughly collecting empirical information about the action being the object of this controversy to settle it by a policy choice compatible with the objective of maximizing social welfare, it will most likely have to undertake all over again from scratch the same process of collecting information of an empirical nature the day that another action will, in its turn, become the object of a similar controversy.

If one would attempt to describe from an overarching perspective the process by which welfare states carry out policymaking in the case of rights to perform actions, this

person or observer would most likely be led to describe this process as being *fragmented* into many relatively small processes. Each of the small processes used by a welfare state to carry out policymaking in the case of rights to perform actions should be observed to have no other purpose but to feed this welfare state with information of an empirical nature concerning a single, specific, action only. This view of a fragmented policymaking process should be reinforced by the fact that, from one action to the next, it will most likely neither be the exact same members of civil society nor the same experts who will be consulted to collect information of an empirical nature about these different actions. Thus, we have:

Result 3: Policymaking should be carried out by welfare states in the case of rights to perform actions by the means of a case-by-case process. That is, welfare states should treat as entirely distinct policy issues the formulation of rights to perform different actions. This will have the effect of giving to the process by which welfare states formulate rights to perform actions a fragmented look when one considers it from an overarching perspective.

Finally, probably the most interesting result concerning policymaking in the case of rights to perform actions it is possible to draw by modeling controversies whose issue is whether performing some action should be allowed or not as zero-sum games is, arguably, that regulating the performance of an action which is the object of a zero-sum game in society cannot have the effect of maximizing the contribution this action can make to social welfare²⁶. That is, when the performance of an action can only have the

²⁶ This result concerning policymaking in the case of rights to perform actions is the only one which is true in the case of actions that are the object of zero-sum games of total divergence, but not in the case of actions that are rather the object of nonzero-sum games of total divergence. If an action is the object of a nonzero-sum game of total divergence, then regulating the performance of this action could have the effect (although not necessarily) of maximizing the contribution that this action can make to social welfare. This

effect in the eyes of someone of negatively affecting her personal welfare, regulating the performance of this action undeniably constitutes one of the policy choices that can be made about this action to formulate the right to perform it. However this policy choice cannot have the effect of maximizing the contribution an action being the object of a zero-sum game in society can make to social welfare. From this result, it can be predicted that:

Result 4: Welfare states should be pursuing an objective other than maximizing social welfare when they make the policy choice to regulate an action whose performance negatively affects the welfare of certain members of society.

What objective expressed in terms of welfare a welfare state could rationally seek to achieve by choosing to regulate the performance of an action being object of a zero-sum game in society? One objective a welfare state could rationally seek to achieve by regulating the performance of an action being the object of a zero-sum game between two parties being both members of civil society is to protect the welfare of the party taking part in the game receiving the smallest payoff in absolute value from the performance of the action being the object of the game. The reason is that what has to be done about an action being the object of a zero-sum game between two parties to maximize the contribution this action can make to social welfare is, basically, to formulate the right to perform it in the way preferred by the party taking part in the game receiving the greatest payoff in absolute value from its performance. This explains why a welfare state must

point must however be taken with great caution. The reason is that, in the case of relations such as the example of a relation used in the chapter which is notably characterized by the fact that there is only one action that generates it, it is highly unlikely that such a relation will take the form of nonzero-sum games of total divergence. The reason why it is unlikely that a relation such as the one between A and B created by condition 1 could take the form of a nonzero-sum game of total divergence has been explained in chapter 3.

know the cardinal value of the payoffs that the two parties playing a zero-sum game about an action each receive from the performance of this action to be able to formulate the right to perform it in a way compatible with the objective of maximizing social welfare. A welfare state wants to know this information to be able to tell which one of the two parties taking part in the game receives a greater payoff than the other in absolute value from the performance of the action being the object of it. Once a welfare state knows which one of the two parties playing a zero-sum game about an action receives the greatest payoff in absolute value, then it has to formulate the right to perform this action in the way this party prefers to maximize the contribution it can make to social welfare. In the case of actions that are the object of zero-sum games in society, formulating the rights to perform them in a way maximizing the contribution they can each make to social welfare, therefore, requires formulating these rights in the way preferred, and consequently advocated, by those receiving the greatest payoff in absolute value from their performance.

Zero-sum games are, more generally, games of total divergence. Games of total divergence involved parties having the exact opposite preferences about the outcome the game should have. This implies that when a zero-sum game is settled by the outcome one of the two parties taking part in the game prefers most, the game is also in that case settled by the outcome the other party also taking part in the game personally considers as being the worse outcome of the game. By choosing to use the criterion of the maximization of social welfare to formulate rights to perform actions being the object of zero-sum games in society, what the state sets itself up to do about these actions is, therefore, to formulate the rights to perform each of them in a way which will inevitably

be considered by some of those whose welfare is affected by their performance as the worse possible way to formulate them.

The state may, sometimes, have certain reservations of a political nature about the idea of formulating the rights to perform actions in the way that some consider as being the worse possible way to formulate these rights, even though it is what has to be done about the actions being the object of these rights to maximize social welfare. This should happen especially in cases where, to formulate the right to perform an action in a way having the effect of maximizing the contribution it can make to social welfare, it is necessary to coerce certain members of society receiving a negative payoff from its performance to incur this negative payoff in its entirety (i.e., full-blast). In that regard, there is likely a limit to the amount or level of negative welfare an individual can incur, and consequently be forced to incur.

Moreover, politically speaking, denying to an individual the right to perform an action providing him a positive payoff when he performs it is not the same as forcing an individual to incur a negative payoff from the performance by someone else of an action. Indeed, when the state forbids the performance of a particular action because the performance of this action has been shown to provide, on an aggregated basis, a greater negative payoff than a positive one, what the state is essentially saying to those who receive a positive payoff by performing this action by forbidding its performance is: 'find yourself something else to do to improve your personal welfare'. Indeed, when a given individual is forbidden to perform a specific action, this individual can recoup the losses he incurs by no longer being allowed to perform this particular action by finding another welfare-enhancing action to perform instead.

However, when the state allows the performance of an action providing a negative payoff to individuals other than the one who performs it, what the state is essentially saying to these individuals is that, no matter what they do, they will have to incur this negative payoff. That is, these individuals will have to live their lives by incurring this negative payoff each time this action is performed by someone else. That is why, from a political perspective, the state may be more reluctant to coerce individuals to incur negative payoffs generated by actions performed by others than taking away from individuals the rights to perform actions.

The state may, therefore, be reluctant about the idea of allowing the performance of actions providing negative payoffs to individuals other than the ones who perform them, and that even if allowing the performance of these actions is the policy choice most compatible with the objective of maximizing social welfare. When the performance of an action provides a greater positive payoff than a negative one in absolute value but the value of the negative payoff the performance of this action provides is nonetheless significant, what a welfare state could do in such a case to not appear as being totally indifferent to the welfare of those receiving a negative payoff from the performance of this action is attempting to limit the extent to which these individuals are negatively affected by it. What the state can do to achieve this policy objective of allowing the performance of an action while, at the same time, limiting the value of the negative payoff the performance of this action provides to certain individuals other than the one who performs it is to regulate its performance.

From these considerations, it can be seen that regulating the performance of an action being the object of a zero-sum game in society means making the policy choice of

sacrificing (i) social welfare and also, (ii) the personal welfare of the party taking part in the game receiving the greatest payoff in absolute value from the performance of the action being the object of the game. This policy choice is made with having in mind the objective of protecting the welfare of the other party also taking part in the game receiving the smallest payoff in absolute value. It is, therefore, when a welfare state is not ready or willing to sacrifice the personal welfare of one or certain members of civil society to the extent required by the objective of maximizing social welfare that it may rationally be led to make the policy choice about an action being the object of a zero-sum game in society of regulating its performance. In the next and last section of the chapter, we analyze policymaking in the case of rights to perform actions by postulating that the reason why the state wants to regulate the performance of an action being the object of a zero-sum game between two parties is, precisely, that the state wants to protect the welfare of the party taking part in the game receiving the smallest payoff in absolute value from the performance of the action being the object of the game.

4.5 Policymaking in the case of rights to perform actions when regulation is the most likely outcome of the process

Regulation has been shown in the preceding section as a policy choice inconsistent with the objective of welfare maximization. For this reason, in this section, we study policymaking in the case of rights to perform actions by assuming the reason why the state wants to regulate the performance of an action being the object of a zero-sum game between two parties is to protect the welfare of the party taking part in the game receiving the smallest payoff in absolute value. To study this situation, we use the same example of a relation as the one used thus far in the chapter -the relation between A and B created by

condition 1. We assume this relation to be modeled by the same numerical example of a zero-sum game as the one used in section 4.2. Figure 4.1 is reproduced below.

Figure 4.1: (reproduced)

	$P_{BA} = 0$
$P_{AA} = 1$	20,-10
$P_{AA} = 0$	0,0

Recall that, according to Figure 4.1, B always receives a negative payoff from the performance by A of the action that puts them in relation. In this example, B is assumed to be unaware of a single rule that could be instituted to regulate the action generating the relation that would have the effect, if instituted, of positively affecting the payoff he receives from it. Also, it is assumed that the right to perform the action generating the relation is formulated in the present moment such that it is allowed to perform it.

B's goal in the context of the relation is to prevent A from performing the action that generates it. Let us also assume that, initially, the state had said to both A and B it wanted to formulate the right to perform the action that puts them in relation such that this action contributes as much as possible to social welfare. That is, the state had initially informed A and B it wanted to settle the political controversy between them concerning how the right exercised by A to perform the action that puts them in relation should be formulated by siding with the one, among them, receiving the greatest payoff in absolute value from the performance of this action.

After having investigated this matter of who, among A and B, receives the greatest payoff in absolute value from the performance of the action that puts them in relation, it

has become more and more evident to the state in light of the information of an empirical nature that it has been able to gather about this action that A receives a greater payoff than B in absolute value from its performance. But this investigation conducted by the state about the action generating the relation has also revealed that B does receive a significant negative payoff from its performance. This consideration of an empirical nature that the negative payoff B receives from the performance by A of the action that puts them in relation is significant has had the effect of giving the state second thoughts about formulating the right to perform it with having in mind only the objective of maximizing social welfare. Given that the negative payoff B receives from the performance of this action is far from negligible, the state now hesitates to force B to incur this negative payoff in its totality.

In short, the state does see that the objective of maximizing social welfare requires in this particular case of allowing A to perform the action that provides a negative payoff to B without imposing any restriction on A in terms of how he can perform it. But the state simply does not have the 'guts' to do this. The state wants to appear in the eyes of the political community constituted by members of civil society as being nuanced. That is, as being someone who can see and appreciate both sides of the coin at the same time, and who can flip this coin such that it ends up falling right on its edge rather than squarely and flatly on one of its two sides. The state, therefore, wants to give a little something to B as well as to A (instead of totally siding with A) at the end of the political controversy they have been waging (for a while now) against each other in the process it has put in place to decide how to formulate the right exercised by A to perform the action putting them in relation. To do so, the state suddenly decides to set an arbitrary lower

limit to the value of the negative payoff that B can receive from the performance of this action. For the sake of argument, let us assume that the state has ended up seeing the cardinal value of the payoffs A and B respectively receive from the performance of the action that generates their relation as being the ones given by equations (4.1) and (4.2) respectively.

This has led the state to construct the following RWF to decide how to formulate the right to perform the action generating the relation:

$$\text{RWF} = P_{AA}(\alpha + \sigma) = P_{AA}(20 + -10) = 10P_{AA} \quad (4.10)$$

Maximizing this RWF, equation (4.10), clearly requires giving to P_{AA} the highest value of its domain. But, since the state does not consider it wise politically speaking to totally side with A in the context of this controversy, the state suddenly declares that it is not socially acceptable to force B to receive a negative payoff lower than, say, -5. This amounts on the part of the state to, from now on, attempt to maximize the RWF associated with this relation by respecting the following side constraint:

$$\text{Max RWF} = 10P_{AA}$$

$$\text{S.C.: } V_B(P_{AA}) \geq -5$$

This problem of maximizing the value of a RWF under the side constraint can easily be solved by the means of a graph.

Figure 4.4

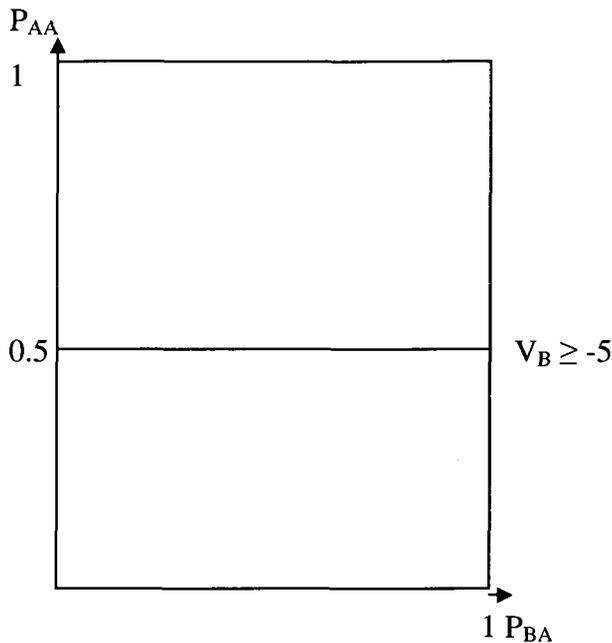


Figure 4.4 represents the relation between A and B created by condition 1 when P_{AA} and P_{BA} are both assumed to be continuous variables on the domain $[0, 1]$. The game modeling the relation is enclosed in the box shown. Only points located either in the box or on its perimeter constitute possible outcomes of the game modeling the relation between A and B created by condition 1.

The segment located in the middle of the box is the constraint arbitrarily set by the state to maximize the value of the RWF associated with the relation. The constraint has zero slope because P_{BA} is assumed here to affect neither the payoff generated by V_A , nor the one generated by V_B . From this, it can initially be concluded that what the state would have to do in that case to maximize social welfare while also respecting the side constraint that $V_B(P_{AA}) \geq -5$ is to forbid A to give to P_{AA} values greater than 0.5. But reaching this conclusion would actually be a little premature. What this result really indicates is that the most straightforward thing that can be done about the action

generating the relation to respect the constraint is to coerce A to reduce by half the intensity he has, up to this point in time, been performing the action providing a negative payoff to B.

However once the state does reach this conclusion that, to satisfy the constraint that $V_B(P_{AA}) \geq -5$, it would have to coerce A to reduce roughly by half the intensity he performs the action generating the relation, the state can then turn to A and tell him something like: ‘Now you have two choices. Either you find a new way to perform this action which would have the effect of providing B a negative payoff no worse than -5 or, if you fail to do that, ‘I’ will take care of this problem myself on your behalf by limiting the intensity you can perform this action such that this socially desirable objective is reached.’ Indeed, the real or accurate way to see how the government of this relation is unfolding once the state has reached the conclusion that, as things stand now, B receives a negative payoff from the performance of the action that gives rise to it which is ‘too high’ socially speaking is the one depicted by Figure 4.5.

Figure 4.5:

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$?	20,-10
$P_{AA} = 0.5$?	10,-5
$P_{AA} = 0$?	0,0

Recall that, in section 4.3.2, we have showed that it can always be predicted what will happen to each of the payoffs the performance of any action provides if the intensity this action is performed is modified. Reducing the intensity any action is performed will

have the effect of reducing the value of all the payoffs the performance of this action provides. That is why, at the moment that A hears the state declare that the negative payoff B receives from the action that he performs is too high, A should know that, if the state elects to rectify the problem by regulating the intensity he performs this action, the positive payoff he presently receives by performing it will also take a hit in the process. If A cannot convince the state to change its mind about the fact that the negative payoff B receives from the action that he performs is too high then, logically, the next thing that A should do to protect his own welfare is to try to convince the state to use a means or policy instrument to protect B's welfare *other* than limiting the intensity he can perform this action. Aside from regulating the intensity this action can be performed, the only thing that can be done about it to reduce the value of the negative payoff B receives from its performance is to use a different way to perform it.

It is important to stress here that, thus far, the way A uses or could use to perform the action generating the relation was a rather moot point in the policymaking process set up by the state to decide how to formulate the right to perform it. All that mattered thus far in the policymaking process as long as the state was claiming that it wanted to formulate the right to perform the action generating the relation between A and B such that this action contributes as much as possible to social welfare was the cardinal value of the payoffs that A and B respectively receive from its performance. But, now, the different ways A could use to perform the action become, so to speak, the wild card that A can play in the game between him and B, which is now taking place in the policymaking process, to attempt to govern the outcome in a manner favouring his

interest. This is exactly what Figure 4.5 and, more precisely, the left column of Figure 4.5 (where $P_{BA} = 1$) illustrates.

Figure 4.5: (reproduced)

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$?	20,-10
$P_{AA} = 0.5$?	10,-5
$P_{AA} = 0$?	0,0

The question marks in the outcomes of Figure 4.5 where P_{BA} is greater than zero indicate that no one can predict what will happen to the value of the payoffs A and B respectively receive from the performance of the action generating the relation if A was coerced to perform it in a way other than the one that he prefers to use to do it -which is the way A has thus far been using to perform this action. But if the state is adamant in its desire to cap off the value of the negative payoff B receives from the performance of this action to a value no worse than -5, then it would be rational for A to think long and hard about this policy choice. After all, who knows? Maybe there exists an alternative way to perform this action which would have the effect of significantly cutting down the value of the negative payoff B receives from its performance, which would however be less damaging to the value of the positive payoff that A receives by performing it in this other/non-ideal way than being coerced to reduce by half the intensity he performs it.

A may have initially been caught flatfooted in the policymaking process by the state's sudden desire to cap off the extent to which B is negatively affected by the performance of the action that he performs if the state did not indicate at the beginning of

it that it wanted such a cap or limit in that regard to be respected. For this reason, A may not have been able to convince the state to make the policy choice of regulating the way he uses to perform the action that puts B in relation with him to protect B's welfare. That is, A may not initially have been able to convince the state that there exists another way to perform this action having the effect of reducing the negative payoff B receives from its performance to a figure of -5 or less.

But nothing following this partial defeat incurred by A in the policymaking process prevents A to think long and hard about this question of the different ways he can use to perform the action generating the relation and, following this self-imposed reflection, to approach the state to inform it he has finally found a new way to perform this action having the desirable effect of cutting down the value of the negative payoff B receives from its performance. It is at this juncture of the policymaking process that B's unexpected victory at some earlier point in time in it when he was, at least, able to convince the state that the value of the negative payoff he receives from the action performed by A was too high could suddenly start to have a rather sour taste in his mouth. Indeed the state did ruled back then that it was alright socially speaking to force B to receive a negative payoff from the performance by A of the action generating the relation which can be as high as -5 for the sake of pumping up social welfare. Minus five is certainly better than minus ten. But what if this goes on forever? What if the state never elects to modify afterward the extent according to which B can be made worse off by the performance by A of the action that puts them in relation for the sake of promoting social welfare? Hasn't the state in essence condemned B to be made worse off forever by the performance of this action up to the tune of -5?

Indeed once the state arbitrarily sets the limit to which B can be made worse off by the performance by A of the action that gives rise to the relation, B cannot hope to receive a better payoff from the performance of this action than -5. But such is not A's case. A can attempt to improve the payoff he receives by performing this action 'simply' by coming up with new ways to perform it having the effect of reducing the value of the negative payoff B receives from its performance. For instance suppose that the state is, after a while, convinced by A that using a different way to perform the action providing a negative payoff to B would have the effect of reducing the latter. This turn of events can be represented by giving these new payoffs functions to A and B:

$$V_A(P_{AA}, P_{BA}) = 20P_{AA} - P_{BA} \quad (4.11)$$

$$V_B(P_{BA}, P_{AA}) = -10P_{AA} + 2P_{BA}P_{AA} \quad (4.12)$$

A is the one who has discovered a new way to perform the action generating the relation having the effect of reducing the value of the negative payoff B receives from its performance. However we model this discovery made by A of a brand new way to perform the action generating the relation in (4.11) and (4.12) by having P_{BA} , the variable indicating the power that B exercises in the relation, affect the value of the payoffs generated by V_A and V_B respectively. Why? Because A has designed this new way to perform the action solely for the purpose of improving the payoff B receives from its performance.

That is why, even though it is A who has invented this new way to perform the action generating the relation, using it instead of the old one negatively affects the payoff A receives by performing it. It is, therefore, not per se in A's interest to use this new way

to perform the action (i.e., to change the way he performs the action). Nevertheless, the reason why A wants the state to force him to use this new way to perform the action is that A expects the state to give him something in return for his new-found empathy toward B. What A is looking to obtain in return is: to be allowed to perform the action according to a greater intensity than the one he is presently allowed by law to perform it.

Indeed if the state is convinced by A that forcing him to use this new way to perform the action would positively affects B's payoff in the manner depicted by equation (5.12), then formulating the right to perform it under, once again, the side constraint that B's payoff cannot be lower than minus five would, now, require maximizing the following RWF:

$$\text{Max RWF} = V_A(P_{AA}, P_{BA}) + V_B(P_{AA}, P_{BA})$$

$$\text{S.C. : } V_B(P_{BA}, P_{AA}) \geq -5$$

$$\text{RWF} = V_A(P_{AA}, P_{BA}) + V_B(P_{AA}, P_{BA})$$

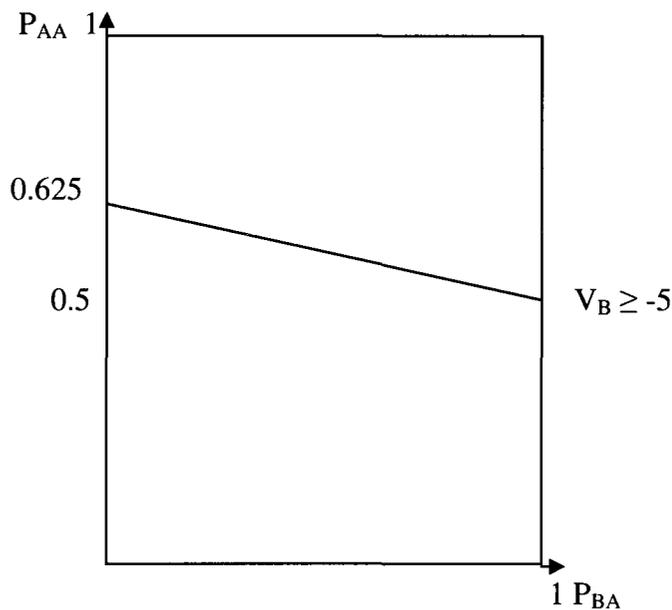
$$\text{RWF} = 20P_{AA} - P_{BA} - 10P_{AA} + 2P_{BA}P_{AA} = 10P_{AA} - P_{BA} + 2P_{BA}P_{AA} \quad (4.13)$$

The linear programming problem that the state now has to solve is:

$$\text{Max RWF} = 10P_{AA} - P_{BA} + 2P_{BA}P_{AA}$$

$$\text{S.C.: } V_B(P_{BA}, P_{AA}) = -10P_{AA} + 2P_{BA}P_{AA} \geq -5$$

Figure 4.6



In Figure 4.4, the constraint stipulating that B's payoff must be no worse than -5 took the form of a flat line. The fact that the constraint had no slope meant that the only thing that could be done to satisfy it was to regulate the intensity the action generating the relation can, at most, be performed. There was no other means to satisfy it.

However, according to Figure 4.6, this same constraint can be satisfied in several ways. One of them is to use the same policy instrument as before, which is: to forbid A to perform the action generating the relation according to an intensity greater than half of the one according to which A used to perform this action before B made of the formulation of the right to perform it the object of a controversy between them concerning the issue of how this right should be formulated. Another way to satisfy this same constraint is to regulate the action being the object of their controversy at once in

terms of the maximum intensity it can legally be performed, and in terms of the way it has to be performed.

A should prefer that the state regulates the performance of the action at once in terms of the intensity he can at most perform it, and also in terms of the way he has to use to perform it rather than being allowed to perform this action according to any way he may want to use to perform it, but not according to an intensity greater than 0.5. Indeed when A is forbidden to give to P_{AA} values greater than 0.5, the payoff A receives by performing the action is:

$$V_A(P_{AA}) = 20(0.5) = 10$$

And the contribution the performance of this action makes to social welfare in such a case is:

$$RWF = V_A(P_{AA}) + V_B(P_{AA})$$

$$RWF = 10 + -5 = 5$$

But if A is allowed to set P_{AA} to 0.625 (instead of 0.5) because, now, he is forced to set P_{BA} to 1 in his payoff function as well as in B's payoff function (that is: A is now coerced to use a specific way to perform the action generating the relation), the payoff that A will be able to receive by performing the action according to these new parameters is going to be:

$$V_A(P_{AA}, P_{BA}) = 20P_{AA} - P_{BA} = 20(0.625) - 1 = 12.5 - 1 = 11.5$$

So A's payoff is higher when he can perform the action generating the relation up to a point or intensity where $P_{AA} = 0.625$ while being coerced to set P_{BA} to 1 in his own payoff function, than when A is allowed to perform this action in the way he prefers to perform it but cannot perform it according to an intensity exceeding 0.5. The contribution the performance of this action makes to social welfare is also improved by making the policy choice of regulating it less in terms of the maximum intensity it can be performed by A, but more stringently in terms of the way that has to be used to perform it.

$$RWF = 10P_{AA} - P_{BA} + 2P_{BA}P_{AA} = 10(0.625) - 1 + 2(1)(0.625) = 6.25 - 1 + 1.25 = 6.5$$

Observe that, because this policy change, social welfare is increased from 5 to 6.5. But who actually reaps this increase of social welfare of 1.5? B? No because the state has already ruled at some earlier point in time that, for B, receiving a payoff of -5 in cardinal value is socially acceptable for the sake of promoting social welfare. So what the state rationally does for the sake of promoting social welfare is to transform the benefits B gets from the fact that it is forcing A to use a different way to perform the action that puts them in relation into credits it passes on to A by allowing him to perform this action according to a greater intensity than before. B, therefore, gets nothing at all from this policy change.

Now the reader can understand why we have claimed above that B's initial victory in the policymaking process which had occurred when the state decided to put a limit or cap on the value of the negative payoff he can receive from the performance by A

of the action putting them in relation can, over time, slowly but surely transform itself into a sour one. As long as the state does not modify its views that it is socially speaking acceptable to force B to receive a negative payoff from the performance by A of the action putting them in relation which can be as high as minus five to promote social welfare, A is the only one who can expect to make gains from now on in the policymaking process. To obtain those gains, all that A has to do is to devise new or alternative ways to perform the action generating the relation having the effect of lessening the negative impact its performance has on B's welfare.

As explained earlier, the different ways actions can be performed constitute the wild card in the process by which rights to perform actions are formulated. The reason is that it is impossible to predict what will happen to the payoffs provided by the performance of any action if the way used to perform it is modified. It can be expected that this wild card that can be played in the process by which rights to perform actions are formulated will, in most cases, be in the hands of those who perform controversial actions rather than in those of individuals whose welfare is negatively affected by the performance by others of actions. The reason is that the one who performs an action should be the one who knows most about the different ways that can be used to perform it²⁷.

From all this emerges two major predictions concerning how policymaking should unfold in the case of rights to perform actions when regulation appears to be how the state wants to settle a controversy in society whose issue is whether performing some action should be allowed or not. These predictions are:

²⁷ Those who actually perform an action are certainly the ones who are in the most convenient position to experiment, and consequently put to the test, different ways to perform it.

Result 5: The party involved in a zero-sum game about an action which is the one the state wants to protect/improve the welfare of by regulating the performance of this action should always prefer this action to be regulated in terms of the intensity it can be performed, rather than in terms of the way it has to be performed.

Result 6: Conversely, the party involved in a zero-sum game about an action whose welfare the state is not attempting to improve by regulating its performance should always prefer this action to be regulated in terms of the way it has to be performed, rather than in terms of the intensity.

These results lead us to predict that any controversy taking place in society whose issue is whether it should be allowed or not to perform an action will not die down if the state attempts to settle it by choosing to regulate the action being the object of it. As soon as the state lets it known to those who play a zero-sum game about an action it intends to settle the controversy existing between them concerning the issue of whether the performance of this action should be allowed or not by regulating its performance, a sub-controversy should immediately occur between these same parties concerning, this time, the issue of what should be regulated about the action being the object of the controversy. We can even predict how such a 'sub-controversy' should unfold. Whoever the state wants to protect the welfare of by regulating the performance of an action should argue that it is the intensity this action has to be performed which should be regulated. Whoever the state is willing to sacrifice the welfare of (along with social welfare) by regulating the performance of an action should argue that it is the way or technique this action has to be performed which should be regulated.

These results, therefore, suggest the conclusion that regulating the intensity and, the way any action is performed are, in essence, substitute policy choices. This will be true especially in the eyes of those who play a game of total divergence about an action. That is why it can be expected that, during the course of time, the state will be asked to change how it regulates the performance of certain actions, and may in fact make changes in that regard. For instance, in the case of the example of a zero-sum relation used in this section, there was an individual who wanted to convince the state to increase the intensity he is allowed to perform some action by proposing to, instead, regulate more stringently the way or technique this same action is performed. The opposite can also occur. Hence, policy change in the case of rights to perform actions can even be made concerning what is regulated about their performance. That is, we predict that changing what is regulated about any action should always constitute in the eyes of those whose welfare is affected by its performance a major policy change.

The results obtained in this section concerning policymaking in the case of rights to perform actions when regulation is either the actual outcome or, the most likely outcome of the process are illustrated by many real cases of actions whose performance is regulated by some state. In the next section, we consider certain actual cases of actions whose performance is regulated by some state to test the prediction that anyone who cares about how the right to perform any action is formulated should not be indifferent between the policy choices or regulating the way, and the intensity this action is performed, as well as the predictions concerning who should prefer what whenever the regulation of any action is considered.

4.6 Illustrative cases about regulation

The first actual case of regulation we are going to consider is the one of the regulation of the extraction of oil from tar sands in Alberta. To do so, we have chosen to simply reproduce in its entirety an open-letter written in 2008 by Alberta's premier at the time: Ed Stelmach.

Alberta is Taking Action on Climate Change

As Canadians, we are confronted with the challenge of reducing greenhouse gas emissions at a time when global energy demands are higher than ever before. **The question is how do we reconcile our energy needs with our emission responsibilities?**

While others sit around a cap-and-trade poker table figuring out how to redistribute chips and gamble on Canada's economic future, Alberta is taking real action to make real reductions. **Alberta believes the answer is in the deployment of proven technology and solid energy efficiency programs.** We should not be looking at schemes that will tax families out of their cars and homes, or allow companies to pay to pollute in Canada without actually making significant greenhouse gas reductions.

Carbon capture and storage (CCS) is a Canadian-demonstrated technology endorsed by the United Nations, the International Energy Agency and the G8 as a safe, viable climate change solution. Alberta believes CCS can help ensure the economy and the environment both thrive in the 21st century. **That is the backbone of Alberta's position** — a pragmatic approach that will allow us to continue to make a significant contribution to the Canadian economy while at the same time protecting the environment.

While Alberta's success in energy development has placed the province in the crosshairs of targeted misinformation campaigns, **there should be no doubt that we are in fact demonstrating decisive leadership in reducing greenhouse gases.** This month, Alberta made the single largest global commitment to a technology that can make a substantive cut in greenhouse gases. We created a \$2-billion fund to contribute to commercial-scale carbon capture and storage projects. This investment is equal to taking a million cars off the road each year. Alberta also announced \$2-billion to "green" our public transit systems across the province. These investments mirror the leadership shown when funding was provided for national highways, railroads and pipelines. For Alberta these unprecedented initiatives are part of a broader, comprehensive climate change strategy.

In 2007, Alberta became the first in North America to legislate greenhouse gas reductions on large industrial facilities, such as coal-fired electricity plants. **Results for the first year indicate companies in all industries made 2.6 million tonnes of actual reductions through operational changes and practices**, including better use and re-use of energy — that's equivalent to taking 550,000 cars of the road. Additionally large emitters contributed \$40-million to a technology fund that will be reinvested to further reduce emissions in Alberta. **Alberta's commitment to the environment is working in harmony with our position as a driving economic force in Canada.** For example, thousands of jobs are being created across Canada because of our oil sands, especially in the machinery, metal fabrication and manufacturing industries.

Today, as Saskatchewan Premier Brad Wall and I sit down in Quebec City with our provincial and territorial colleagues, we will not only be advocating for western interests but also laying out a vision that we truly believe will work for Canada. **It's a vision based on unleashing the potential of Canadian technologies that will set us apart as a leader in the global fight against climate change**, not on creating regionally biased programs that will fracture the country and devastate the economy.

Ed Stelmach is the Premier of Alberta.

[Emphasis in the text added by us]

This letter discusses how the issue of greenhouse gas emissions caused by the extraction of oil from tar sands in Alberta should be addressed policy-wise. In the letter, Stelmach refers early on to the cap-and-trade solution to greenhouse gas emissions as a gamble. That is, as a way to address the issue of greenhouse gases generated by the extraction of oil from tar sands which would likely cause important damages to the Canadian, and especially Alberta's, economy.

Fortunately according to Stelmach, there is another way to address the problem of greenhouse gas emissions caused by the extraction of oil from tar sands. This other way or solution to this environmental problem is the technological one which, in this case, takes the form of carbon capture storage devices. Making it mandatory for the oil companies extracting oil from tar sands in Alberta to store their carbon emissions is, as Stelmach himself puts it, the backbone of Alberta's position concerning how to reduce

the greenhouse gas emissions caused by this particular industrial activity. Stelmach prefers the technological solution to the cap-and-trade one because he is convinced that it protects the environment at a lower cost for the economy. How Stelmach expresses his preferences concerning what should be done policy-wise to regulate the extraction of oil from tar sands is clearly in line with what we call maximizing social welfare under a side-constraint. He expresses this by stating: 'Alberta's commitment to the environment is working in harmony with our position as a driving economic force in Canada.' This shows that our speculation in the chapter that welfare states may sometimes be led to maximize social welfare under the side-constraint that the welfare of this or that party is not negatively affected more than some limit is not that farfetched.

Finally, observe that Stelmach takes the time to stress in the letter that many reputable sources such as the United Nations agree with him that carbon capture storage devices constitute a viable technological solution to reduce greenhouse gas emissions caused by the extraction of oil from tar sands. The reason why Stelmach takes the time to say that he is not alone in his corner in that regard is that technology is not, a priori, the surest way to modify the effects, either positive or negative, caused by the performance of any action. As mentioned in the chapter, there is no way to predict what will happen to the payoff anyone receives from the performance of an action if the way used to perform that action is changed. That is why, anyone who argues that some payoff generated by the performance of a specific action should be modified by regulating the way that action is performed must substantiate his policy preferences in that regard by invoking sources and/or researches concerning this matter confirming that this is indeed feasible.

Another case very similar to the one of the regulation of the extraction of oil from tar sands for environmental reasons is the one of the regulation of the logging industry. For instance, Ken Lertzman, Jeremy Rayner and Jeremy Wilson have published an article in 1996 in the Canadian Journal of Political Science concerning the case of the regulation of the forest industry in British Columbia. In this article, Lertzman et al. test a theoretical hypothesis put forward by Paul Sabatier concerning policy change. Sabatier's hypothesis is that policy change can be triggered by what he calls policy learning²⁸.

Sabatier defines policy learning as a phenomenon occurring when the formulation of a policy is modified following the fact the social group whose interest is protected and promoted by how this policy is presently formulated has accepted that the formulation of this policy must be changed because of empirical facts and data presented and diffused by another social group whose interest is opposed to its own. For policy learning to occur, the formulation of some policy must therefore, first of all, be the object of a controversy in society between two rival groups. Moreover, the two rival groups involved in a controversy concerning the formulation of a specific policy must wage this political battle by the means notably of scientific data and evidence.

According to Sabatier, the formulation of any policy can be changed because of learning. However, all the case studies supporting Sabatier's hypothesis that learning and scientific discoveries can cause policy change concern more specifically so-called regulation policies. This does not surprise us. We claim that whenever the state regulates, what the state actually does policy-wise is to formulate the right to perform an action such that performing it is going to be regulated. In that regard, we have demonstrated in

²⁸ About Sabatier's hypothesis of policy change triggered by policy learning, see for instance Sabatier (1993), and also Sabatier and Hank C. Jenkins-Smith (1993).

the chapter that formulating the right to perform any action being the object of a controversy in society about the issue of whether performing this action should be allowed or not such that this action contributes as much as possible to social welfare requires knowing empirical information about it. If it is necessary to know empirical information about an action to formulate the right to perform it such that this action contributes as much as possible to social welfare, this implies that it is especially when the state is in the process of formulating the right to perform an action that scientific data and evidence will be invoked in the process used to formulate this right by those who care about this policy issue to attempt to influence the outcome of it.

In the case of the forest industry in BC, Lertzman et al. show that it has been accused by environmental groups politically active in BC of causing deforestation for a long time now. What is interesting in Lertzman et al. article concerning this policy issue is that they summarize the policy preferences of both the forest industry in BC, and the environmental groups criticizing it. In the case of environmental groups, Lertzman et al. depict their policy preferences in the following way: ‘...the amount of old-growth forest land preserved within the province’s park is insufficient to protect ... fish and wildlife scenic resources, recreational potential, or future options ... ought to be accorded greater protection in logging plans and operations.’ (Lertzman et al. 120) Environmental groups in BC, therefore, want logging activities to be limited by increasing the percentage of forested lands in BC being preserved. That is, the size of forested lands in BC in which logging is entirely forbidden.

On the other hand, the forest industry claims that it does its part to make sure that forests grow back after they harvest them. It justifies this claim by publicly stressing that

its members all abide to what it calls 'a sustain yield policy'. (Lertzman et al. 117) The core component of this sustain yield policy is what is called in BC: 'Integrated Resource Management' (Lertzman et al. 121). Integrated Resource Management is a way or technique to carry out logging activities in forests designed to insure that forests grow back after having been harvested by industrial means.

According to Lertzman et al, environmental groups do not buy the argument that Integrated Resources Management is a technique to carry out logging activities in forests having the effect of preserving forested areas in the long run. In that regard, Lertzman et al. state that: 'From its beginnings, the environmental groups directed much of their criticism at the gap between the myth and practice of sustained yield. ... If they could show that the forest industry was not delivering on the promise of sustained yield, they could raise doubts ... that could be parlayed into ... support for alternative visions of how the forests should be managed.' (Lertzman et al. 120)

The case of the forest industry in BC is very similar to the one of the extraction of oil from tar sands in Alberta. The reason why these two actions are regulated is, in each case, to attempt to reduce some of the negative impacts their performance produces on the environment. That is, the negative payoffs the performance of these two actions each provide to certain members of society. This implies that the reason why these two actions are regulated is not to improve the welfare of those who perform them, namely: industrial companies. No wonder then that, in these two cases, the industrial party is in favor of regulating the way or technique it has to carry out its activities. The companies of these two industries are both pitted against environmental groups that rather want their activities to be regulated in terms of the maximum intensity they can be carried out.

In the case of the forest industry in BC, environmental groups are ‘winning’ the war against the industry because they have been able to show that the techniques developed by it to carry out logging activities in forests in a sustainable fashion have to large extent failed to deliver this socially desirable outcome. As Lertzman et al. put it: ‘it [the industry] acknowledged that sustained yield as practiced would not ensure perpetual supplies of timber at levels to which the industry (and society) had been accustomed.’ (Lertzman et al. 121) This acknowledgment by the forest industry in BC that it was not practicing logging in a way insuring sustained yield in the long run has triggered a round of policy change in that regard. However, as Lertzman et al. point it out, change for the forest industry means using new (i.e., improved) techniques to harvest timbers in forests. In other words, it means more of the same in terms of what to regulate about the action of harvesting forests, but presented and delivered in a brand new package. In that regard, Lertzman et al. note that: ‘... the pace of policy change did quicken in the late 1980s. For example, the adoption of a requirement for Pre-Harvest Silviculture Prescriptions (PHSP), the institutionalization of the biogeoclimatic monocultures after reforestation and greater emphasis on non-game species all signalled greater sensitivity towards maintaining ecosystem integrity.’ (Lertzman et al. 123)

These are for sure policy changes. These policy changes made to BC’s policy regulating logging activities in forests have been mainly triggered by the critiques made by environmental groups concerning the damages logging activities are still causing nowadays to forested lands. This outcome is in line with the conclusion drawn in the chapter that regulating the way an action is not the surest policy instrument that can be used to modify the value of any of the payoffs provided by the performance of this

action. However, as it can be seen, the last round of policy changes made to BC's policy regulating logging activities in forests amount to changing, once again, the technique this action has to be performed. This raises the question of whether this really constitutes policy change at all?

This appears as policy change if one makes no distinction between regulating the technique versus the intensity any action is performed. One can fault neither Sabatier nor Lertzman et al. for not making this distinction between regulating the way, and the intensity any action is performed since we are the first here to make this distinction. However, in light of this distinction, this changes how one should proceed to test the hypothesis that learning (i.e., scientific discovery) can cause policy change. If an industry such as the forest industry goes from touting a particular technique to carry out its industrial activities in an environmental-friendly way to touting another technique because the first one previously touted has clearly failed to deliver the sought environmental results, can we really talk about policy change? We do not think so. This is policy change on paper, but not in spirit so to speak. For us, policy change in that case would mean going from regulating the way an action is performed to regulating its intensity too or instead, and vice-versa. The case of BC's policy regulating logging activities in forests, therefore, shows the theoretical value for understanding policymaking, and especially policy change, of the result demonstrated in the chapter that regulating the way and the intensity any action is performed is not at all one and the same.

The first two illustrative cases of regulation considered in this section are cases of regulation triggered by environmental concerns. These cases of regulation are, more

specifically, cases where the regulation of specific actions is proposed, or actually done, in order to reduce the value of the negative payoff the performance of these actions provides. The last case of regulation we will consider in this section is, however, not about the environment. This last case is rather the one of the struggle of Franco-Ontarians to obtain from the Ontario provincial government that it publicly funds a French public schools system. That is, Franco-Ontarians wanted their provincial government to fund a French public schools system in addition to the English public schools system it was already funding, and consequently it was already supplying to Ontario's citizens.

Francophones in Ontario have had a tough time getting their own public schools system. The difficulties they have encountered in that regard date back to even before education became publicly funded in Ontario. In 1910, the Ontario government implemented a regulation, called back then Regulation 17, whose intent was to put an end to education services provided in French in the province. Hanne B. Mawhinney describes in the following way the content of Regulation 17: 'The Regulation meant that government grants to schools would be contingent on the employment of teachers able to instruct in English; no textbooks other than those authorized by the Department of Education were to be used; and instruction in English was to begin as soon as a child entered any school.'(Mawhinney 67)

Regulation 17 was repealed in 1944. However, after 1944, the Ontario government never formally accepted to fund a public French schools system until it was forced to do so following the enactment of the Canadian Charter of Rights and Freedoms in 1982. Between 1944 and 1982, the Ontario government was proceeding in an ad-hoc

fashion to deal with the issue of French public education in the province. That is, the Ontario government only funded French schools after they had already been privately started by Francophones, these French schools had been in operation for a while, and those privately funding these French schools had asked the Ontario government to fund their operation in their place. In essence, the Ontario government was waiting to be placed in front of 'un fait accompli' before accepting to publicly fund a French school on its territory.

It is during this era comprised between 1944 and 1982 that a very interesting case concerning public education in French in Ontario occurred. This case more precisely took place in a small Ontario town called Penetanguishene. The francophone population of that town attempted to convince their local school board, and subsequently the Ontario provincial government, to publicly fund a French school for their community. Both the local school board and the Ontario government initially rejected that request. Both considered that funding a brand new school for the French population of this small town would be too costly. This case is, therefore, one where basically someone (the Ontario government) refuses to perform an action which would benefit someone else (i.e., Francophones) because this person or entity considered that performing that particular action would yield, overall, more costs than benefits.

However, both the local school board and the Ontario government did offer to do something on behalf of the French population of Penetanguishene. This thing was: changing the way public education in their town was provided by making the existing English school (the only one in town) more bilingual than it was the case at that moment. The Board in that regard proposed to build an annex to the existing English school to

house French students and classes. The Ontario government decided to supplement the Board's offer to build an annex by making the following proposition:

'The Conservative government minister of education at the time explained that, although a separate and distinct high school would be preferable in the case of Penetanguishene it would be financially impractical. She also argued that the right of Franco-Ontarians to a French-language education did not extend to having it in a separate building and proposed, instead, a separate French school within the existing Penetanguishene high school. This "homogeneous French-language school entity" would involve splitting the mixed secondary school into separate entities under their own principals, one English and one French; the two would share the same buildings and physical facilities but function separately.' (Mawhinney 73)

Neither the school board, nor the Ontario government wanted to perform the action of funding a separate French school in Penetanguishene because they thought that performing it would provide them, all things considered, a negative payoff. However, in order not to appear as not caring at all about the needs of the French population of Penetanguishene, they offered them to change, just for them on an ad-hoc fashion, the way they supplied public education in their town. They would retrofit the existing English school such that it could become two schools in one. That is, two schools for the price of one and half at the most instead of the price of two. This offer of two schools in one was rejected by the Francophone community of Penetanguishene. They got their own French school after all later on in the 1980s because of the advent of the Charter of Rights and Freedoms which gave no choice to the Ontario government but to publicly fund one for them.

How this case has unfolded is conformed with our prediction that anyone who has no reason to complain about the payoff she presently receives from the performance of an action should prefer that, if anything must be changed about that action, it be the way this action is performed rather than the intensity. Here, those who had no complaint about the existing public school system in Ontario as it was in the 1970s were those performing the action of supplying it to Ontario's residents, namely: the school boards in operation at that time and the Ontario provincial government. That is why, to address the problem of the lack of availability of public education in French in Ontario, they preferred to change the way they were at that moment already providing public education such that this service would be provided in a more bilingual fashion; as opposed to have to perform this action of delivering public education a second time by funding a brand new and separated school system operating in French instead of English. They preferred to have to perform this action only once, albeit in a different way as before (i.e., in a bilingual fashion rather than in an English only fashion), than having to perform it twice in different ways each (i.e., performing this action one time in English and also one time in French).

Let us note that the Canadian Charter of Rights and Freedoms which has forced the Ontario government to finally perform this action of funding a French School in Penetanguishene against its will can be said to regulate the performance of this action in terms of its minimal intensity. The reason is that the Charter stipulates that public education must be provided in any of Canada's official language (i.e., English and French) wherever the number warrants it²⁹. This 'wherever the number warrants it'

²⁹ The rights of official languages minority in Canada to receive public education in their own language is specified in article 23 of the Canadian Charter of Rights and Freedoms (Canada).

condition amounts to imposing a lower limit on the intensity this action has to be performed wherever this condition is satisfied.

4.7 Conclusions

In this chapter, we have derived several predictions concerning how a welfare state should proceed to formulate, and especially reformulate, the right to perform any action. The main prediction we make in that regard is that a welfare state should usually treat the formulation of rights to perform different actions as entirely distinct policy issues. This prediction stems from the result that, in the case of rights to perform actions, none of the policy choices that can be made about the formulation of these rights is guaranteed to have on all possible or conceivable actions the effect of maximizing the contribution they can each make to social welfare.

This result implies two conclusions. The first is that, in the case of different actions, it may be necessary to formulate the rights to perform each of them differently to maximize the contribution they can each make to social welfare. The second is that, to tell how the right to perform any action has to be formulated to maximize the contribution this action can make to social welfare, it is necessary to know empirical information about it. Given that, usually, there is not much overlap between the information of an empirical nature characterizing different actions, this leads us to predict that, most of the time, a welfare will have to undertake all over again from scratch the process of finding empirical information when it moves from the case of the performance of one action to the case of the performance of another one. It is, in the end, the fact that a welfare state should be observed to undertake about each of the actions about which controversies occur in society concerning the issue of whether their

performance should be allowed or not the process of gathering empirical information about them that will make it look like, from an overarching perspective, as if it treats these controversies waged about different actions as entirely distinct policy issues.

There are some who judge whether the results and predictions derived from some model, and more generally from some theory, are interesting or not on the basis of whether these results and predictions surprise them; in the sense of appearing to them as being counter-intuitive. In light of such a criterion, one may consider the prediction according to which a welfare state should treat the formulation of rights to perform different such abortion and the extraction of oil from tar sands as entirely distinct policy issues as not being particularly interesting. We are well aware that we are not surprising anyone by making this prediction.

However, it is important here to recall why we are making this prediction that the formulation of rights to perform different actions should be considered by a welfare state as entirely distinct policy issues. We do not make this prediction on the basis that actions are not all alike. That is, we do not take at all into consideration the intrinsic qualities of actions to conclude that two different actions are different things, and consequently should be handled separately policy-wise. The reason why we predict a welfare state should treat abortion and the extraction of oil from tar sands as distinct policy issues is not at all that abortion and the extraction of oil from tar sands are, objectively speaking, different actions.

What we base ourselves on to predict that a welfare state should treat abortion and the extraction of oil from tar sands as entirely distinct policy issues is, rather, the logic of controversies whose issue is whether performing any action should be allowed

or not. In that regard, we have demonstrated in the chapter that these controversies can all be modeled as games of total divergence, notably as zero-sum games. It is because we model controversies whose issue is whether performing any action should be allowed or not as games/relations of total divergence that we come to the conclusion that it cannot be known a priori about any of these controversies how it should be settled in order to maximize the contribution the action being its object makes to social welfare, and consequently that we predict these controversies should be handled separately.

Epistemologically speaking, it is a well-known fact that different theories about the same phenomenon cannot be directly pitted against each other to attempt to falsify one of them by using the other one as evidence to do so (Silberberg 10). This implies that our theory of policymaking in the case of rights to perform actions based on a model of controversies whose issue is whether performing any action should be allowed or not from which is derived the prediction that a welfare state should formulate rights to perform different actions separately does not, as such, invalidate the theory according to which the reason why rights to perform different actions are formulated separately is that different actions constitute, in themselves intrinsically speaking, different things. However, the researches we conduct in the next chapter disqualifies this other theory explaining the empirical observation that rights to perform different actions are formulated separately and independently from one another because actions are not all alike.

In the next chapter, we consider policymaking in the case, this time, of rights exercised by employers in firms to choose who they employ to perform any action on

their respective behalf. We predict that, even if two employers exercise the right to choose who they each employ about entirely different actions, a welfare state should formulate these two rights in the exact same way each by the means of the exact same policy (i.e., by the means of just one policy). That is, we come to the conclusion that a welfare state has no reason to make any distinction policy-wise between the issues of who different employers may each choose to employ, no matter how different the actions about which these different employers each exercise the right to choose who they employ to perform them on their respective behalf are.

The results and predictions that we derive in the next chapter concerning how policymaking should be carried out by a welfare state in the case of rights exercised by employers to choose who they employ make it possible to reject the theory about policymaking in the case of rights to perform actions according to which it is because actions are not all alike that such rights are, in most cases, formulated separately. What is disqualified by our researches concerning policymaking in the case of rights exercised about actions is, more specifically, that what has to be taken into account to predict the process by which any right exercised about an action should be formulated is the nature and intrinsic qualities of the objects (i.e., the actions) about which these rights are exercised. How we conduct our researches concerning policymaking in the case of rights exercised about actions shows that it is not necessary to know anything about an action to predict the process by which any right exercised about it should be formulated. What must be taken into consideration to predict the process by which any right exercised about an action should be formulated is, rather, the logic of the controversies that can occur in society about the formulation of such a right. The logic

of these controversies is precisely what is revealed by the model of relations generated by the performance of actions developed in chapter three.

APPENDIX TO CHAPTER 4

COASE'S THEOREM

In chapter four we consider the government of zero-sum relations. A relation is zero-sum if the performance of the action generating that relation in any way always has a negative impact on the welfare of at least one of those involved in it. The concept of zero-sum relations is, at first sight, very similar to the one of negative externalities. In economics, there is well-known theory about negative externalities. That theory is the Coase theorem.

In this appendix, we discuss the main differences between the theory developed in chapter four of policymaking in the case of rights to perform actions and the Coase theorem. We first of all argue that the main difference between the Coase theorem and our theory of policymaking in the case of rights to perform actions is that Coase considers how market forces could handle negative externalities whereas we rather consider how this kind of situations (we call zero-sum relations instead of negative externalities) could be handled by the state. We also argue that Coase uses his model of how market forces could handle negative externalities as a benchmark to assess whether governments do a good job or not at handling them. In that regard, we claim that taking into considerations the results and predictions of our theory of policymaking in the case of rights to perform actions allows comparing in a more meaningful manner what market forces and the state can respectively do about negative externalities.

The Coase theorem

The Coase theorem was initially developed in an article authored by Ronald Coase entitled *The Problem of Social Cost* (1960). At the very beginning of that paper, Coase describes in the following way the topic he considers in it:

‘This paper is concerned with those actions of business firms which have harmful effects on others. ... The question is commonly thought of as one in which A inflicts harm on B...’ (1)

In chapter four, we consider a relation between two individuals, A and B, generated by the performance by A of an action. That relation is modeled as a zero-sum game by assuming that the performance by A of the action generating it in any way always has a negative impact on B’s welfare. The example of a zero-sum relation considered in four can indeed be described a case of the kind A inflicts harm on B.

In his paper, Coase explicitly acknowledges he is tackling the topic of negative externalities in reaction to how that same topic is treated by Pigou in his influential textbook *The Economics of Welfare*. The main result Coase demonstrates in *The Problem of Social Cost* is, arguably, that maximizing social welfare does not, unlike Pigou claims in *The Economics of Welfare*, go after all those performing actions having a negative impact on the welfare of others. In that regard, Coase states that:

“The standard example is that of a factory the smoke from which has harmful effects on those occupying neighboring properties. The economic analysis of such a situation ... [has] followed the treatment of Pigou in the *Economics of Welfare*. The conclusions to which this kind of analysis seems to have led most economists is that it would be desirable to make the owner of the factory liable for the damage caused to those injured by the smoke, ... It is my contention that the suggested courses of actions are inappropriate, in that they lead to results which are not necessarily, or even usually, desirable.” [Italics in the text] (1)

That result of the Coase theorem is one we have also demonstrated in chapter four by using the concept of zero-sum relations. We have demonstrated that maximizing social welfare is likely to require allowing the performance of actions having a negative impact on the welfare of certain members of society³⁰. Concerning how to maximize social welfare, we therefore arrive at the same conclusions as Coase.

The main difference between our theory of policymaking in the case of rights to perform actions and the Coase theorem pertains to how situations of the kind ‘A inflicts harm on B’ should be observed to play out in society. We predict that this kind of situations should, in many cases, give rise to political controversies about the issue of whether the performance of the actions generating them should be allowed or not. Coase rather investigates what market forces can do about situations of the kind A inflicts harm on B.

The theoretical starting point of the Coase theorem is the same as the one of the theory of policymaking in the case of rights to perform actions developed in four. Some individual A performs an action having a negative impact on the welfare of some other individual B. Coase, just like us, assumes that the action performed by A having a negative impact on B’s welfare is one about which the state has a policy indicating

³⁰ This is Result 1 in chapter four.

whether it is allowed or not to perform it. Coase also just like us initially assumes that A is allowed by the state to perform the action having a negative impact on B's welfare. Coase then considers whether A is liable or not for the harm he inflicts on B by exercising the right to perform that action. Coase demonstrates this legal point to actually be of no consequence as far as the objective of maximizing social welfare is concerned. If the action A performs provides him less benefits than it inflicts harm on B, market forces will put an end to its performance by the means of a mutually beneficial agreement between A and B whether A is liable or not for the harm he inflicts on B by performing it.

In our case, we assume that A is allowed to perform the action having a negative impact on B's welfare and A is not liable for the harm he inflicts on B by exercising the right to perform it. We then look at that situation from B's standpoint. We conclude that, in such a case, B has the choice between two courses of actions to attempt to improve his welfare. B can either deal with A on the basis of how the right to perform the action generating the relation is formulated in the present moment. Given that A is presently allowed to perform that action and A is not liable for the harm he inflicts on B by performing it, B would have to offer some compensation or reward to A to stand a chance of convincing him to stop performing it. On the other hand, B could instead attempt to improve his welfare by asking the state to forbid A to perform the action having a negative impact on his welfare. This latter option or course of actions is the only one we consider in four. In four, we develop a theory of how a welfare state should carry out policymaking in the case of rights to perform actions by assuming that a

process is used to decide how to formulate the right to perform an action only when the formulation of that right is the object of a controversy in society.

Assessing governmental interventions vis-à-vis negative externalities

Coase demonstrates that market forces could take care of negative externalities in a way having the effect of maximizing social welfare. However, Coase claims that transaction costs could prevent market forces to eradicate negative externalities having a detrimental impact on social welfare. This last point leads Coase to conclude that:

‘The discussion of the problem of harmful effects ... has made clear that the problem is one of choosing the appropriate social arrangement for dealing with [them]. All solutions have costs and there is no reason to suppose that government regulation is called simply because the problem is not well handled by the market or the firm. Satisfactory views on policy can only come from a patient study of how, in practice, the market, firms, and government handle the problem of harmful effects. ... It is my belief that economists, and policy-makers generally, have tended to over-estimate the advantages which come from governmental regulation. But this belief, even if justified, does not do more than suggest that government regulation should be curtailed. It does not tell us where the boundary line should be drawn. ‘ (10)

Coase clearly did not believe that market forces could always be trusted in the case of negative externalities to protect and promote social welfare. However, Coase did not trust governments either. Coase, in the end, only trusts his fellow economists in that regard. Coase considers his theory of how market forces could handle negative externalities as a benchmark that can be used by economists to assess whether

governmental interventions vis-à-vis this and that negative externality improve social welfare or not.

About that research program Coase wanted economists to undertake whereby governmental interventions vis-à-vis negative externalities would be assessed in terms of their relative efficiency at protecting and promoting social welfare, we have demonstrated an important result in chapter four. That result is: regulation is not a policy choice compatible with the objective of maximizing social welfare. State regulation is a policy choice compatible only with the objective of protecting the welfare of a minority in society at the expense of the one of the majority and, consequently, at the expense of social welfare as a whole. This result implies that we can predict the results of any economic study assessing whether the regulation by some state of some negative externality improves or not social welfare. The result of any study of this type should logically be that state regulation has a detrimental impact on social welfare. That is to say, these studies should all reach the conclusion that social welfare could be improved by deregulation.

Comparing what market forces and state regulation can each do about any negative externality, therefore, essentially amounts to comparing apples and oranges. The reason is that the only objective that can rationally be sought by using market forces to handle any negative externality is to maximize social welfare. However, if the objective sought vis-à-vis any negative externality is indeed to maximize social welfare, then having that objective rules out a priori state regulation as means or policy instrument rational to use to achieve it. This goes to show that comparing what market forces and the state can each do about negative externalities requires not only showing

how market forces could, in ideal conditions, do an admirable job about them and then checking out whether the state, in reality, achieves the same results. Making a meaningful comparison between what market forces could do about negative externalities and what states actually do about them requires also having a theory about how states may deal with them. Our theory in that regard shows that anyone thinking that states regulate negative externalities in order to maximize social welfare is mistaken.

CHAPTER 5

RELATIONS OF PARTIAL DIVERGENCE OF THE FIRST KIND: A MODEL OF EMPLOYER-EMPLOYEE RELATIONS, AND A THEORY OF POLICYMAKING IN THE CASE OF RIGHTS EXERCISED BY EMPLOYERS TO CHOOSE WHO THEY EMPLOY

5.1 Introduction

In this chapter, we consider two topics closely related to one another. The first is the one of employer-employee relations. Employer-employee relations are better known in economics as firms. The second topic we consider extensively in this chapter is the one of policymaking in the case of rights exercised by employers to choose who they employ to perform any action in their respective behalf. Looking at how policymaking should be carried out in the case of rights exercised by employers to choose who they employ amounts to studying how the state should proceed policy-wise to settle the issue of the unionization of employees in firms.

To study these two topics, we begin by considering the government of relations of partial divergence of the first kind. The main result we demonstrate in this chapter about the government of relations of partial divergence of the first kind is that relations of this kind are likely to be organized as employer-employee relations. This result implies that the firm can be conceived as a relation generated by the performance of an action, and consequently modeled as a game.

By modeling the firm as a relation of partial divergence of the first kind organized as an employer-employee relation, it is possible to demonstrate that political controversies can occur in firms. When a political controversy occurs in a firm, the issue

of this political controversy is going to be the formulation of the right exercised by the employer of that firm to choose who he employs. That is, the issue of any controversy of a political nature opposing an employer to his own employees is going to be whether the employer should be allowed or not to replace any of those who are presently in his employment by individuals who are not.

We study policymaking in the case of rights exercised by employers to choose who they employ by making the same two assumptions as the ones made in chapter four to study policymaking in the case of rights to perform actions. Recall that these two assumptions are:

- (1) The only rights exercised about actions the state decides how to formulate them by the means of a goal-oriented process are the ones about which there are controversies occur in society concerning the issue of how these rights should be formulated.
- (2) When it is not possible to formulate a right in a way that would entirely please members of civil society all at once, the state instead attempts, as a second best, to formulate this right in a way having the effect of realizing an objective expressed in terms of welfare about its object like, for instance, maximizing the contribution this object can make to social welfare.

Once again, we postulate that what triggers policymaking in the case of rights is disgruntlement. It is because some disgruntlement is expressed about how some right is in the present moment formulated that the state will attempt to formulate it in way such that the policy choice made in that regard has the effect of realizing some goal or objective a priori selected. Given that those who are disgruntled by how a right is

presently formulated should be involved in a controversy concerning the issue of how this right should be formulated, this implies that it is not going to be possible to formulate this right in a way that would have the effect of pleasing everyone. This last consideration explains why we also assume about policymaking that, when the state is unable to formulate a right in a way that would entirely please everyone all at once, the state instead attempts to formulate this right in a way having the effect of realizing an objective expressed in terms of welfare about its object.

5.1.1 Relations of partial divergence of the first kind

By definition, any relation must at least involve one individual who prefers the action generating the relation to be performed in at least one specific way rather than not at all. If Y prefers some action to be performed in a specific way rather than not at all, then X's preferences about this same action will partially diverge from the ones of Y if X does not have the same preferences as Y concerning the way this action should be performed, but X prefers this action to be performed in the way preferred by Y rather than not at all. Having preferences about an action which partially diverge from the ones of someone else, therefore, means not having the same preferences as this other person concerning the way this action should be performed, while however preferring this action to be performed in the way this other person prefers rather than it be not performed at all by anyone.

We make a distinction between relations of partial divergence of the first kind and relations of partial divergence of the second kind. If X's preferences about an action partially diverge from the ones of Y, then the relation of partial divergence between X

and Y generated by the performance of this action is going to be of the first kind if X is the one performing the action generating it, and of the second kind if the action generating the relation is rather performed by Y. In the chapter, we only consider the government of relations of partial divergence of the first kind. The most important result we demonstrate in the chapter about relations of partial divergence of the first kind is that they are likely to be organized as employer-employee relations.

5.1.2 Overview of the chapter

The chapter is divided in two parts. The first part of the chapter is about the firm. In the first part of the chapter, we develop a model of the firm by using the concept of relations generated by the performance of actions to do so. The kind of relations generated by the performance of actions we use to model the firm are, more specifically, relations of partial divergence of the first kind.

In section 5.2, we lay the foundation of our model of the firm by, first, setting up an example of a relation generated by the performance of an action in a way such that it takes the form of a game of partial divergence of the first kind. The example of a relation we use to study the government of relations of partial divergence of the first kind is, once again, the one of the relation between A and B created by condition 1. In section 5.3, we begin investigating the government of relations of partial divergence of the first kind by assuming that the relation between A and B created by condition 1 takes the form of a game of partial divergence of the first kind, but we assume that this relation is not organized as an employer-employee relation. The main conclusion we reach at the end of 5.3 is that the party involved in the relation strictly because his welfare is affected by the

performance by someone else of an action (this party is B in the case of the example of a relation we use) stands no chance of realizing his preferences about this action if the one who performs it does not depend at all on him to be able to perform it. This result is interpreted as meaning that, when the relation between A and B created by condition 1 takes the form of a game of partial divergence of the first kind, it is in B's interest to organize it as an employer-employee relation. To organize the relation between him and A as an employer-employee relation, B will have to acquire the capital anyone must use to perform the action generating it such that anyone wanting to perform this action will depend on him, B, to do it.

In section 5.3, we study once again the government of the relation between A and B created by condition 1 set as a game of partial divergence of the first kind. But, this time, we assume the relation has already been organized by B as an employer-employee relation. Organizing the relation between him and A generated by an action performed by A as an employer-employee relation confers to B the capacity to threaten A in the context of the relation. In that regard, as A's employer, B can threaten A of losing the opportunity to be the one who performs the action generating their relation if A refuses or fails to perform it in the way B prefers most. However, the mere fact that B is in a position to threaten A in the context of the relation when it is organized as an employer-employee relation does not necessarily mean that A has to consider B's threat as credible; in the sense of being likely to be executed by B.

This consideration leads us in section 5.3.1 to investigate the credibility of B's threat of firing A and replacing him by someone else if A refuses or fails to perform the action generating their relation in the way B prefers most. To investigate this question,

we take a closer look at B's preferences about the action generating the relation when the latter is assumed to take the form of a game of partial divergence of the first kind. This examination of B's preferences allows us to draw the 'profile' of the person B wants to employ to perform the action that will have the effect of putting him in relation with her. What we find out in that regard is that the profile of the person that B is looking to hire to perform an action on his behalf basically corresponds to what is commonly referred to as an unskilled/unqualified worker. Given that there is usually no shortage of unskilled/unqualified workers, A should therefore consider B's threat of being fired and replaced by someone else if he fails or refuses to perform the action generating the relation in the way that B prefers as credible.

This result leads us to conclude at the end of section 5.4 that B's prospect of realizing his preferences about the action generating the relation are much better when B chooses to hierarchically organize it as an employer-employee relation than when B does not take the necessary steps to organize the relation in that way. In fact, at the end of 5.4, we predict that if the relation between A and B created by condition 1 taking the form of a game of partial divergence of the first kind is organized as an employer-employee relation, the outcome the relation is most likely to have in that case is the one that B, the employer of the relation, prefers. Given that A and B are assumed from the outset to have different preferences about the outcome their relation should have, the fact that the relation has the outcome preferred by B implies that A should be disgruntled.

What should disgruntle A in the relation when the outcome of it is the one that B, his employer, prefers is the lack of power that he exercises in the relation. A should want to exercise more power in the relation than his employer B lets him exercise in it in the

outcome of the relation B prefers. This result implies the conclusion that one issue that can become controversial in an employer-employee relation is the power the employee(s) should exercise in it.

In the second part of the chapter, which begins with section 5.5, we consider the government of relations of partial divergence of the first kind organized as employer-employee relations by taking into consideration the role the state plays in that regard. To do so, we pick things up in 5.5 as we have left them in 5.4. That is, we assume in 5.5 that: (i) the relation between A and B created by condition 1 takes the form of a game of partial divergence of the first kind, (ii) the relation is organized as an employer-employee relation and, (iii) the outcome of the relation is the one B prefers. This last point implies that A should be disgruntled by the outcome of the relation. More specifically, A should be disgruntled by the fact that his employer, B, prevents him from exercising in their relation as much power as he wants to exercise in it. This conclusion raises the question of the tactics that A could use against B, his employer, in the context of their relation to increase the power he exercises in it against the will of the latter.

One tactic an employee such as A could use against his own employer to exercise more power in their relation than the latter considers it to be in his interest to let him exercise in it is to go after the right his employer exercises in the relation to choose who he employs such that the latter would be forbidden, rather than allowed, to replace him by anyone else. In 5.5, we study the government of the relation between A and B created by condition 1 assumed to take the form of a game of partial divergence of the first kind and also assumed to be organized as an employer-employee relation by assuming that B is forbidden to employ anyone else except for A to perform the action generating the

relation. The main question we investigate in 5.5 is: given that B is forbidden to replace A by anyone else to perform the action generating the relation, does that mean that will B have no choice but to let A exercises as much power in the relation as A wants? That is, when the employees of a firm are unionized, does that mean their employer has no control anymore on the outcome of the relation?

In 5.5, we demonstrate two important results about the government of employer-employee relations, and consequently about the firm. The first is that, when an employer wants to deter his employees to exercise too much power in their relation in a context where they are unionized, it is going to be in the interest of this employer to hide from his employees the cardinal value of the payoff he receives from the actions they perform at his request on his behalf generating their relation. It will in fact be in the interest of such an employer to 'cry poor' so to speak to attempt to deter his employees to ask him to concede them things such as more power or, more money.

The second result we demonstrate in 5.5 about employer-employee relations is that, when an employer is forbidden to replace his employees (i.e., when the employees of an employer are unionized), the outcome of the relation is going to be in that case extremely unstable. The reason is that both the employer and the employees will in such a case be able to threaten the other. The employer will be able to threaten his employees to lock them out if they refuse to perform the actions generating the relation like he is telling them to perform them. The employees will be able to go on strike if the employer makes it difficult for them to exercise as much power in their relation as they want to exercise in it.

As some point, the employer and the employees may tire themselves of not knowing what the outcome of their relation is going to be from one round of play to the next. This may lead them to negotiate an agreement specifying the outcome their relation should have. Once they reach an agreement in that regard, they could put this agreement in writing in a contract. To make this contract binding, it will have to include a clause whereby the employer and the employees both renounce executing any threat against the other to modify the outcome of the relation as specified in the contract as long as the it is valid (i.e., not yet expired). We therefore predict that it is especially when the employees of an employer are unionized that this employer may end up signing with them a labor contract.

In section 5.6, we consider the question of policymaking in the case of rights exercised by employers to choose who they employ. That is, in 5.6, we ask: how a welfare state should proceed to decide how to formulate the right exercised by any employer to choose who he employs such that this right is formulated in a way compatible with the objective of maximizing social welfare when there is a controversy between the employer exercising this right and those in his employment concerning the issue of how this right should be formulated. In that regard, we come to the conclusion that a welfare state will not need to know anything about the business an employer operates to be able to formulate the right he exercises to choose who he employs in a way compatible with the objective of maximizing social welfare. This conclusion leads us to predict that a welfare state should only have a single, unique, policy to formulate the rights of all the employers of its jurisdiction to choose who they each employ.

The predictions concerning how policymaking should be carried out by a welfare state in the case of rights exercised by employers to choose who they employ are made in 5.6 by assuming that the payoffs the employer and the employee each receive in the different outcomes of their relation are cardinal. However, in 5.6, we leave aside the intensity of these payoffs. That is, in 5.6, we assume that the employer and the employee receive payoffs of equal cardinal value in the outcomes of their relation to which they ascribe the same ordinal value in their respective preferences concerning them.

In 5.7, we drop this assumption. That is, in 5.7, we allow for cases where the payoffs an employer and his own employees respectively receive in the outcomes of their relation to which they each ascribe the same ordinal value may however have different cardinal values; that is to say, different intensities. We however also assume that side-payments are allowed. That is, we assume that the employer and the employees can each redistribute to the other a part or percentage of the cardinal payoff they personally receive in the outcome of their relation.

Making these assumptions about the payoffs allow us to predict that, in employer-employee relations, power can be traded for money. More specifically, we predict that an employer could be led to offer his employees a 'raise' to convince them to renounce exercising more power in the relation. To illustrate this prediction, we conclude the chapter by looking at the case of the tactics that policemen in Québec often use nowadays to obtain a pay raise. This tactic is the one of wearing jeans at work.

We argue that, by unilaterally choosing to wear jeans at work instead of wearing their regular uniform, what policemen do is exercising the power to determine what they wear while on duty. When policemen do that, what they do is more specifically

exercising more power in the relation than their employer wants them to exercise in it. They exercise the power to determine what they wear while on duty in order to, basically, annoy their employer. They do this annoying thing in order to use it as a bargaining chip. They want to trade (in the sense of giving up) the power to determine what they wear at work in return for a pay raise.

This case illustrates that power is, alongside money, an issue about which conflicts can occur in employer-employee relations. That is, in employer-employee relations, the issue of money (i.e., the issue of who gets what) is obviously an important one. But, so is the issue of power. The issue of power is, more specifically, the one of *who* exercises power in the relation. In that regard, the most interesting feature of our model of the firm is that power is assumed to be exercised in it. But, in the model, it is not determined or settled a priori who exercises power in the firm. The question of who exercises power in the firm is one that, according to our model of the firm, is up to an employer and his own employees to settle on their own. Settling this question may give rise to a conflict between an employer and his own employees. One way for the employees of a firm to wage a conflict about power and/or money with their employer is to create a controversy of a political nature concerning the issue of the formulation of the right exercised by their employer to choose who he employs.

Part I: The firm

In this first part of the chapter, we develop a model of the firm. To do so, we have recourse to the concept of relations generated by the performance of actions. The kind of relations we use to develop a model of the firm is, more specifically, relations of partial

divergence of the first kind. We show that, when a relation is one of partial divergence of the first kind, this relation is likely to be organized from the inside (i.e., by someone involved in the relation) as an employer-employee relation.

5.2 A numerical example of a relation of partial divergence of the first kind

A relation between two parties is going to take the form of a game of partial divergence if these two parties do not have the same preferences about the way the action generating the relation should be performed, but at least one of them prefers this action to be performed in the way preferred by the other rather than not at all. In the particular case of the relation between A and B created by condition 1, this relation will take the form of a game of partial divergence of the first kind if A and B do not have the same preferences about the way the action generating the relation should be performed, but A prefers to perform this action in the way preferred by B rather than not at all. If A and B are respectively ascribed the two following payoff functions, their relation is going to be modeled as a game of partial divergence of the first kind:

$$V_A(P_{AA}, P_{BA}) = 2P_{AA} + 10P_{BA} \quad (5.1)$$

$$V_B(P_{BA}, P_{AA}) = 30P_{BA} - 8P_{AA} \quad (5.2)$$

**Figure 5.1: Game of Partial
Divergence of the First Kind
Modeling the relation
Between A and B**

	P_{BA} = 1	P_{BA} = 0
P_{AA} = 1	12,22	2,-8
P_{AA} = 0	10,30	0,0

Here the payoff A receives in any of the four outcomes of the game is, as it was the case in the previous chapters, the value appearing before the coma dividing each outcome in half. B's payoff in any of the four outcomes of Figure 5.1 is the value appearing right after the coma dividing each outcome in half. For instance, in the outcome ($P_{AA} = 1, P_{BA} = 0$) located in the top-right corner of Figure 5.1, A's payoff is 2 whereas B's payoff is -8 .

According to the figure, B's preferred outcome of the relation is ($P_{AA} = 0, P_{BA} = 1$). ($P_{AA} = 0, P_{BA} = 1$) is the outcome of the relation corresponding to the situation where A performs the action generating it in a way entirely determined by B. Observe that A does not consider ($P_{AA} = 0, P_{BA} = 1$) as being the worse outcome of the relation. The worse outcome of the relation in A's eyes is, rather, the one corresponding to the situation where he does not perform the action generating it: ($P_{AA} = 0, P_{BA} = 0$).

This implies that A always prefers performing the action giving rise to the relation in some way determined either entirely by himself or, entirely by B or, in part by himself and also in part by B than not performing this action at all. Even though A always prefers performing the action generating the relation in some way rather than not performing this action at all, A is however not indifferent concerning the different ways he can use to

perform this action. A prefers to perform the action in a way that both him and B have contributed determining. A's preferred outcome of the relation is, therefore, ($P_{AA} = 1$ and $P_{BA} = 1$).

If A ideally prefers that B exercises power in the relation than not, B on the other hand does not want A to exercise power in the relation. B is in fact assumed here to be convinced that the only thing which positively affects the payoff he receives from the performance of the action generating the relation is the power he personally exercises in it; more specifically on the one performing the action generating the relation. B is therefore assumed here to consider that he alone can come up with a way to perform the action generating the relation allowing him to receive a positive payoff from its performance.

Clearly A and B have diverging preferences about the outcome their relation should have. A's and B's preferences about the outcome their relation should have only diverge about the way the action generating it should be performed. This divergence of preferences between A and B about the way the action that puts them in relation should be performed is expressed by the model in terms of who A and B each want to see exercising power in the relation.

In that regard, B prefers to be the only one who exercises power in the relation. On the other hand, A wants B to exercise power in the relation. However, A wants to exercise power too in the relation. That is, A does not want to leave it entirely up to B to determine the way this action is performed. A wants to have some say too in that regard.

Thus, A and B have diverging preferences about the outcome. This raises the question of which one of them is going to be able to realize, at the expense of the other,

his preferences about the outcome the relation should have. The answer to this question depends mainly on the *rules* according to which the game of partial divergence of the first kind assumed here to model the relation is played.

As explained in chapter three, the rules of the game modeling a relation indicate who, among the individuals involved in that relation, can do what about the action generating it. In the case of Figure 5.1, the outcome of the game will first and foremost depend on whether A depends on B or not to be able to perform the action generating the relation. That is, the outcome of the game depends here on whether A can unilaterally make the outcome of the game shift up and down in the column where $P_{BA} = 0$, or if A rather depends on B to make the outcome shift in that way.

In chapter four, the government of the relation between A and B created by condition 1 was studied by assuming that A did not depend at all on B to give to the relation any outcome where P_{AA} is greater than zero, such as $(P_{AA} = 1, P_{BA} = 0)$ for instance. Given that, in chapter four, the government of the relation between A and B created by condition 1 was studied by assuming that A is able to unilaterally give to the relation any outcome where $P_{AA} > 0$, it makes sense to begin to study the government of this same relation by, at least initially, making the same assumption concerning what A is able to do about the action generating it. Investigating the government of the relation as modeled by Figure 5.1 under the assumption that A does not depend on anyone else to perform the action generating it illustrates very clearly why it is in B's interest here to organize it as an employer-employee relation.

5.3 The outcome of a relation of partial divergence of the first kind when it is not organized as an employer-employee relation

Figure 5.1: (reproduced)

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	12,22	2,-8
$P_{AA} = 0$	10,30	0,0

Figure 5.1 indicates that A is always better off when he performs the action generating the relation in some way than when he does not perform this action at all. From this it can be deduced that, if the game modeling the relation is played under the rule that A does not depend on anyone else to be able to perform the action generating the relation, A should in such a case choose to perform it. But, in which way A should end up performing the action?

A would ideally like to perform the action in a way that B would have contributed determining. B is far from being against the idea of determining the way A performs the action putting them in relation. However, B wants to entirely determine the way this action is performed. That is, B wants A to perform the action that puts them in relation in a way that A will not have contributed determining at all.

B could have recourse to threats to attempt to convince A to perform the action that puts them in relation in a way A would not have contributed determining at all. What B could do in that regard to attempt convince A to let him entirely determine the way he performs the action that puts them in relation is threaten to refrain from determining at all the way A performs it if A refuses to let him take care of this task all alone. Indeed, A depends on B to obtain the result that B exercises power in the relation. Knowing that A

values his input when it comes to determining the way the action that puts them in relation is performed, B could tell A that his price to exercise power in the relation is that A must, in return, promise him to refrain from exercising any power in it.

The question here is: would it be rational for A to accept to pay B's price of not exercising power in the relation to convince B to exercise power in it? The answer to this question is negative. The reason is that, if B seems to be balking at the idea of exercising power in the relation and if B even has the audacity to ask him to pay a price to consent to exercise power in it, A can put pressure on B to convince him to lower his price in that regard to nothing at all. Indeed, given that A can unilaterally choose here to perform the action generating the relation, A could put pressure on B to convince him to exercise power in the relation by unilaterally choosing to perform the action generating it in a way having the effect of providing a negative payoff to B. That is, if B balks at the idea of helping him to give the outcome ($P_{AA} = 1, P_{BA} = 1$) to the relation, A could incite B to do what is required of him in that regard to make this result occur by, in the mean time, unilaterally giving to the relation the outcome ($P_{AA} = 1, P_{BA} = 0$). The fact that B receives a negative payoff when the outcome of the relation is ($P_{AA} = 1, P_{BA} = 0$) should convince B to renounce to the idea of asking A to pay him any price to consent exercising power in the relation.

Games of partial divergence are known in game theory to be conducive to threats³¹. In the case of the particular numerical example of a game of partial divergence depicted by Figure 5.1, the dynamic of threats that underlies the game works primarily in A's favour rather than in B's. This is explained by the rules of the game. The rules confer to A the capacity to perform the action generating the relation. Because of this rule, A can

³¹ See for instance *The Strategy of Conflict* by Schelling.

threaten B to perform the action that puts them in relation in a way that provides a negative payoff to B. Hence, if the rules of the game of partial divergence of the first kind depicted by Figure 5.1 are such that A can unilaterally choose to perform the action being the object of the game, the logical outcome of it should be in that case: ($P_{AA} = 1, P_{BA} = 1$).

($P_{AA} = 1, P_{BA} = 1$) is not B's preferred outcome of the relation. However ($P_{AA} = 1, P_{BA} = 1$) is far from being the outcome of the relation B prefers least. ($P_{AA} = 1, P_{BA} = 1$) is actually the outcome of the relation that provides to B his second best payoff of the relation. B notably prefers ($P_{AA} = 1, P_{BA} = 1$) to the outcome corresponding to the situation where the action that gives rise the relation is not performed: ($P_{AA} = 0, P_{BA} = 0$).

Given this consideration, should B really be that disappointed or disgruntled when the relation ends by ($P_{AA} = 1, P_{BA} = 1$) instead of ($P_{AA} = 0, P_{BA} = 1$)? This question is not one we can answer. However, one thing is sure: as long as A can unilaterally choose to perform the action generating the relation whenever he feels like performing it, B's chances of entirely determining the way A performs this action appear to range from slim to none.

If B is for some reason adamant to have somebody else such as A perform an action in a way that he, B, will have entirely determined, B will have to find a way of levelling the playing of the game he has to play with this other person in a way favouring him. One thing that B could do to bend the rules of the game representing the relation between him and A in a way favouring him is to acquire the capital that has to be used by anyone to perform the action generating it. If B would own this capital, this would confer to B the capacity to do three things about the action that can be performed by using it.

They are: (i) preventing anybody else from performing this action, (ii) choosing who will perform this action on his behalf and consequently choosing with whom he will be in relation and finally, (iii) threatening the one that he has chosen to employ to perform the action that has the effect of putting them in relation of losing the opportunity to be the one performing this action if she refuses or, fails to perform it in the way that he, B, prefers.

So if it is assumed that B adamantly wants to entirely determine the way the action giving rise to the relation is performed, B could rationally attempt to realize these preferences by using the tactic of organizing, at his own expense, the relation as an employer-employee relation by acquiring the capital that has to be used by anyone to perform it. In the next section, we investigate once again how the relation between A and B created by condition 1 should unfold in a case where the relation is assumed to take the form of a game of partial divergence of the first kind similar to the numerical example depicted by Figure 5.1. But, this time, we assume that the relation has already been organized by B as an employer-employee relation in which B as ascribed to himself the role of the boss or employer of the relation.

5.4 The outcome of a relation of partial divergence of the first kind when it is organized as an employer-employee relation

If B owns the capital A must use to perform the action generating the relation, A will no longer be able to unilaterally choose to perform this action whenever he feels like it. A will first need to obtain B's permission to use the capital that has to be used to perform the action. That is, A will depend on B to be able perform this action.

But how to represent the fact that the relation is now assumed to be organized as an employer-employee relation? One thing that can be done to represent the fact that A now depends on B to be able to perform the action generating the relation is assuming that this action is not performed at all if (as long as) $P_{BA} = 0$. Recall that P_{BA} is a variable whose value cannot be raised above zero without B's consent. That is why, if the action is assumed to not be performed as long as $P_{BA} = 0$, this implies that neither A nor anybody else can perform it without B's explicit consent or approval.

This assumption, however, also implies that the action generating the relation can only be performed in a way at least partially determined by B, the employer. This is so since, when P_{BA} is greater than zero, this indicates that B has determined the way the action is performed. Postulating that the action giving rise to a relation organized as an employer-employee relation can only be performed in a way at least partially determined by the employer of the relation may seem, at first sight, as being a little restrictive. Indeed, why would it be impossible for an employee to perform the action generating the relation between him and his employer in a way that he, the employee, would have entirely determined? It cannot be denied that a little generality is lost here by assuming that the action giving rise to the relation between A and B cannot be performed otherwise than in a way at least partially determined by B to depict it as being organized as an employer-employee relation.

However recall that, in the case of the relation of partial divergence of the first kind considered here, B receives a negative payoff when A performs the action generating it in a way A has entirely determined. So, if B can prevent A from performing the action that puts them in relation by not giving him access to the capital that has to be

used by anyone to perform it, it is doubtful that B would A let perform this action for long in a case where A would perform it in a way providing him a negative payoff. Moreover, A is anyhow assumed here to not be against that B exercises power in the relation. If A and B both prefer that B exercises power in the relation, not much is lost then by assuming that the action that puts them in relation can only be performed in a way determined either in whole or in part by B. That is why, what will be done here to denote in the model the fact that the relation is organized as an employer-employee relation is assuming that the action generating it is not performed unless $P_{BA} > 0$. Accordingly, payoffs functions (5.1) and (5.2) are rearranged below in such way that the action giving rise to the relation is represented as being not performed when $P_{BA} = 0$.

$$V_A(P_{AA}, P_{BA}) = 2P_{BA}P_{AA} + 10P_{BA} \quad (5.3)$$

$$V_B(P_{BA}, P_{AA}) = 30P_{BA} - 8P_{BA}P_{AA} \quad (5.4)$$

Figure 5.2: Game of Partial Divergence of the First Kind Modeling the Relation Between A and B

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	12,22	0,0
$P_{AA} = 0$	10,30	0,0

Figure 5.2 is different from Figure 5.1. The main difference is that, in Figure 5.1, A and B each receive payoffs of different values in the outcomes of the relation where $P_{BA} = 0$. This is not the case in Figure 5.2. Here, A and B both receive the same payoff

(i.e., 0) in all the outcomes of the relation where $P_{BA} = 0$. The reason is that, when $P_{BA} = 0$ in (5.3) and (5.4), dV_A/dP_{AA} and dV_B/dP_{AA} are both 0.

Recall that $(P_{AA} = 0, P_{BA} = 0)$ is the outcome of the relation corresponding to the situation where the action generating it is considered as not performed. If the payoffs A and B respectively receive in $(P_{AA} = 1, P_{BA} = 0)$ and $(P_{AA} = 0, P_{BA} = 0)$ are the same then, as far as A and B are both concerned, these two outcomes are the same. Hence, in Figure 5.2, the action generating relation is represented as being not performed not only when the outcome is $(P_{AA} = 0, P_{BA} = 0)$, but also when the outcome is $(P_{AA} = 1, P_{BA} = 0)$.

Now, the game depicted by Figure 5.2 is a game extremely conducive to threats! On the one hand, A and B have diverging preferences about the outcome the relation should have. Yet A's and B's preferred outcomes are both outcomes where $P_{BA} = 1$. Neither A nor B can unilaterally give to the relation an outcome where $P_{BA} = 1$. This means that A and B are both assumed here to depend on the other to give to the relation the outcome they prefer. The fact that A and B both depend on the other to give to the relation the outcome they prefer is what has the effect of making it possible for both A and B to threaten the other. The threat that either A or B can make to the other here is the one of refusing to consent to raise P_{BA} above zero. That is, concretely speaking, A and B can both threaten the other of not consenting that the action generating the relation be performed. B can do so by refusing to give A access to the capital A has to use to perform the action generating the relation. A can execute a similar threat vis-à-vis B by refusing to use B's capital to perform the action putting them in relation.

Even though A and B can both threaten the other, the one among them who should first threaten the other is B, the employer. The reason is that, once B agrees to

raise P_{BA} above zero in V_A and V_B then, from this moment on, it will be solely up to A to determine whether the outcome of the relation is going to be $(P_{AA} = 0, P_{BA} = 1)$ or, $(P_{AA} = 1, P_{BA} = 1)$. Indeed, all that B can do because of the fact he owns the capital A has to use to perform the action generating the relation is to prevent A from performing this action. However, once B hires A to perform the action then, like before, A can unilaterally choose to perform it in a way that he will have contributed determining. The fact that B, even when he is A's employer, is not the one who has the final word or say on the outcome the relation is going to have explains why B should be the first to have recourse to the tactic of threatening the other to attempt to govern the outcome of the relation.

B should in fact choose to threaten A even before he officially hires him to perform the action that will have the effect of putting them in relation once A starts performing it. B should tell A before hiring him to perform the action that will have the effect of putting them in relation something like: 'there are two ways to perform the action that gives rise to a relation with me: my way or, not at all.' The choice that A will make at this juncture of the game modeling the relation between giving it the outcome $(P_{AA} = 1, P_{BA} = 1)$ or, the outcome $(P_{AA} = 0, P_{BA} = 1)$ will depend on whether A perceives B's threat of being fired if he gives to the relation the outcome $(P_{AA} = 1, P_{BA} = 1)$ as being credible or not.

The question that has to be investigated now, therefore, is: should A consider B's threat of being fired if he unilaterally starts exercising power in the relation while performing the action generating it as B's employee as credible? To answer this question, it is necessary to pay closer attention to the preferences that B, the employer, is assumed here to have about the action generating the relation between him and the one he has

chosen to hire to perform it on his behalf. From the preferences that B entertains about this action, it is possible to infer how B perceives the one he is looking to hire, and consequently employ, to perform it for him. In the next subsection, we infer from B's preferences about the action generating the relation that the profile of the person that B is looking to hire to perform it on his behalf essentially describes this person as being an unqualified or unskilled worker. Given that there is usually no shortage of unskilled workers on the job market, this inference suggests the conclusion that A should treat as credible the threat made by B of being fired if, as B's employee, he refuses or fails to perform the action that puts them in relation in the way that B prefers most.

5.4.1 The preferences of the employer about the action performed on his behalf by his employee when their relation is modeled as a game of partial divergence of the first kind

The preferences B is assumed in this chapter to seek to realize about an action are, among all those an individual could have about an action, arguably the most difficult ones to realize. B's preferences are that he wants to entirely determine the way *someone else* performs an action. The first question that these preferences raise is: is it possible at all to realize them?

To give a positive answer to this question, certain things must be taken for granted or, at the very least, they must not be ruled out from the outset as being impossible to actually do. The first thing that, we believe, must be taken for granted to confer to B's preferences of entirely determining the way someone else performs an action some rationality (in the sense of being potentially realizable) is that B must be able to monitor the way the action about which he has these preferences is performed even

when it is performed by someone other than him. If B cannot observe the way that, for instance, A uses to perform the action that puts them in relation, then what would be the point for B to make such a fuss about the way A should use to perform it? What could B really gain by threatening A to fire him in retaliation for not having performed the action that puts them in relation in the way that he, B, prefers if B cannot tell the way A uses to perform this action whenever A performs it?

Some may say: if B is rational, then what B should care most about is not the way A uses to perform the action that puts them in relation, but rather the payoff he receives from its performance. This is true. However, according to both equations (5.2) and (5.4) which are used in the chapter to flesh out B's preferences about the action performed by A putting them in relation, B is convinced that the payoff he gets from the performance of this action depends on the way it is performed. B's preferences concerning this matter are pure assumptions. But then again these preferences about the way an action should be performed are rational to have, and especially to seek to realize, only if the individual who entertains them about some action can tell the way this action is performed even when it is performed by someone else. The first thing that can therefore be deduced about B from the preferences he has about the action that puts him in relation with A is, therefore, not only that B cares about the way this action is performed, but also that B feels he can always tell the way this action is performed even when it is performed by someone else such as A.

It is one thing for an individual such as B to have the desire of entirely determining the way someone else performs an action. It is however quite another thing to, concretely speaking, be able to achieve this goal of entirely determining the way

someone else performs an action. It is a challenge to determine the way someone else performs an action even when the person on whom one is counting on to perform this action on one's behalf is not at all opposed to the idea of performing it in any way that one will tell her or, train her to use to perform it. To stand a chance of realizing the preferences of entirely determining the way someone else performs some action, B must be convinced that he could get the person he will hire to perform this action on his behalf to perform it in the particular way he considers as being the one which, among all those he knows can be used to perform this action, has the effect of maximizing the payoff he can potentially receive from its performance.

This consideration raises the question of what makes it possible for individuals to perform actions in specific ways. Is the only thing that must be done to get somebody to perform some action in a specific way is telling or ordering this person to do it? This would be nice, but unfortunately a little too simple. Performing a given action, let alone in a specific way, often requires displaying a certain level of skills and also knowledge to be effected with some success.

This discussion on what it takes to perform an action in a specific way leads us directly back to the concept of power on which the model of relations developed in chapter three is built. Recall that power is defined here as having determined the way an action is performed. X is considered as exercising power on Y if X is the one who has determined, either in whole or in part, the way Y performs some action. If it is true that it often takes a certain level of skills and knowledge to be able to perform an action in a specific way, this implies that exercising power on the one who performs some action means not only being responsible for the 'end-result' that this action is performed in a

specific way. But also, if necessary, it can mean being the one who has taught or trained the person performing this action to perform it in the specific way she is observed to perform it by having imparted her all the skills and knowledge that she has to use and display to be able to do it.

In chapter two, it was mentioned that the way that power is defined here was heavily influenced and, in fact, adapted from the definition of power first elaborated by Michel Foucault. If there is one thing about power that Foucault took the time to stress in his writings, it is certainly that power and knowledge are two phenomena closely linked to one another. For instance, Foucault says that: 'Knowledge and power are integrated with one another ... It is not possible for power to be exercised without knowledge, it is impossible for knowledge not to engender power.' (Foucault, 1980: 52)

Knowledge engenders power. Knowledge is the fuel on which power runs so to speak. The reason why knowledge, far from being the nemesis of power, rather enables it is that an individual must know and, in fact, be convinced that performing some action in a specific way will produce desirable results like providing him a positive payoff for instance to want this action to be performed in that specific way. Knowledge gives rise to power and, more specifically, to the will to exercise power because it is only when an individual is personally convinced that the performance of an action in a specific way makes it possible to reach some desirable goal or objective that he will want to exercise power on the one or those who either perform this action or, can perform it so as to realize that goal.

Anybody acquainted with Foucault's views on power will therefore not be surprised at all that we claim that exercising power on somebody who performs an action

can sometimes mean much more than simply choosing, on behalf of this person, the way she will perform this action. It is not because some individual, such as B, knows that performing an action in a specific way will provide him a substantial positive payoff that all those that this individual B could potentially hire to perform this action on his behalf will already be able from the outset to perform it in that way. This implies that the preferences of entirely wanting to determine the way someone else performs an action are, in many cases, rational to entertain and seek to realize not only when an individual is personally convinced that the performance of this action in this specific way would have the effect of providing him a positive payoff. But, also when the individual who entertains such preferences about some action is personally convinced that it is possible for him to get others to perform this action in the way he prefers by teaching or training them how to do it.

The reason why we have taken the time to discuss in details the meaning and 'rationality' of B's preferences about the action that gives rise to the relation between him and A is to assess the credibility of B's threat of firing A if A ever chooses to perform the action generating their relation in a way other than the one that B wants it to be performed. First of all, if B can tell the way A performs the action, A should expect that B will notice it if he performs it in a way other than the one that B has told him or trained him to use to do it. Second, if B is the one who has trained A to perform the action that puts them in relation in the way B prefers, chances are that B could also train individuals other than A to perform this action in that way. This last consideration implies that, if there are individuals other than A like, say, individuals C, D or, F that B could employ instead of A to perform the action that creates a relation between them, A should consider

B's threat of being fired and replaced by one of these other individuals as credible (in the sense of being likely to be executed) if he ever chooses to perform it in a way other than the one B prefers.

In the end, what can be inferred from the fact that B wants to entirely determine the way the action generating the relation is performed (as opposed to instead want to determine either partially or not at all the way this action is performed) is that the kind of worker that B is looking to employ to perform this action on his behalf is what is commonly referred to as an unskilled or unqualified worker. The reason why A, in B's eyes, is an unskilled worker is that B considers he can impart to anybody who is willing to come work for him all the necessary skills and knowledge this person will ever have to use and display to perform the action that will have the effect of putting them in relation by exercising power on her. Indeed, if B considers he can teach or train anybody to perform the action that gives rise to a relation with him in the way he prefers, this implies that B does not need to hire somebody to perform this action on his behalf who would already know, even before being hired by B to perform it, how to perform it in the way B prefers. An unskilled or unqualified worker is, precisely, someone who is employed to perform some action in a way he has learned not before being hired to perform it, but rather on the job after having been hired to perform it. The level of knowledge and skills that the person or worker B is looking to hire to perform some action on his behalf has to have acquired a priori elsewhere on her own (i.e., from someone other than B) to be able to perform this action in the way B prefers is, therefore, revealed by the power that B wants her to exercise in the relation. That is, the more an employer wants to determine the way his employees perform the actions putting them in relation, the less those this

employer has to employ to perform these actions for him have to be skilled or qualified workers.

In that regard, it is important to stress we are not predicting here that all workers in firms are unskilled persons. That is, we are not predicting that anyone who is employed in a firm to perform any action can only be someone who has no skill and/or knowledge whatsoever to speak of. There are after all other kinds of relations, such as relations of no divergence, which could also be organized by a party involved as employer-employee relations. What we are saying here rather is that the level of skills and knowledge of the person an employer is looking to employ to perform some action on his behalf is revealed in the model developed in chapter three by the power the employer wants this person to exercise in their relation as his employee. In the case of the example of the relation between A and B created by condition 1 assumed to be organized as an employer-employee relation, it would be possible to infer from B's preferences about the action generating the relation that B, the employer, expects A, the employee, to display a certain level of skills and knowledge acquired by A outside of their relation (i.e., from someone other than B) while he performs the action generating it if B would want A to determine the way he performs this action. That is, if B would want A to exercise power in the relation.

All this to say that the case of an employer-employee relation we are considering in the chapter is one where the employer does not want the employee to exercise power in the relation. The reason is that the employer is assumed to want to entirely determine the way his employee performs the action putting them relation. This implies that the kind of individual that B, the employer, is looking to employ is not someone who, in his eyes, has

to have previously acquired elsewhere any particular knowledge and/or skills to be able to do what B wants her to do on his behalf. In other words, this implies that the kind of person B is looking to hire to perform some action on his behalf is someone that can be described as being an unskilled or unqualified worker.

Given that unskilled or unqualified worker are usually not those that are the hardest to find on the job market, B's threat of firing A and replacing him by someone else if A refuses or fails to perform the action that puts them in relation in the way B prefers should be considered by A as being credible. If A does consider this threat as credible in the sense of being likely to be executed by B, A should therefore be convinced to give to the game modeling the relation (i.e., Figure 5.2) the outcome ($P_{AA} = 0$, $P_{BA} = 1$). This outcome is the one corresponding to the situation where A performs the action generating the relation in a way entirely determined by B. It is B's preferred outcome of the relation.

Organizing the relation as an employer-employee relation, therefore, does constitute a tactic that B could rationally use, when the relation takes the form of a game of partial divergence of the first kind, to attempt to realize his preferences about the outcome. The reason is that B is assumed here to care much more about the way the action giving rise to the relation is performed than about the identity as well as the personal skills and knowledge of the one who performs this action. It is the fact that B does not give much credit to A for the fact he is able to perform the action that puts them in relation in the way that he prefers that makes of A, in B's eyes, a member of the relation easily replaceable by just about anyone else. B is the one who has told or trained A to perform this action in the way he prefers. This explains why, in B's eyes, he could

very well have recourse to the services of someone other than A to obtain this same result of having an action performed in the way he prefers. In the next section, we investigate the tactics that the employee of an employer-employee relation may use against his own employer to convince the latter to let him exercise in their relation more power than he wants him to exercise in it.

Part II: Conflicts in employer-employee relations: Toward a theory of policymaking in the case of rights exercised by employers in firms to choose who they employ

So far, we have developed a rationale explaining why certain relations are organized as employer-employee relations. To do so, we have paid attention to the government of relations of partial divergence of the first kind. A relation of partial divergence is a relation involving two parties not having the same preferences about the way the action generating the relation should be performed, but at least one of these two parties prefers the action generating the relation to be performed in the way preferred by the other rather than not at all. A relation of partial divergence is considered as being, more specifically, a relation of partial divergence of the first kind if the party involved in the relation preferring the action generating the relation to be performed in the way preferred by the other party with which it is in relation rather than not at all is the one performing it. For instance, in the case of the relation between A and B created by condition 1, this relation will take the form of a game of partial divergence of the first kind if, despite the fact that A has different preferences than B concerning the way he should perform the action generating the relation, A prefers to perform this action in the way preferred by B rather than not at all.

A is the one who performs the action generating the relation. Yet B wants to be the one who entirely determines the way this action is performed. In section 5.3, it was shown that if A does not depend on B to be able to perform the action generating the relation, B will most likely not be able in that case to entirely determine the way A performs it.

This result has led us, in section 5.4, to investigate how the relation should unfold if it was rather organized as an employer-employee relation. That is, what would be the outcome of the relation if A would depend on B to be able to perform the action that puts them in relation? It was demonstrated in section 5.4 that, if B organizes the relation as an employer-employee relation, B should be able to convince A to perform the action generating it in the way that he, B, prefers by threatening A to fire and replace him by someone else if A refuses or fails to perform it according to B's wishes.

All this to say that, thus far, we have investigated the government of the relation between A and B created by condition 1 modeled as a game of partial divergence of the first kind strictly from the standpoint of the two parties involved in the relation, namely: A and B. In the second part of the chapter, we will investigate the government of this relation not only from A's and B's standpoints, but also from the standpoint of the state. What makes of the state an actor of the government of relations organized as employer-employee relations is that the state must have a policy concerning who any employer of its jurisdiction, like B, is allowed to employ to perform any action on his behalf.

Now, at the end of section 5.4, we have shown that, when the relation between A and B taking the form of a game of partial divergence of the first is organized as an employer-employee relation, the relation is likely to have the outcome that B, the employer, prefers. The reason is that, as A's employer, B is able to credibly threaten A to be fired and be replaced by someone else if A refuses or fails to perform the action putting them in relation in the way that he, B, prefers. However, given that the relation is assumed to take the form of a game partial divergence, this implies that, when the relation has the outcome preferred by the employer, the employee is going to be

disgruntled by the outcome of the relation. The reason why the employee is going to be disgruntled by the outcome of the relation when this outcome is the one preferred by the employer is that, when the relation has this outcome, he does not exercise as much power in the relation as he wants to exercise in it.

The reason why the employee is not able to exercise as much power in the relation as he wants to exercise in it is not that, physically speaking, he is not able to exercise power in the relation. That is, A does not depend on B to exercise power in the relation when A is actually the one employed by B to perform the action generating it. A only depends on B to be able to perform the action generating the relation. B uses A's dependency toward him in that regard to threaten him of no longer being employed by him to perform the action putting them in relation if A unilaterally chooses to exercise, in B's eyes, too much power in it.

It is not too difficult to see here that the threat made by an employer to the one he employs to perform some action on his behalf of no longer employing him to perform this action would be less credible (in the sense of being less likely to be executed) if this employer was forbidden to replace the particular person he happens to be presently employing to perform this action by anyone else. On the basis of the result that relations of partial divergence of the first kind are likely to be organized as employer-employee relations, it can therefore be predicted that those employed by a specific employer may be led to ask that the latter be forbidden to replace them by anyone else. The fact that the employees of some firm are asking the state to forbid their employer to replace them by anyone else should have the effect of creating a controversy between this employer and his own employees. The reason is that it is not in the interest of an employer that the right

he exercises to choose who he employs be reformulated in a way such that he would be forbidden, rather than allowed, to replace those he employs.

What we ultimately want to investigate in this second part of the chapter is how a welfare state should proceed to decide how to formulate the right exercised by any employer to choose who he employs when there is a controversy between this employer and his own employees concerning the issue of how this right should be formulated. However, before getting to this topic of policymaking in the case of rights exercised by employers to choose who they employ, we will first investigate the government of a relations of partial divergence of the first kind organized as an employer-employee relations when the right exercised by the employer of such a relation to choose who he employs is formulated such that he is forbidden to replace those who are in his employment by anyone else who is not. The reason why we proceed in that way is that the results we will obtain concerning how an employer-employee relation should unfold when the employer of the relation is forbidden to replace the one he employs to perform the action generating the relation by anyone else will help us to investigate how policymaking should be carried out in the case of employers' rights to choose who they employ.

Hence, in this part of the chapter, we bring the state into the government of employer-employee relations. However, we do not initially ascribe to the state a 'pro-active' role in the government of employer-employee relations. The state is assumed from the outset to have a policy concerning who the employer of the employer-employee relation considered can choose to employ. However, for research purposes, it is right off the bat assumed that the state has already chosen to formulate the right exercised by the

employer of the relation considered, namely B, to choose who he employs to perform the action generating it such that he is forbidden to employ anyone else except for a specific individual, i.e., A, to perform this action for him.

5.5 The government of employer-employee relations when the employer is forbidden to replace those he employs by others

Does the fact that B is forbidden by the state to employ anyone except for A to perform the action that puts them in relation means that B has no other choice now but to let A exercise as much power in their relation as A wants to exercise in it? The answer to this question is: not necessarily. B may be forbidden by the state to replace A by anyone else. But B is not forced by the state to let A perform the action generating the relation whenever A wants to perform it. B can still prevent A from performing the action. Since A is always better off when he performs the action in some way rather than when he does not perform it at all, B can therefore still threaten A. B can still say to A: 'if you do not perform the action putting us in relation in the way I am telling you to perform it, I will not let you perform this action at all anymore'.

The question then is: should A consider B's threat of not letting him perform the action that puts them in relation as credible in a context where B is forbidden to employ someone other than him to perform it on his behalf? The answer is that it depends. This depends notably on the *cardinal* value of the payoff B receives when A performs the action that puts them in relation. If the cardinal value of the payoff B receives when A performs the action that puts them in relation in the way B prefers is rather small or modest (in the sense that this payoff is not that much better than the one B receives when this action is not performed), this makes it likely that B will prefer to put an end to the

relation than letting A perform the action generating it in any way other than the one he prefers it to be performed. However, if the cardinal value of the payoff B receives when A performs the action putting them in relation in the way B prefers is, relatively speaking, much greater than the one of the payoff B instead receives when no one performs this action on his behalf, this increases the chances that B will be more willing to let A exercise power in the relation.

In this respect, relations of partial divergence of the first kind come in two very different 'versions' as far as are concerned the parties involved in any relation of this kind organized as an employer-employee relation. Figures 5.3 and 5.4 depict the two different 'versions' of games of partial divergence of the first kind that an employer and his employee may be playing in the context of their relation.

Figure 5.3: Version I

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	3,1	1,2
$P_{AA} = 0$	2,3	1,2

Figure 5.4: Version II

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	3,2	1,1
$P_{AA} = 0$	2,3	1,1

The payoffs configurations of these two games have not been generated by equations (5.3) and (5.4) used previously in the chapter to do so. However these two

games which can both be used to model the relation between A and B created by condition 1 are nonetheless, in both cases, games of partial divergence of the first kind.

Even though Figures 5.3 and 5.4 both depict 2x2 games, these two games only have three outcomes that are analytically different. The reason is that, like in the case of Figure 5.2, A and B both receive payoffs of the same value in all the outcomes of their relation where $P_{BA} = 0$. This way of modeling the relation between A and B indicates that the relation is organized as an employer-employee relation. That is, A depends on B here to be able to perform the action generating the relation.

The two games depicted by Figures 5.3 and 5.4 are, therefore, very similar to each other. These two games are in fact also very similar to Figure 5.2. The only difference between the two games of partial divergence of the first kind depicted respectively by Figures 5.3 and 5.4 concerns how B personally ranks the outcome of the relation A prefers, ($P_{AA} = 1$, $P_{BA} = 1$), versus the outcomes of the relation corresponding to the situation where the action generating it is not performed by A. In version I of the game (Figure 5.3), B prefers the action generating the relation to be not performed at all by A, rather than performed by A in a way A has partially determined. In version II of the game (Figure 5.4), B prefers that A performs the action generating the relation in a way A has partially determined rather than A does not perform this action at all.

In version I of the game, it would be rational for B to 'pull the plug' on the relation if A uses the fact that B is forbidden to employ someone other than him to perform the action generating it to perform this action in a way other than the one he prefers it to be performed. What is therefore revealed here by the model is that, in theory at least, it could happen that an employer such as B would be worse off if he would let his

employee exercise power in their relation than if he would rather elect to put an end to their relation by not letting the employee perform the action generating it. However, when the game of partial divergence of the first kind modeling an employer-employee relation is rather akin to version II, the employer of the relation, B, receives a greater payoff from the performance of the action generating the relation when the employee, A, performs it in a way the employee has contributed determining than when the employee does not perform this action at all.

From the information jointly provided by Figures 5.3 and 5.4, it can be deduced that if B is still adamant to get A to perform the action putting them in relation in a way he will have entirely determined, it would be in B's interest to let A know that, as far as he is concerned, the game of partial divergence of the first kind that best models their relation is akin to Figure 5.3 (version I) rather than akin to Figure 5.4 (version II). Concretely speaking, B should tell A that, even though he is forbidden by the state to replace him by anyone else to perform the action that puts them in relation, he will still not let him perform this action in any way other than the one he has told or trained him to use to perform it. That is, B should say to A that he prefers to put an end to their relation (i.e., pull the plug on it) than letting A exercise power in it.

A will have no choice but to consider B's threat of 'pulling the plug' on their relation if he starts exercising power in it as being credible a priori. It is conceivable, at least in theory, that an employer such as B will prefer to put an end to the relation between him and the one that he employs to perform some action on his behalf than letting this person exercise power in the relation. We say that A has no choice but to consider B's threat as credible a priori. What we more specifically mean by a priori is: as

long as A does not know the cardinal value of the payoff B receives when he performs the action generating the relation in the way B prefers. The payoff B receives when A performs the action that gives rise to their relation in some way is given by equation (5.4). This equation is reproduced below:

$$V_B(P_{BA}, P_{AA}) = 30P_{BA} - 8P_{BA}P_{AA} \quad (6.4)$$

The way B's payoff function is spelled out here implies that any increase of the power that A exercises in the relation has the effect of reducing the payoff B receives from the performance of the action generating it. The reason is that dV_B/dP_{AA} is negative. A has no reason to doubt B's assertion that the payoff he receives from the performance of the action that gives rise to the relation is negatively affected by the power that he, A, exercises in it. This is so since, otherwise, B would not be in the first place against that A exercises some or more power in the relation.

However what A could doubt is that it would be rational for B to not let him perform the action that gives rise to their relation in a way other than the one B prefers most. Such an assertion on B's part should rationally be considered by A as being questionable, given that Figure 5.4 (version II) could very well in fact be the game of partial divergence of the first kind modeling their relation. When the game of partial divergence of the kind representing the relation is akin to version II, B should eventually prefer letting A exercise power in the relation than not letting A perform the action generating.

All this to say that B's threat of not letting A perform the action that gives rise to their relation if A does not perform it in the way B prefers should be considered by A as being plausible, yet not a sure thing to be executed by B. This threat is one that could reveal itself to be either real, or empty. Since B is the one for whom it is rational to make this threat, it is in B's interest to get A to consider it as being real rather than empty. From these considerations, it is possible to make the following prediction about the government of employer-employee relations:

Result 1: It is not in the interest of an employer to let his employee know the actual cardinal value of the payoff he receives from the performance by him of the action that puts them in relation in a case where this payoff happens to be positive and 'substantial'.

Result 1 literally means that it is in the interest of an employer to 'cry poor' in a case where he wants to deter his employees to exercise more power in their relation than it is the case in the present moment. The reason why it is the cardinal value of the payoff received by the employer that matters here is that preferences expressed in an ordinal fashion are just assertions. Someone may, for instance, say that 'this' is preferable to 'that'. Saying so amounts to expressing preferences between 'this' and 'that' in a purely ordinal fashion. That is, expressing preferences without justifying them at all in any way. However, what if 'that' provides to the person claiming she prefers 'this' to 'that' a greater cardinal payoff than 'this'? If that is the case, then the preferences asserted by this person that 'this' is preferable to 'that' can be questioned, and consequently doubted. This reasoning explains why it can be deduced that if the employees of a given employer ever find out their employer is making himself incredibly wealthy by having them

perform a certain number of actions on his behalf in ways he has entirely determined, they should rationally infer from this information about the revenues (i.e., the cardinal payoff) of their employer that it is likely that he could 'afford' to let them exercise more power in their relation than it is presently the case without running the risk of driving him out of business in the process.

For instance, this tactic of 'crying poor' was used by the National Hockey League (the NHL) during the last lockout which paralyzed the league for an entire season in 2004 and 2005. The players of the NHL refused, during the summer preceding the 2004-2005 season, to accept a salary cap. The players justified their refusal of a salary cap mainly by arguing that the NHL owners were lying when they were crying poor. More precisely, the Players' Association of the NHL argued that the owners were hiding revenues from them to justify their claim that many franchises of the league were in the red; that is, bleeding money rather than making some. For instance, just before the NHL locked out its players on the eve of the beginning of training camps for the 2004-2005 season, it was reported that:

'The players do not accept any of the owners' two primary positions related to the CBA talks ... They do not accept that the NHL collected 82 billion in revenue in 2002-03, the last full season for which the league conducted an audit. That figure, if accurate, would mean that 75% of all money went toward player salaries. ... Bettman [the commissioner of the NHL] points to an audit conducted by a former Securities and Exchange Commission chairman that showed teams lost a combined \$273 million in 2002-03 and that 19 of the 30 teams lost money. Goodenow [the head of the Players' Association of the NHL at the time] has dismissed that audit because the NHL finances it and because the NHLPA did not participate in the research.'(Kovacevic)

This case of a conflict between an employer and his employees is one where it is not the employees who were trying to obtain something from their employer, but rather the other way around. That is, in this particular case, it is the employer who wanted to obtain something from his employees that the latter did not think it was in their best interest to concede him. This thing was a salary cap. For the players, accepting a salary cap was tantamount to giving up something and, throughout what would have been the 2004-2005 hockey season, they simply refused to accept to have one. The players justified their refusal of a salary cap mainly by arguing that their employers (the owners of the different NHL franchises) were not doing as bad financially speaking as they were claiming. This example of an actual conflict between an employer and his employees, therefore, illustrates very well result 1 stated above according to which the cardinal value of the payoff the employer receives from the performance by his employee of the action putting them in relation influences what the employee can hope to either obtain from his employer against his will or, refuse to concede or give back to him at the request of the latter.

Another result that can be demonstrated about the government of employer-employee relation by modeling them as games of partial divergence of the first kind is that, when an employer is forbidden by law to replace those he employs, the outcome of the relation should be extremely unstable. The reason is that the employer and the employee will, in that case, both be able to make and execute threats against the other. In that regard, it has already been observed above that the fact an employer is forbidden to replace the individual he employs does not prevent him from threatening this individual of no longer even employing him. That is, by virtue of the fact that the employer owns

the capital used by his employee to perform the action that puts them in relation, the employer can lockout his employees (like the NHL did in 2004).

But, when the individual an employer employs to perform some action for him is the only one this employer is allowed to employ to perform this action, this individual can also execute a threat vis-à-vis his employer. This threat is to go on strike. The employer can therefore lockout his employee, and the employee can strike. That is why, when an individual employed by another to perform an action is able to convince the state to formulate the right exercised by his employer to choose who he employs to perform this particular action in a way such that his employer is forbidden to replace him by anyone else, this employer-employee relation should be extremely conducive to threats. Consequently, the outcome of the relation should be anything but stable from one round of play to the next.

If an employer is using the tactic of hiding from his employee the actual cardinal value of the payoff he receives from the performance by him of the action that puts them in relation, this implies that the employee will not know just how much power his employer could tolerate he exercises in the relation without finding it rational to pull the plug on it. As far as the employee is concerned, the relation between him and his employer should look like the game depicted by Figure 5.5:

Figure 5.5:

	P_{BA} = 1	P_{BA} = 0
P_{AA} = 1	3,?	1,?
P_{AA} = 0	2,3	1,?

The employee, A, will know which is the outcome of the relation his employer, B, prefers: ($P_{AA} = 0, P_{BA} = 1$). But, otherwise, A will be in the dark concerning how B ranks the outcome he prefers, ($P_{AA} = 1, P_{BA} = 1$), versus the outcome of the relation corresponding to the situation where the action generating it is not performed. What an employee who wants to exercise in the relation between him and his employer more power than the latter is willing to let him exercise in it should do in a case where he does not know for sure whether the game that best represents their relation is akin to version I or version II is to test his employer by gradually exercising more power in the relation to see how his employer reacts to these changes of outcome. In fact, A should be incited to unilaterally choose to exercise more power in the relation each time he is under the impression that the cardinal value of the payoff B receives from the performance by him of the action that puts them in relation is on the rise. Conversely B is likely going to threaten and even execute the threat of locking out A in a case where A would actually be exercising some power in the relation each time that the cardinal value of the payoff he receives from the performance by A of the action generating it is on the decline.

If the cardinal value of the payoff B gets from the performance by A of the action that gives rise to their relation tends to fluctuate from one round of the play to the next (each time that A performs this action), A and B could therefore both be led to use these fluctuations as a pretext to attempt to change the state of affairs prevailing in the relation regarding the power A exercises in it by threatening the other to 'pull the plug' on the relation. An employer-employee relation taking the form of game of partial divergence of the first kind should, thus, be extremely conducive to threats if the individual being the

employee of the relation is able to convince the state to forbid his employer to replace him by anyone else.

The outcome of the relation could in fact become so unstable that, at some point, the employer and the employee may elect to sit down with each other to attempt to stabilize it by devising a binding contract whose purpose is going to be: (i) to determine the outcome of the relation (i.e., the way the action giving rise to the relation must be performed by the employee) and also, (ii) insure that the agreement about this question is respected by both parties by both agreeing to renounce to execute against the other the threat of 'pulling the plug' on the relation as long as the contract is valid. Empirical observations show that, when an employer is forbidden to replace those he employs, this employer and the ones he is forced to employ almost always end up signing a contract including the provisions mentioned above.

We summarize these results about the government of employer-employee relations as result 2.

Result 2: When an employer is forbidden to replace his employee, it will be in the interest of both this employer and his employee to negotiate a bidding contract specifying the way the action generating the relation has to be performed by the employee. This contract should also include a clause whereby both the employer and the employee renounce to execute the threat against the other of shutting down the relation to attempt to modify the terms of the contract specifying the outcome it must have.

In this section, we have investigated the government of an employer-employee relation when the employer is forbidden to replace the individual he employs to perform the action generating the relation. We have demonstrated that it is not because an employer, such as B, is forbidden by law to employ anyone else by a specific individual

to perform the action that puts them in relation that this employer will automatically be forced to let this individual (i.e., his employee) exercise in their relation as much power as he wants to exercise in it. Once the relation between an employer and his employee reaches the stage where the employer is forbidden to replace the one he employs by anyone else, the employer can still make use of a certain number of tactics to counter the desire of his employee to exercise more power in their relation than it is in his interest to let him exercise. The main tactic an employer can use to moderate the desire of his employee to exercise more power in their relation is telling him that he will pull the plug on it either temporarily by locking him out or, even, permanently by closing down his business for good if he becomes too demanding in that regard.

In the previous chapter on the government of relations of total divergence, we have investigated how a welfare state should proceed to formulate the right to perform any action. In the next section, we also investigate policymaking. But, this time, in the case of rights exercised by employers in firms to choose who they employ to perform any action on their respective behalf.

5.6 Policymaking in the case of rights exercised by employers to choose who they employ

At last, we are in a position to investigate policymaking in the case of rights exercised by employers in firms to choose who they employ. Employers' rights to choose who they employ are exercised about actions. Given that actions are assumed here to be objects providing welfare to individuals, it is reasonable to assume that how a welfare state is going to proceed to decide how to formulate the right exercised by any employer to choose who he employs is going to be dictated by how the formulation of such a right

affects the contribution the actions about which this right is exercised makes to social welfare. In the next subsection, we investigate how the formulation of the right exercised by any employer to choose who he employs affects the contribution the actions about which this right is exercised makes to social welfare.

5.6.1 How the formulation of employers' rights to choose who they employ affects social welfare

Is there a link between how the right exercised by an employer to choose who he employs is formulated and social welfare? Is there *a* way to formulate the right exercised by an employer to choose who he employs to perform any action on his behalf which could be demonstrated to be a policy choice more compatible with the objective of maximizing social welfare than any other policy choice that can also be made in that regard? Especially, when the employer and the employee of some firm do not have the same views concerning how the right exercised by the employer to choose who he employs should be formulated, would it be possible to say about either the way the employer of this firm wants the right he exercised to choose who he employs to be formulated or, the one his employees wants this same right to be formulated that it constitutes a better policy choice than the other to protect and promote social welfare?

The answer to this question is negative. That is, the contribution any action performed by some individual X as someone else's employee makes to social welfare should be the same whether X's employer is allowed or not to replace X by anyone else to perform this action on her behalf. The fact that the employer or boss of the firm is allowed or forbidden to replace those he presently employs to perform any action on his

behalf by others should, therefore, have no consequence on social welfare. This result will be demonstrated in two steps.

To demonstrate this result, it is necessary to treat the payoffs the employer and the employee each receive from the performance of the action that puts them in relation as cardinal in value in order to be able to aggregate them in a social welfare function (more specifically: in a relation welfare function). However, in this section, we will demonstrate this result by leaving aside the *intensity* of the cardinal value of the payoffs the employer and the employee each receive from the action putting them in relation. That is, in the first step of the demonstration, we will assume that the employer and the employee receive payoffs of *an equal cardinal value* in the outcomes of their relation to which they assign the same ordinal value in the preferences they each have about them.

Now, the reason why A wants the state to forbid B to employ anyone other than him to perform the action that gives rise to their relation is that A wants to deter B to execute against him the threat of putting an end to their relation if, against B's wishes, he starts exercising more power in the relation than B wants him to exercise in it. More precisely, A wants to make the execution of this threat more costly to B. In this respect, if B is forbidden by the state to employ anyone other than A to perform the action generating the relation, executing the threat of not even letting A perform this action would, for B, mean forgoing the payoff he receives when someone else performs this action on his behalf.

Above we have shown that the game of partial divergence of the first kind that can be used to represent a relation such as the one between A and B created by condition 1 actually comes in two different 'versions'. We have observed above that it is in B's

interest to make it appear to A that the game of partial divergence of the first kind modeling their relation is one more akin to version I (Figure 5.3) than version II (Figure 5.4). However, we have also observed in the preceding section that if the game of partial divergence of the first kind that A and B are playing in the context of their relation is really akin to version II, then it would be more rational for B to, eventually, let A exercise power in the relation than pull the plug on it by not letting A perform the action generating it in a way A would have contributed determining. The reason is that, in version II of the game, B receives a greater payoff when A performs the action giving rise to the relation in a way A has contributed determining than when this action is not performed at all.

Now, let us assume for the sake of argument that A has called B's bluff. The game they are playing in their relation is really akin to version II. A, despite B's threat of pulling the plug on the relation if he starts exercising power in it, has unilaterally elected to exercise power in the relation anyway. B should be disappointed by A's choice of exercising, against his wishes, power in the relation. But since the game of partial divergence of the first kind they are playing in the relation is really akin to version II, B has chosen not to retaliate against A by executing the threat of putting an end to the relation by not letting A perform the action generating it.

The outcome of the relation, which was up to now ($P_{AA} = 0$, $P_{BA} = 1$), has therefore shifted up in the column where $P_{BA} = 1$ toward another outcome where P_{AA} is also greater than zero. The question is: what has happened to social welfare following this shift of outcome? Figure 5.4 (version II) is reproduced for convenience below.

Figure 5.4: Version 2 (reproduced)

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	3,2	1,1
$P_{AA} = 0$	2,3	1,1

Aggregated welfare is defined as being the sum of the payoffs the individuals involved in some event each receive when this event has a particular outcome. Note that, in light of this definition of social welfare, all the outcomes of the game depicted by Figure 5.4 where $P_{BA} = 0$ are inferior in terms of maximizing social welfare to the ones where $P_{BA} = 1$. The contribution the action giving rise to the relation makes to social welfare is ‘five’ when the outcome of the relation is an outcome where $P_{BA} = 1$, but only ‘two’ when the outcome of the relation is rather one where $P_{BA} = 0$. Clearly the action giving rise to the relation makes a greater contribution to social welfare when this action is actually performed in some way by A than when this action is not performed at all by anybody.

However, according to Figure 5.4, the contribution the action generating the relation makes to social welfare is the same in all the outcomes of the relation where $P_{BA} = 1$ (i.e., five). That is, the contribution the action giving rise to the relation makes to social welfare is the same whether this action is performed in the way B prefers, or else in the way A prefers. This implies that if the nonzero-sum game of partial divergence of the first kind modeling the relation between A and B created by condition 1 would actually be the numerical example depicted by Figure 5.4, social welfare would not be negatively affected by the fact that the state has chosen to give some help to A to make the outcome of the relation shift from $(P_{AA} = 0, P_{BA} = 1)$ to $(P_{AA} = 1, P_{BA} = 1)$ by forbidding B to

employ anyone other than A to perform the action generating it. The only thing that really changes in the relation from a welfare standpoint when the outcome of the relation, as modeled by Figure 5.4, shifts from ($P_{AA} = 0, P_{BA} = 1$) to ($P_{AA} = 1, P_{BA} = 1$) is that the party involved in the relation who sees the value of the payoff he receives from the performance of the action generating the relation being maximized following this shift of outcome is now A instead of B.

What A has been able to do by calling B's bluff is to show that their relation can have outcomes other than the one B prefers which, from a social welfare standpoint, are as efficient as it. All the outcomes of the relation corresponding to the situation where the action generating it is performed in some way by A that A and B both strictly prefer to the outcome of the relation rather corresponding to the situation where this action is not performed at all are all going to be, under this assumption of leaving aside the intensity of the cardinal value of the payoffs A and B respectively receive in the different outcomes of the relation, *equally efficient* from a social perspective. On the other hand, it can be shown under this same assumption that if B prefers to pull the plug on the relation than letting A perform the action generating it in a way A would have contributed determining, this indicates that the outcome that A is attempting to give to the relation (the outcome of the relation A prefers) is not as socially efficient as the one B prefers. This result is demonstrated by Figure 5.3.

Figure 5.3: Version I (reproduced)

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	3,1	1,2
$P_{AA} = 0$	2,3	1,2

Figure 5.3 reveals two things. First of all, this figure reveals that if the game modeling the relation between A and B would be akin to it, it would not be rational for B to let A exercise power in the relation. B here prefers the action generating the relation to be not performed at all than performed in a way A would have contributed determining. Second, Figure 5.3 reveals that the outcome ($P_{AA} = 1, P_{BA} = 1$) that A would ideally like to give to the relation is not as socially efficient as ($P_{AA} = 0, P_{BA} = 1$). The reason is that the contribution that the performance of the action giving rise to the relation makes to social welfare is 'five' in ($P_{AA} = 0, P_{BA} = 1$), but only 'four' in ($P_{AA} = 1, P_{BA} = 1$).

It had been observed in section 5.5 that it is not because an employer is forbidden to employ anybody else but a specific individual to perform some action on his behalf that this employer will have no other choice but to let this individual, his employee, exercises as much power as he wants to in their relation. If an employer considers that, given the power his employee exercises in their relation, he no longer receives a positive payoff from the performance by the latter of the action generating it, this employer can protect his welfare by simply putting an end to their relation. It turns out that, by making this choice of putting an end to the relation to protect his personal welfare, an employer also protects social welfare as a whole in the process. That is, the employer acts in a way beneficial not only to him, but also to society as a whole.

From this result, it can be concluded that an employer is guided by an invisible hand so to speak when he decides whether it is worthwhile or not for him to let his employee(s) exercise power in their relation. As long as an employer prefers to let his employee exercise more power in their relation than pulling the plug on it, this means that the outcome of the relation is still, despite the fact it is not the one the employer prefers, socially efficient. However, when it is no longer in the personal interest of an employer to let his employee exercise power in the relation, this indicates that what his employee is trying to do is to give to the relation an outcome which, socially speaking, is not as efficient as the one the employer prefers. The existence of this invisible hand in employer-employee relations having the effect of always steering the relation toward an outcome socially efficient can be used and, in fact, counted on by a welfare state to carry out policymaking in the case of rights exercised by employers to choose who they employ. We discuss this matter in the following subsection.

5.6.2 Policymaking in the case of rights exercised by employers to choose who they employ to perform actions on their behalf

What can be deduced from this result that the contribution an action performed by any individual X as somebody else's employee makes to social welfare should be the same whether X's employer is allowed or not to replace X by anyone else to perform it on his behalf concerning how a welfare state should carry out policymaking in the case of employers' rights to choose who they employ? Two conclusions, and in fact predictions, can be drawn from that result. The first is that a welfare state should seek to spend as little time, energy and resources as possible to decide how to formulate the rights of the different employers of its jurisdiction to choose who they employ. The second conclusion

that can be drawn from this result is that it is not possible to predict the exact content or formulation of the policy of any welfare state about the issue of the unionization of employees in firms.

The reason why a welfare state should seek to minimize the amount of time, energy and resources it will have to spend to carry out policymaking in the case of rights exercised by employer to choose who they employ is that, when there is a controversy between an employer and his own employees about the issue of how the right exercised by the employer to choose who he employs should be formulated, the policy choices the employer and the employees involved in that controversy each want the state to make concerning this policy issue are *both* compatible with the objective of maximizing social welfare. That is, formulating the right of an employer to choose who he employs to perform any action on his behalf such that this employer will be allowed to replace, at will, anyone presently in his employment by anyone else who is not is a policy choice compatible with the objective of maximizing social welfare. This result implies that forbidding unionization in firms is a policy choice not only compatible with the interest of employers, but also compatible with the objective of protecting and promoting social welfare. However forbidding employers to replace those who are in their employment by others who are not is also a policy choice compatible with the objective of maximizing social welfare. Allowing unionization in firms is, therefore, a policy choice also compatible with the objective of maximizing social welfare.

Given that allowing and forbidding unionization are two policy choices equally compatible with the objective of maximizing social welfare, it can be concluded that making a policy choice about the issue of the unionization of the employees of any firm

compatible with the objective of maximizing social welfare can be done without knowing anything about the firms in which this issue is raised. We therefore predict that welfare states should settle the issue of the unionization of employees in firms without seeking to know anything about the firms in which this issue is raised. About this prediction, it is important to stress to put it in perspective that there does exist information of an empirical nature that can be known about firms and consequently that could be taken into consideration to decide how to settle the issue of the unionization of employees in any of them. Indeed, firms are not all alike. For instance, firms do not all do business in the same sector of economic activity. Some firms do business in the financial sector, some others in the air transport industry, others in the manufacturing sector, etc. Firms are neither all of the same size. Some firms have more than a hundred employees; others have less than ten employees. Some firms make profits, others lose money. There are firms whose business leads them to export part of their production on foreign markets, and also firms not selling anything outside of the town where they are physically located. There are firms own by locals or nationals, and firms owned by foreigners. All this constitutes empirical information it is possible to know about firms. Yet, we predict that welfare states should never seek to know any empirical information about firms to decide how to settle the issue of the unionization of employees in them.

Result 3: A welfare state should never use, and consequently collect, any information of an empirical nature about a firm to decide how to formulate the right exercised by the employer of it to choose who he employs.

Given that allowing and forbidding unionization in firms are policy choices equally compatible with the objective of maximizing social welfare, it is not possible to predict the exact content or formulation of the policy any welfare state about the issue of unionization in firms. In light of these two results, it can be expected that some welfare states are going to allow unionization in firms, while others are rather going to forbid it. However, it can be predicted that the policy of a welfare state about the issue of unionization in firms should be the same for all the firms of its jurisdiction. Maximizing social welfare does not require having about all firms the exact same policy concerning the issue of unionization in them. However not making any distinction of any kind between firms to settle the political issue of unionization in them is going to have the effect of speeding up the process by which this issue is going to be settled in each of them.

If a welfare state does not make any distinction between firms concerning the issue of the unionization in each of them, this implies that this welfare state formulates the rights of all the employers of its jurisdiction to choose who they employ in the exact same way each, at least by default. Formulate the rights of all the employers of some jurisdiction to choose who they employ in the same way each can be done all at once by the means of a single, unique, policy. That is, this can be done by what could appropriately be called a: one-size-fits-all policy.

Result 4: A welfare state should formulate the rights of different employers of its jurisdiction to choose who they employ all at once in the exact same way each by the means of a one-size-fits-all policy.

In the chapter, it was demonstrated that controversies can occur in firms between an employer and his own employees concerning the issue of how the right exercised by the employer to choose who he employs should be formulated. This result implies that, no matter how a welfare state chooses to formulate the rights of all the different employers of its jurisdiction to choose who they employ, this welfare state should be petitioned with requests asking it to change the formulation of some of these rights. Anticipating this, a welfare state could formulate its one-size-fits-all policy concerning the issue of who the employers of its jurisdiction are each allowed to choose to employ in a way such that this policy has two different stages or levels.

The first stage or level of the one-size-fits-all policy of a welfare state concerning the issue of who the employers of its jurisdiction are allowed to employ could spell out how any right of this type is formulated by default. For instance, a welfare state could formulate the rights of the different employers of its jurisdiction to choose who they employ by default in a way such that they are all allowed to replace those in their employment by others who are not. The second stage of the one-size-fits-all policy of a welfare state by which it formulates the rights of all the employers of its jurisdiction to choose who they employ could, for its part, spell out whether it would accept, upon request, to reformulate the right exercised by any employer to choose who he employs and, if so, how it would accept to reformulate any right of this type.

Proceeding in this way to reformulate rights exercised by employers to choose who they employ would have the advantage of making it possible to reformulate any right of this type without having to know, and consequently without having to take into consideration, any information of an empirical nature about the firms whose employees

want the right exercised by their own employer to choose who he employs to be reformulated. The reason is that, whenever a welfare state is petitioned by the employees of any firm to change the formulation of the right exercised by their employer to choose who they employ, the answer that it would give to such a request would already have been spelled out in advance in the one-size-fits-all policy by which it formulates all rights of this type. This implies that a welfare state could answer any request of this type upon receiving it. In addition, this implies that a welfare state can reformulate the right exercised by any employer to choose who he employs without having to set its legislative process in motion to do so. Since the answer that a welfare state is going to give to the request made by the employees of any firm to reformulate the right exercised by their employer to choose who he employs is spelled out in advance, a welfare state can handle these requests in a routine-like fashion by conferring to its bureaucracy the task of handling them.

5.7 Side-payments in employer-employee relations

In the last section, policymaking in the case of rights exercised by employers to choose who they employ has been investigated by treating the payoffs the employer and the employee of any relation organized as an employer-employee relation each receive from the action generating the relation as being cardinal in value. However, we have left aside the intensity of these cardinal payoffs. That is, in the last section that, it was assumed that the employer and the employee receive cardinal payoffs of an identical value in the outcomes of their relation to which they respectively assign the same ordinal value in the preferences they have about them. Now, would the result that social welfare

should be the same whether unionization is allowed or not in firms still hold if the intensity of the payoffs that the employer and the employee each receive in the outcomes of their relation to which they assign the same ordinal value was allowed to differ? The answer to this question is positive, but only if side-payments are allowed.

If there is a type of relations in which it is likely that the parties involved are able to make side-payments to one another, it is certainly relations organized as employer-employee relations. This is so since for an individual such as B to be able to receive a positive payoff from the performance by another like A of some action, the payoff that the performance of this action generates must be of the type making it transferable from one individual to another. If the positive payoff B receives from the performance by A of the action putting them in relation takes the form of money for instance, then B could offer A to give him a greater share of the money he makes from the action he performs on his behalf as a tactic to attempt to convince A to not exercise in the relation as much power as A wants to exercise in it.

In fact, what happens when the intensity of A's and B's payoffs is taken into consideration and side-payments between them are allowed is that A can increase the value of the payoff he receives by performing, as B's employee, the action that puts them in relation without exercising more power (in fact any power) in the relation. A can threaten B to exercise more power in the relation as a tactic to attempt to convince B to pay him more to perform the action that generates it. Consider for instance the game depicted by Figure 5.2.

Figure 5.2: (reproduced)

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	12,22	0,0
$P_{AA} = 0$	10,30	0,0

According to the payoffs configuration of this game, B prefers $(P_{AA} = 1, P_{BA} = 1)$ to $(P_{AA} = 0, P_{BA} = 0)$. That is, B prefers that A performs the action generating the relation in a way A has contributed determining rather than A does not perform this action at all. However, $(P_{AA} = 1, P_{BA} = 1)$ is not as socially efficient as $(P_{AA} = 0, P_{BA} = 1)$ in Figure 5.2 if the payoffs that A and B respectively receive in each of these two outcomes are considered as being cardinal in value. In fact it can be observed that A's welfare increases when he is able to make the outcome of the game shift from $(P_{AA} = 0, P_{BA} = 1)$ to $(P_{AA} = 1, P_{BA} = 1)$. But what A gains by this shift of outcome is less than what B loses in the process when A's gains and B's losses are measured cardinally.

This last conclusion, however, holds only if the payoffs of the game depicted by Figure 5.2 are treated as being cardinal. And, if this is the case, then side-payments can lead the relation back to the outcome which, socially speaking, is the most efficient: $(P_{AA} = 0, P_{BA} = 1)$. For instance, let us assume that B offers A to make him a side-payment of '5' such that A's payoff in $(P_{AA} = 0, P_{BA} = 1)$ is going to be, from now, 15 rather than 10.

Figure 5.6

	$P_{BA} = 1$	$P_{BA} = 0$
$P_{AA} = 1$	12,22	0,0
$P_{AA} = 0$	15,25	0,0

This side-payment or pay-raise offered by B to A should have the effect of changing A's preferences about the different outcomes of the relation. More precisely, this offer should have the effect of making A prefer $(P_{AA} = 0, P_{BA} = 1)$ to $(P_{AA} = 1, P_{BA} = 1)$. This side-payment should have the effect of convincing A to trade power in the relation for money. Of course, in reality, many conflicts that occur in employer-employee relations (i.e., firms) are really about (or, at least, they are settled by) by money. More precisely, many conflicts that occur in firms between an employer and his own employees are created by the employees of these firms in the hopes of getting a pay raise from their employer. From this result, it is possible to draw the following prediction:

Result 6: One tactic that unionized employees can use to obtain a raise from their employer is threatening him to exercise more power in their relation; notably more power than they really want to exercise in the relation.

Employees of the public sector often use this particular tactic of threatening their employer (i.e., the state) to exercise more power in their relation to extract, in return for abandoning this objective, more money from the latter. For instance, policemen sometimes start wearing jeans while on duty as a pressure tactic to get their employer, the

state, to give them the pay-hike they covet³². On the one hand, by showing up at work wearing jeans instead of their regular uniform, what policemen are doing is changing the way they perform the action of policing; this action being the one generating the relation between them and their employer. By determining the way they perform this action, policemen exercise power in the relation. Policemen more precisely exercise more power in the relation with their employer than before. The reason is that it is usually up to their employer rather than up to policemen to decide what they wear when they are on duty.

However, the goal that policemen pursue in this case is not the one of signing a new collective agreement with their employer which would allow them to wear jeans at work. The goal of policemen is not really to exercise the power of determining what they wear at work. They wear jeans at work as a pressure tactic to show to their employer that, if he does not cave in to their demand for more money, they will punish him by exercising power in the relation in a way that has the effect of reducing the value of the payoff he, the employer, receives from the performance by them of the action generating the relation. The reason why policemen exercises this power of choosing what they wear at work rather than following the guidelines of their employer in that regard is that they want to use this power that they have just unilaterally started to exercise in the relation as a bargaining chip which can, later on, be traded back for more money. This example illustrates the fact that, in employer-employee relations, power can be traded for money.

³² This has notably been the case in Gatineau, Québec. The situation was described in the following way in a Ottawa newspaper: 'Gatineau officers started wearing jeans and cargo pants to work, rather than uniform pants, and the trend has spread across the province with other police services picking it up during their own labour disputes.' (Payton)

More generally, it can be deduced from the model that the greater the cardinal value of the positive payoff an employer receives from the performance by his employee of the action that puts them in relation is, the more this employer is likely to end up giving to his employee more power and money to get him back to work if he is forbidden to replace him by anyone else. The state is an interesting case to consider as an employer in light of this result. The reason is that the state often chooses to provide the public goods and services it supplies to members of society such as protection (the police) or, health care in a monopolistic fashion. By opting to supply some service that either members of society and/or the state itself cannot go without for very long in a monopolistic fashion, the state puts itself in an extremely weak position vis-à-vis those it employs to provide these services. Policemen, for instance, know very well that the state cannot afford to not provide policing services to members of civil society for long, given that the monopoly the state exercises on the use of force in an offensive manner in society is what defines the state in the first place as a social institution. It is, therefore, when an employer cannot afford to shut down his firm or organization that it can be expected that his employees will be paid a lot for their services, and also that his employees will exercise a lot of power in their relation to a point such that some may consider that they are the ones who really 'run the show' in this firm or organization; instead of those who, according to the organizational chart of this firm or organization, are identified as being the bosses of it. This implies that trying to identify those who exercise power in a firm cannot be done simply by looking at the organizational chart of this firm.

The public sector can, therefore, be predicted to be a sector of the economy in which employees exercise more power in the relation between them and their employer,

the state, than those who are employed in the private sector (those who have, as an employer, someone who is a simple member of civil society). The reason is not that the state is a softer employer than its counterparts in the private sector. It is rather because the state has more often the unfortunate idea of providing the goods and services it supplies in a monopolistic fashion than employers who are members of civil society.

5.8 Conclusions

The most innovative researches of the dissertation concerning policymaking have been conducted in this chapter. The reason is that, as far as we can tell, no one thus far has ever described how the state proceeds to settle the issue of unionization in firms as policymaking occurrences. In that regard, if one consults any textbook on policy analysis, one will not find a single sentence concerning this topic³³.

The reason why economists specialized in policy analysis have never developed any theory concerning policymaking in the case of how states settle the issue of unionization in firms is not the same as the one explaining why political scientists also specialized in policy analysis have never considered how states proceed to decide whether to allow the employees of any firm to unionize as policymaking occurrences. In the case of economists, the reason why they have nothing to say concerning how states settle the issue of unionization in firms policy-wise is that none of the theory of the firm they have thus far developed predict that conflicts can occur between an employer and his own employees. This point has been covered in chapter two. We will therefore refrain

³³ For our part, we have consulted the following textbooks on policy analysis. In economics, the only textbook on policy analysis that we know of is Mueller's anthology of public choice theories entitled *Public Choice*. In political science, there are many textbooks on policy analysis. Those that we know of (in fact own) are the ones by Doern, Howlett and Ramesh, Lemieux and Pal. None of these textbooks include a line on how policymaking is carried out to settle the issue of whether the employees of any firm should be allowed or not to unionize.

from repeating ourselves here. However, we consider it is necessary to see the firm as a place where conflicts can occur to be able to develop a theory concerning how the state should be observed to proceed to settle these conflicts.

In the case of political scientists, the reason why they have never been led to develop any theory of policymaking in the case of employers' rights to choose who they employ is that they usually use an inductive approach to investigate politics and policymaking. Using an inductive approach to study and make sense of any phenomenon or event requires having empirical information about it. In that regard, we predict that policymaking in the case of rights exercised by employers to choose who they employ should leave no empirical trace in its wake. The reason is that a welfare state does not need to know any empirical fact or information about a firm to settle the issue of unionization of its employees. This implies that, during the process by which it is going to decide whether to allow or not the employees of any firm to form a union, a welfare state will not consult any of the interested parties involved in that political controversy, nor any expert concerning this particular issue.

In fact, we predict that the process by which a welfare state is going to decide whether to allow or not the employees of any firm to unionize should take no longer than a blink of an eye to be completed from beginning to end. The reason is that a welfare state should know whether it will allow or not the employees of any of the firms of its jurisdiction to unionize even before it is asked by the employees of any of them to indeed allow them to form a union. Given that the policy choice is already made, the process by which a welfare state will receive, treat, and oblige any petition it receives from the employees of any firm asking it to allow them to unionize will not take long to be

completed from beginning to end. A welfare state should be able to spit out its answer to any request coming from the employees of any firm asking it to reformulate the right exercised by their employer to choose who he employs right upon receiving it. This constitutes policymaking carried out at the speed of light, especially in comparison to how policymaking is carried out in the case of rights to perform actions.

In the end, we speculate that it is because policymaking in the case of rights exercised by employers to choose who they employ should not leave any empirical trace in its wake and be completed in most cases at the speed of light (thereby making it difficult to observe it happening with the naked eye) that political scientists have thus far had nothing to say about this research topic. Some political scientists may, however, contest our interpretation of why they have never thus far written anything about policymaking pertaining to how the issue of the unionization of employees in firms is settled policy-wise by simply saying that this is not policymaking at all in the first place. This argument, in turn, depends on how one defines policymaking. For our part, we define policymaking as making policy choices in a goal-oriented fashion. In light of this definition of policymaking, what the state does whenever it decides whether to allow the employees of any firm to unionize is policymaking since this constitutes a choice, and this choice is made by the means of a goal-oriented process. The reason is that we have demonstrated in this chapter that not taking into consideration any empirical information about a firm to decide whether to allow the employees of it to unionize is the rational way to proceed to make a policy choice in that regard compatible with the objective of maximizing social welfare. This just goes to show that, sometimes, logic and deductive reasoning can allow one to see things that are not easily observable with the naked eye.

This also shows that considering policymaking requires not having in mind any preconceived ideas concerning how the process by which public policies are formulated should unfold. Of course, if one decides a priori that policymaking only takes place when public debates occur concerning how some policy should be formulated involving interested parties as well as experts, then what we have described in this chapter concerning how the political issue of the unionization of employees in firms should be settled policy-wise does not constitute policymaking in that sense. However, we prefer our own definition of policymaking as making policy choices in a goal-oriented fashion. This definition of policymaking does not a priori defines the process by which policymaking should be carried out. This definition of policymaking has the effect of making of the process by which policymaking is carried out the main research question that should be investigated about this phenomenon. This leads us to claim that what has been described and researched in this chapter is what can appropriately be called policymaking.

CHAPTER 6

SUMMARY, EXTENSIONS AND FUTURE RESEARCHES

In this last chapter of the dissertation, we review the main results and predictions of the researches conducted in it by pointing out what they bring new to the fields of research to which they pertain. We review these results and predictions by starting from the end so to speak. That is, we first of all review the main results and predictions of our researches concerning policymaking. Afterward, we review the results and predictions pertaining to state regulation and the firm. Finally, we come back to the theoretical apparatus developed early on in the dissertation to generate all these results and predictions: the concept of relations generated by the performance of actions. In that regard, we close the dissertation by highlighting the main differences between political controversies about actions and the ones about wealth. This allows us to compare our researches concerning politics and policymaking with the ones conducted in economics concerning these same topics.

6.1 Policymaking

Policymaking was studied extensively in the dissertation. We define policymaking as making policy choices in a goal-oriented fashion. Any choice is, by definition, made among a set of alternatives or options. To be able to make a choice having the effect of realizing a goal or objective a priori determined, it is sometimes necessary to use a process to identify, among the different options available, the one most likely to realize the objective sought. Researches concerning policymaking especially pay attention to the process(es) by which policy choices are made.

In the dissertation, we have paid attention to how welfare states should proceed to make policy choices in the case of rights exercised about actions, namely: in the case of rights to perform actions and also in the case of rights exercised by employers to choose who they employ to perform any action on their respective behalf. We predict that it should be possible to observe major differences between how any welfare state proceeds to decide how to formulate rights to perform actions and rights exercised by employers to choose who they employ. The main difference it should be possible to observe in that regard concerns how a welfare state proceeds to, on the one hand, decide how to formulate rights to perform different actions and, on the other, rights exercised by different employers to choose who they employ.

Rights to perform different actions should be formulated separately and independently from one another by a welfare state. This amounts to saying that a welfare state should consider the formulation of rights to perform different actions as entirely distinct policy issues. This prediction concerning how a welfare state should proceed to decide how to formulate rights to perform actions implies the conclusion that there should be no correlation between how a welfare state formulates rights to perform different actions.

On the other hand, a welfare state should formulate the rights of the different employers of its jurisdiction to choose who they employ all at once in the same way each. A welfare state should, therefore, not make any distinction between the issues of who different employers should each be allowed to employ in the process by which it decides how to formulate rights exercised by employers to choose who they employ. Proceeding in that way to decide how to formulate rights exercised by employers to choose who they

employ will allow a welfare state to spell out the formulation of all the rights of this type it has to enforce in a single, one-size-fits-all, policy. Because a welfare state should not make any distinction between the issue of who the different employers of its jurisdiction should each be allowed to employ, knowing how some welfare state formulates the right exercised by any employer of its jurisdiction to choose who he employs should allow one to predict how this same welfare state formulates the right exercised by any of the other employers of its jurisdiction to choose who he employs.

These predictions were drawn from results demonstrated in the dissertation concerning how the formulation of rights to perform actions as well as the one of rights exercised by employers to choose who they employ affect the welfare provided by the actions about which these two types of rights are respectively exercised. In that regard, we have demonstrated in the case of rights to perform actions that none of the policy choices that can be made about the formulation of this type of rights is likely to have the effect on all possible or conceivable actions of maximizing the contribution they can each make to social welfare. This result implies the conclusion that maximizing social welfare is likely going to require formulating the rights to perform certain actions differently. In other words, maximizing social welfare is likely going to require making in the case of certain actions different policy choices concerning the issue of whether performing them should be allowed or not.

In addition we have demonstrated that, when any action is the object of a controversy in society concerning the issue of whether performing this action should be allowed or not, it is not going to be possible to know a priori about the action being the object of this controversy how the right to perform it has to be formulated to maximize

the contribution it can make to social welfare. It takes information of a purely empirical nature about any action being the object of such a controversy to be able to tell which one of the different policy choices that can be made about its performance is the one having the effect of maximizing the contribution this action can make to social welfare. The process by which a welfare state decides how to formulate rights to perform actions should therefore be one making it possible to gather, and also to publicly diffuse, empirical information about the actions being the object of controversies in society concerning the issue of whether performing them should be allowed or not.

In the case of most actions, there is not going to be much overlap between the information of an empirical nature characterizing each of them. For instance, there should not be much overlap between the information of an empirical nature characterizing the issue of abortion and the one rather characterizing the issue of the extraction of oil from tar sands. This consideration implies that if a welfare state has to deal either simultaneously and/or frequently with many controversies of political nature whose issues are all whether performing some action should be allowed or not and these controversies are each being waged about different actions, this welfare state will most likely have to carry out the process of finding empirical information about each one of the different actions being the object of these controversies.

It is the fact that a welfare state should be observed to repeat over and over again the process of collecting empirical information about each one of the different actions about which a controversy occurs over the course of time in society concerning the issue of whether performing it should be allowed or not which, from an overarching perspective, will make it look like as if this welfare state treats the formulation of rights

to perform different actions as entirely distinct policy issues. That is, it is the fact that the empirical information used by a welfare state to decide how to formulate the right to have/perform an abortion will not be the same as the one it is going to take into consideration to decide how to formulate the right to extract oil from tar sands which will make it look like as if the performance of these two different actions constitutes, from a public policy perspective, entirely distinct issues. From all this, it can also be concluded that using any normative criterion expressed in terms of welfare to settle political controversies whose issue is whether performing some action should be allowed or not will not generate much economies of scale in terms of the time, energy and resources that will have to be spent to settle them all. Whether a welfare state has to settle only a single controversy of this kind or a hundred of them, the amount of time, energy, and resources it will have to spend per controversy to do so should roughly be the same.

On the other hand we have demonstrated in chapter five that, in the case of rights exercised by employers to choose who they employ, there are many policy choices that can be made about the formulation any right of this type which cannot fail to maximize the contribution any action about which this right happens to be exercised makes to social welfare. This result implies two conclusions. The first is that social welfare can be maximized by choosing to formulate the rights of all the employers of society to choose who they employ in the exact same way each. The second is that it is not necessary to know anything about the business (i.e., the firm) operated by an employer to know the different policy choices that can be made about the formulation of the right he exercises in it to choose who he employs being compatible with the objective of maximizing social welfare. This second conclusion leads us to predict that welfare states should proceed to

decide how to formulate rights exercised by employers to choose who they employ without, at any moment during the process, seeking to know anything about the businesses or firms in which these rights are each exercised. No empirical consideration should therefore inform how a welfare state has decided to formulate the right exercised by any employer to choose who he employs.

In light of these results and predictions, it can be seen that it would be a little difficult to fail to notice the differences between how welfare states make policy choices in the case of rights to perform actions and rights exercised by employers to choose who they employ. A welfare state should always take into consideration empirical information during the process by which it decides whether to change or not formulation of the right to perform any action, but never use any empirical information during the process by which it decides whether to change or not the formulation of the right exercised by any employer to choose who he employs. A welfare state should have many policies whose content or formulation, in each case, indicate how the right to perform a single, specific, is formulated; but only one policy all in all to indicate how the rights of all the employers of its jurisdiction to choose who they employ are each formulated.

The main conclusion that can be drawn from our researches concerning policymaking in the case of rights exercised about actions is that it would be mistaken to consider that a welfare state always uses the exact same process to make policy choices. A welfare state should not have one, all purpose, policymaking process; but rather many. This conclusion implies that the variable 'state' is not the only one determining how policy choices are made in society. The process by which policy choices are each made does not only depend on whether the state in charge of implementing (and consequently

living with) these policy/social choices is a welfare state or, a democratic state or, a theological state or, a Marxist state, etc. How policy choices are made is also influenced by two other variables. These two other variables are: (i) the object of state policies and, (ii) the logic of the controversies occurring in society concerning the formulation of state policies.

In the dissertation, we have kept the variable 'state' fixed. Indeed, we have only considered how welfare states should carry out policymaking. The second variable, the object of state policies, was also kept fixed throughout the dissertation. In the dissertation, we have only considered how policymaking should be carried out in the case of rights exercised about actions. To assess the effect of this second variable on the process used by any state to make policy choices, it would be necessary to compare the results and predictions of the researches we have conducted in the dissertation concerning policymaking in the case of rights exercised about actions with the results and predictions of researches conducted by others concerning how policymaking should be carried out in the case of policies whose objects are things other than actions. We make this comparison later on in this chapter. We compare our results and predictions concerning policymaking in the case of rights exercised about actions with how economists usually describe how policymaking should be carried out in the case of policies whose object is wealth like, for instance, in the case of the fiscal policy. This comparison indicates that there are major differences between how policymaking is carried out in the case of policies whose object is wealth and policies whose objects are rather actions.

The last variable affecting how policymaking is carried out is the logic of the controversies occurring in society concerning the formulation of state policies. Given that

we have kept the first two variables affecting how policymaking is carried out to conduct our researches in that regard fixed throughout the dissertation, it is this last variable which *entirely* explains why a welfare state should use different processes to decide how to formulate rights to perform actions and rights exercised by employers to choose who they employ.

In that regard, we are aware that predicting that policy choices in the case of rights to perform actions should be made separately and independently from one another on a case-by-case basis is anything but a counter-intuitive prediction. It is common knowledge that policy issues like abortion and the extraction of oil from tar sands for instance are entirely distinct. But the question is: why?

Our researches concerning this question make it possible to conclude that it would be a fallacy to explain the fact that abortion and the extraction of oil from tar sands constitute entirely distinct policy issues simply by pointing out that these two actions are not alike. The reason why this reasoning constitutes a fallacy is that comparing the actions performed by employees in different firms would also, in many cases, reveal that the actions performed by the employees of some firm are very different from the ones performed by the employees of another one. For instance, there are most likely important empirical differences between the actions performed by the employees of a bank and the ones performed by the employees of a copper mine. These empirical differences between the actions performed by individuals employed in different firms notably explain why statistical distinctions are made between different kinds or sorts of professional occupations, as well as the statistical distinctions made between firms on the basis of the kind of industry to which they each belong.

The fallacy committed by those who explain the fact that abortion and the extraction of oil from tar sands constitute entirely distinct policy issues on the grounds that these two actions are obviously different from one another from an empirical standpoint is that they take for granted that making a policy choice about any issue in a goal-oriented (more generally: in an enlightened) fashion requires knowing empirical information about this issue. In that regard, we do not deny that there are considerable empirical differences between the issue of abortion and the one of the extraction of oil from tar sands. Albeit correct, this observation however does not at all explain why it is necessary to know information of an empirical nature about any action being the object of a controversy in civil society concerning the issue of whether performing it should be allowed or not to be able to settle this controversy by a policy choice compatible with the objective of maximizing social welfare. This last point is explained not by the objects of rights to perform actions (i.e., the actions being the objects of these rights), but rather by the logic of controversies whose issue is whether performing any action should be allowed or not.

It would be a great mistake to consider that it goes without saying that making a rational or goal-oriented policy choice about any issue requires knowing empirical information about it. We have demonstrated the opposite in chapter five. In the case of rights exercised by employers to choose who they employ, it is not necessary to know anything about the actions performed by employees in firms, and consequently about firms as such, to be able to formulate this type of rights in a way compatible with the objective of maximizing social welfare. This result is explained neither by the fact that the actions performed by employees in firms do not contribute to social welfare, nor by

the fact that controversies never occur in society concerning the issue of how rights exercised by employers to choose who they employ should be formulated. Controversies do occur in society about the formulation of this type of rights.

This result is solely explained by the logic of controversies whose issue is who an employer should be allowed to employ to perform any action on his behalf. These controversies can only occur in what we call relations of partial divergence of the first kind organized as employer-employee relations. About this kind of relations, we have demonstrated that they unfold according to a logic which cannot fail but to eventually steer them towards an outcome compatible with the objective of maximizing social welfare. That is, it cannot happen that an employee performs any action giving rise to the relation between him and his employer in way not having the effect of maximizing the contribution this action can make to social welfare. This result explains why welfare states can afford to settle political controversies occurring in firms about the issue of who the employers of these firms should be allowed to employ without taking the time to seek to know anything about what is at stake substantially (i.e., empirically) speaking in these controversies. Whether what is fundamentally at stake in a controversy taking place in a firm between the employer and the employees of it is the power the employees should exercise in the firm or the wages they should get from their employer, it is not necessary to know anything about that to be able to settle this controversy policy-wise in a way compatible with the objective of maximizing social welfare.

Controversies whose issue is whether it should be allowed or not to perform an action do not unfold according to a logic having the effect of ruling out a priori the possibility they have outcomes not compatible with the objective of maximizing social

welfare. This sort of controversies can only occur in what we call relations of total divergence. If the parties involved in a relation of total divergence are left on their own device to determine the outcome their relation is going to have, their relation could have an outcome not compatible with the objective of maximizing social welfare. This is the reason explaining why, whenever someone says her welfare is negatively affected by the performance by someone else of some action like, say, action X, it is not possible to reject a priori the hypothesis that the right to perform action X is not in the present moment formulated in a way compatible with the objective of maximizing social welfare. In fact, what cannot be rejected a priori about any action is the nil-hypothesis that the policy choice that can be made about its performance most compatible with the objective of maximizing social welfare is the one of entirely forbidding it. In a sense, the case-by-case process used by welfare states to settle political controversies whose issue is whether performing any action should be allowed or not can be seen as having the purpose of testing about each one of the different actions being the object of these controversies the nil-hypothesis that social welfare is maximized when it is forbidden to perform them.

The results and predictions derived in the dissertation concerning policymaking in the case of rights exercised about actions even have the effect of challenging what is generally understood by the notion of policymaking. The reason is that we are the first here to claim that whenever the state is in the process of deciding whether to allow or not the employees of any firm to form a union, this constitutes policymaking. One would be hard-pressed to find in any textbook about policy analysis a single line where the question of how the issue of the unionization of employees in firms is settled policy-wise is discussed at all.

The reason why policymaking in the case of rights exercised by employers to choose who they employ is a topic that has thus far flown under the radar of policy analysts is that this sort of policymaking is hard to observe taking place with the naked eye. To decide whether it will allow the employees of any firm to form a union, the state does not proceed by setting up an enquiry to gather the opinions and testimonies of the different interested parties as well as the ones of experts concerning this policy issue. The state decides how it will settle the issue of the unionization of employees in firms even before being petitioned by the employees of one with a formal request to form a union. Moreover, once the state makes up its mind concerning this policy issue, it then applies this policy choice to all the firms of its jurisdiction indiscriminately. Anyone analyzing policy choices by using an inductive methodology requiring having empirical data like records of debates having occurred in the public sphere about some policy issue will be hard-pressed to find this sort of information in the case of policy choices made concerning the issue of the unionization of employees in firms. The reason is that we predict that this sort of policymaking should not leave any empirical trace in its wake. It is not possible to tell the story of how was settled policy-wise the issue of the unionization of the employees of any firm by relying on empirical data to do so.

On the flip side, there is no shortage of empirical studies and analyses concerning how policy choices are made in the case of rights to perform actions. This is especially true in the case of actions/activities being regulated by some state. The reason why there are more analyses of policy choices in the case of rights to perform actions than in the case of rights exercised by employers to choose who they employ is not explained by the fact that the issue of whether performing any action should be allowed or not is more

important normatively speaking than the one who any employer should be allowed to employ. The fact that debates are going to take place or not in the public sphere during the process by which any policy choice is made is not correlated to the relative importance of the issue to which this policy choice actually pertains. The reason why a welfare state spends, on average, more time, energy and resources to formulate the right to perform an action than the right exercised by an employer to choose who he employs is not at all that rights to perform actions constitute more important policy issues than rights exercised by employers to choose who they employ. The difference between the amount of time, energy and resources spent on average to settle a controversy whose issue is whether performing an action should be allowed or not and a controversy whose issue is rather who an employer should be allowed to employ to operate his business is rather *only* explained by the respective logics of these two types of political controversies.

This last conclusion suggests that how policy choices or issues are selected to be analyzed more thoroughly in a scientific fashion by policy analysts is more methodologically driven than they may care to admit it. This point was observed notably by Richard Simeon in the 1970s while he was watching (and commenting) the birth of this new branch of researches in political science called policy studies. In that regard, Simeon made the following observations:

‘Individual case studies tend to be isolated and unique, each looking at different issues ... Their focus has often been on the details of the policy itself, rather than on using the policy to generalize about politics. *Cumulative knowledge and theory cannot simply grow automatically by piling case studies on top of each other.* Case studies have also a tendency not to focus on the “normal” but on the unique, exotic, or important, ... Moreover, in focusing on a specific decision or piece of legislation, case studies tend to ignore those issues or alternatives which simply do not come up for debate.’ (Simeon 551) [Emphasis added by us]

This depiction of how policy analysis is carried out in political science in Canada was published in ... 1976! Not much has changed since then, which is more than thirty years ago. From how Simeon describes how policy analysis was carried out in political science in Canada in the 1970s, it can be concluded that what we have done in the dissertation is not only predicting how welfare states should make policy choices in the case of rights to perform actions. What have also predicted how policy choices should be analyzed by anyone mainly relying on empirical data and evidence to do so!

If one primarily relies on empirical data to analyze policy choices, this person is likely to be drawn toward the study of policies whose content indicates how the right to perform a specific action is formulated because policymaking in the case of rights to perform actions is especially likely to leave empirical traces in its wake. Because rights to perform actions are formulated separately, policy analysis in the case of this type of rights should also be conducted on a case-by-case basis, namely: one right or policy per analysis. This method of analyzing policy choices will give rise, as Simeon observes, to a proliferation of case studies; each case study having been written about a single, unique, policy/issue.

In the quote reproduced above, Simeon raises the important question of whether case studies about different policy choices/issues can be concatenated with each other in order to develop a general theory of politics and policymaking. We can answer this question: no. As Simeon points it out, case studies about this or that policy choice mainly provide information of an empirical nature concerning the *issues* (i.e., the different actions) to which these different policy choices respectively pertain. We come to the conclusion that there should be no correlation between policy choices pertaining to the performance of different actions. Any case study highlighting the empirical information and considerations explaining why some policy choice was actually made somewhere about the performance of some action will shed no light on the reasons explaining the policy choices actually made concerning the performance of other actions. Policy analysts using an inductive approach to study and make sense of policy choices must therefore realize that, if they consider cases or issues that can be assimilated to what we call rights to perform actions, they will not be able to draw from the researches they will have conducted about these different cases conclusions and insights which would be universally true in the case of all of them.

6.2 Regulation and the firm

In the previous section, we have painted a broad picture of how policymaking should be observed to be carried out in the case of rights exercised about actions in light of the various results and predictions drawn in the dissertation concerning this question. However, in the dissertation, we have paid attention not only to broad questions concerning how policy choices should be observed to be made in the case of rights exercised about actions. We have also paid attention to two phenomena of a social nature

both constituting major topics of research in the social sciences. They are: state regulation and the firm. Let us review the main results and predictions of the researches conducted in the dissertation concerning state regulation and the firm.

6.2.1 Regulation

It can be argued that state regulation constitutes one of the most studied topics in policy analysis. There is no shortage of researches, and even theories, concerning state regulation. Despite the fact that regulation is a topic which has been thoroughly studied before from various angles, we nonetheless consider having made major theoretical contributions concerning the logic of what may be called 'regulation politics'.

In that regard, we have first of all demonstrated that regulation can be conceived as a policy choice that can be made about any action to formulate the right to perform it. This result implies the following conclusion of a typological nature: it is mistaken to consider that there are such things as regulation or regulatory policies. That is, when the state decides for the very first time to regulate the performance of any action, what the state chooses to do in such a case policy-wise is not going from the status of having no policy at all about the performance of this action to the one of having, from now on, a so-called regulation policy about it. What the state does when it suddenly decides to, for the very first time, regulate the performance of any action is rather changing how the right to perform this action is formulated such that performing it will be, from now on, regulated instead of being either allowed in any way and intensity possible or, entirely forbidden. Regulation, therefore, constitutes not a particular type of state/public policies. Regulation rather constitutes a policy choice, among others, that can be made about any action to formulate the right to perform it. From a typological standpoint, what should be seen as

constituting a distinct kind or sort of state policies are not regulation or regulatory policies, but rather rights to perform actions.

Moreover, we have demonstrated that there are two different things that can be done about any action to regulate its performance. The performance of any action can be regulated either by making it mandatory to use a particular way or technique to perform it and/or, by imposing an upper or a lower limit on the intensity this action must be performed. The most important result demonstrated in the dissertation about regulation is certainly that there is a considerable difference between regulating the way and the intensity any action is performed. This result leads us to predict that if two parties have opposite views concerning whether performing any action like, say, action X should be allowed or not, these two parties should also be observed to have opposite views concerning what is the best thing to regulate about the performance of action X between the way and the intensity it has to be performed. We can even predict what the two parties having different views concerning whether performing any action should be allowed or not should each prefer it be chosen to regulate about the performance of this action, provided it is known which one of these two parties would see its welfare being improved if the performance of this action was more regulated than it is presently the case. In that regard, we predict that anyone whose welfare would be improved by regulating the performance of an action should prefer that what is chosen to regulate about the performance of this action is the intensity it has to be performed. Anyone whose welfare would be negatively affected by regulating the performance of an action should rather prefer that what is chosen to regulate about the performance of this action is the way that has to be used to perform it.

These twin-predictions concerning who should prefer what whenever the regulation of the performance of any action is on the political agenda allow us to interpret in a new light what is going on in the policymaking process whenever regulating the performance of any action is discussed in it. We predict that anyone proposing to achieve the objective of protecting someone's welfare by regulating the way an action is performed can only be someone whose main concern is *not* to protect and promote the welfare of that person. The reason is that regulating the way an action is, among the two means or policy instruments that can be used to modify the value of any of the payoffs provided by the performance of an action, the less likely to get the job done. Why would someone propose to achieve some objective by using the means or policy instrument being, among all those available, the less likely to get the job done? This can only be because the one making this policy proposal to achieve the objective of protecting/promoting someone's welfare does not care as much about the welfare of this person as he cares about the welfare of someone else like his own for instance.

In fact, it can be argued that it is when the negative payoff provided by the performance of an action cannot be denied, and especially ignored, anymore that it is likely that the one performing this action (because performing it provides him a positive payoff) will suddenly, out of the blue, propose to attenuate the value of the negative payoff the performance of this action by him generates by changing the way he performs it. It is to attempt to cut his losses in the policymaking process in which is discussed how the action he performs should be regulated that he will make this policy proposal. That is how we interpret Alberta's premier plea to regulate the extraction of oil from tar sands by making it mandatory to use various technological devices and innovations to perform it.

Stelmach had realized that the regulation of this industry was on the political horizon. If this action was regulated in terms of the intensity it can at most be performed, this would create important losses for Alberta's economy. For instance, cutting by half the quantity of oil extracted from tar sands on an annual basis would also have the effect of cutting the revenues generated by this industry in Alberta roughly by half.

The case of the regulation of the forest industry in BC that was briefly considered in chapter four shows that regulating the way an action is performed is not a policy choice which cannot fail to deliver the results having motivated this choice in the first place. However, it is important to stress here that we are not predicting that the policy choice of regulating the way any action is performed will for sure fail to deliver the results sought by making this policy choice. In theory, any objective can be achieved by modifying the way an action is performed. However, in terms of the likelihood of being able to modify the value of any of the payoffs provided by the performance of an action by regulating its performance, it is more risky to attempt to achieve this objective by regulating the way this action is performed than its intensity.

The main contribution we have made in the dissertation concerning regulation is, therefore, that regulating the way and the intensity any action is performed is far from being one and the same. These two policy instruments are, basically, substitutes. They are substitutes not in the sense that using one or the other will always yield the exact same results in the end, but rather in the sense that we expect those receiving payoffs of opposite signs from the performance of the same action to always have opposite views concerning what should be regulated about the performance of this action.

We also expect that, initially, the state will usually prefer to regulate the way an action is performed rather than the intensity. The reason is that regulating the way an action is performed constitutes a policy instrument being, at least potentially, much more precise and refined than regulating the intensity an action is performed. Regulating the way an action is performed can, in theory, have the effect of modifying the value of only one of the two payoffs of opposite signs provided by its performance without affecting at all, or too much, the value of the other. However, regulating the intensity an action is performed to, for instance, reduce by half the value of the negative payoff provided by its performance should also have the effect of reducing roughly by half the value of the positive payoff that it also generates.

That is why, we expect that when a welfare state is about to regulate the performance of an action for the very first time, it may be more inclined to regulate the way than the intensity this action is performed. After all, if there is a way to improve the welfare of certain members of society without negatively affecting too much the welfare of anyone else, why not try it first. If this fails at correcting the targeted problem and this problem is still considered down the road as being one that should be remedied, then the state may go from regulating the way the action creating this problem is performed to regulate its intensity too. This is what has happened in BC in the case of the forest industry. Environmental groups have been able to convince the BC provincial government to increase the size of protected forested areas in the province after it has been shown that the new techniques used by the forest industry to harvest forests in a sustainable fashion in the province did not produced satisfactory results in that regard.

That is why, when the state decides to regulate the intensity an action is performed, it can be argued that the state is serious about the objective of modifying the value of one of the payoffs provided by the performance of this particular action. The state is, so to speak, bringing in the 'big guns' to take care of the problem. However, by using the 'big guns' to, for instance, blow a hole in the value the negative payoff provided by the performance of an action, the state will also causes damages of roughly the same proportion to the value of the positive payoff the performance of this same action also provides. This explains why we expect the state to use with more restraint and paucity the policy instrument of regulating the intensity an action is performed than the one of regulating the way. Now, let us move on to the topic of the firm.

6.2.2 The firm

The firm is not a topic we had initially planned to consider in the dissertation. The initial project was to study deregulation in the air transport industry by the means of the transaction costs approach. Reading Foucault changed all that. By inputting power as an argument in utility functions, we did hope to be able to develop a model shedding light on regulation. However, we did not expect that this would also lead us to develop a new model of the firm, and consequently a new theory of the firm.

Our theory of the firm depicts it as a relation generated by the performance of an action and consequently models the firm as a game. Our theory of the firm generates predictions mainly about the conflicts and political controversies that can occur in firms. Our theory of the firm is highly original compared to existing economic theories of the firm. The reason is that, typically, economic theories of the firm generate no prediction at all concerning the conflicts and political controversies that can occur in firms.

We do not feel that there is any need here to come back to the various results and predictions derived in chapter five concerning the conflicts and controversies that can occur in firms. What we want to discuss here is, rather, our model of the firm. In deductive sciences like economics, the purpose of any model is to generate predictions. However, a model is basically something representing something else. Here, we want to stress how our model of the firm depicts the inner workings of the firm. We especially want to stress how our model of the firm depicts the boss or employer of the firm.

In this respect, it can be argued that some economic models of the firm depict the boss or employer of the firm as ‘an idiot’. Take for instance the principal-agent model of the firm. In this model, the boss of the firm is conceived as a principal. What is a principal? A principal is, basically, someone who owns capital but does not know what to do with it. The principal-person owns capital but, for some reason, has no idea how to use the latter in a productive, welfare-enhancing, fashion. What this principal-person does to attempt to derive some income from the capital she owns is find herself someone else, an agent, who would use it in a productive fashion on her behalf in return for a fair compensation for lending her a hand in that regard.

This is just the set up of the problem. The reason is that, in the principal-agent model, the principal is assumed not being able to observe what her agent is doing with her capital. The principal cannot tell whether her agent uses her capital in the most productive fashion possible or not. What the principal does to rectify the problem is, apparently, go consult some economist at the MIT³⁴ to ask him to devise her a very complex payoff-scheme to compensate her agent such that she will use her capital

³⁴ We are referring here to Bengt Holmstrom. Holmstrom’s payoff schemes ideas can be found notably in his article written with Paul Milgrom entitled *Multitask Principal-Agent Analysis: Incentive Contracts, Asset Ownership, and Job Design*.

productively despite being unobservable while she does, and also despite the occurrence of random factors (with however known frequency of occurrences) affecting her productivity. The day that some principal-agent theorist will be able convince any employer to use one of the incredibly complex payoff-schemes he has devised to compensate employees in firms, we will be the first in line to applaud. But, until then, allow us to consider this kind of researches about the firm as futile.

Whether one considers principal-agent model as being futile researches or not, it has to be admitted that the principal-agent model does not depict the employer of the firm as being an especially useful, productive, and indispensable member of this sort of social organizations. In fact, as pointed out by Jeffrey Banks, the main prediction of the most basic principal-agent model of the firm is that, to maximize the value of her capital, the principal should simply sell it to her agent!³⁵ (Banks 23) The reason is that, in the principal-agent model, the agent is depicted as being the one bringing to the firm all the necessary skills and knowledge to be able to use the capital of it productively. Because of this, the problem of the principal (as well as the one of society as a whole when the firm is conceived as a mechanism to create wealth) is to incite the agent to use the capital of the firm productively.

This reasoning is also, basically, the one of the transaction costs model of the firm. In this model, the employer is a buyer who has peculiar preferences about the design and specifications of the good or service he wants to acquire. This explains why

³⁵ The only difference between how the basic principal-agent model of the firm predict things should play out in the firm between the employer and his employees and what Marxist theory has to say about this question is that Marxists rather advise firms' employees to acquire the capital of their employer by lining him up against a wall, along with all his family members and heirs, to execute them all. Marxists consider the fact that employees are the ones who brings to the firm all the necessary skills and knowledge to use the capital of it productively as exploitation on the part of employers/capitalists.

this buyer employs his supplier of choice, as opposed to transacting with the latter on the market as two separate entities where the buyer takes whatever the supplier has to offer in term of qualities and specifications as is. In the transaction costs model of the firm, the employer has the authority to ask the supplier he personally employs to produce some good or service on his behalf to produce it according to standards and specifications which are tailored to his particular needs. However, the employer is not depicted in the transaction costs model of the firm as being the one who makes it possible for his employee/supplier to produce some good or service tailored to his particular needs by teaching or training him how to do that. It is, in fact, the other way around in the transaction costs model of the firm.

The skills and knowledge that the employee/supplier develops over the course of time to satisfy the particular needs of his employer are considered in transaction costs economics as specific assets. It is when an employee becomes to some firm, and especially to the one operating it for profits, a specific asset that it becomes crucial to keep him on board so to speak. To do so, the employer must find a way to keep his employees that have become specific (i.e., valuable) assets to his business happy. One thing that an employer can do to keep his valuable employees happy is to negotiate with them their working conditions by the means of a labour contract. This is the reason why Williamson does not understand why employees need the help of the state to unionize. For Williamson, as the employees of a firm become specific assets in it that cannot be easily replaced by hiring new ones off the job market, the owner or employer of this firm should be incited to negotiate the working conditions of his current employees in good

faith without waging war against them in that regard to avoid conceding them what would make them happy campers in his firm.

From this, it can be seen that the main difference between how we model the firm and how the firm is usually modeled in economics has to do with the role the employer is described as fulfilling in it. In economic theories of the firm, the employer is not described as someone who has any direct impact on the productivity of his employees, and consequently on the productivity of the firm he runs. In economic theories of the firm, employees are described as being the ones who either bring on their own from the outset or, who develop on the job after having been hired all the skills and knowledge they need to have so that the firm for which they work operates productively. Such is not the case in our theory of the firm.

In our theory of the firm, the employer is described as someone who puts a lot of stock on his own knowledge concerning how to accomplish any task on his behalf. The employer is described by our model as someone who believes so much in his own way of doing things that he wants others, i.e., his employees, to do things exactly like he has either told them or trained them to do them. The employer believes so much in his way of doing things in our model that he is willing to go to war with any of his employees who would refuse to execute his orders and commands in that regard to the letter. If anything, in our model, the ones who are described as 'idiots' or superfluous/expendable members of the firm is not the employer, but rather the employees.

At any rate, it is how we predict employers should see their own employees. You do not want to do what I am telling you to do? Fine, you are a goner. I prefer to get rid of you and replace you by someone else than letting you do things on my behalf in any way

other than the one I have devised and instructed you to use. The employer is described in our model of the firm as having no respect, no use, for the input his employees may have concerning how things should be done in his firm. He runs the show, they execute, period. That is the deal between them as far as he is concerned.

The employer may feel that all is fine in the firm when he runs the show in it all by himself. But this may not be the case of his employees. The employer may have no use for what his employees think concerning the way they should do their jobs, but we do depict them as having views concerning this matter. They may go to war with their employer, shutting down his firm in the process if necessary, to get him to listen to them and accept some of their demands.

This last point constitutes the most innovative aspect of our model of the firm. We model the firm such that it is depicted as a place where power is exercised. However, the model does not settle a priori once and for all the question of who exercises power in the firm. Our model of the firm depicts it as a place where both the employer and the employees can exercise power. This is the fundamental theoretical innovation of our model of the firm. To conclude this review of the main contributions of our dissertation, let us come back to the theoretical backbone of it: the concept of relations generated by the performance of actions.

6.3 Relations generated by the performance of actions

The most important theoretical contribution of this doctoral dissertation is, arguably, the concept of relations generated by the performance of actions. Here, it is important to stress that relations generated by the performance of actions are only a concept, that is: a theoretical device. Like a model, a concept is something whose interest

and usefulness first and foremost depends on what can be done with it in terms of predicting and/or explaining how the class of events to which it pertains are likely to unfold.

But, notwithstanding this, looking at society through the lens of the concept of relations generated by the performance of actions yields a different view and understanding of it. But, in comparison to what? At this point of the dissertation, we can reveal something about ourselves: our academic background is in economics. We have been taught how to practice policy analysis first and foremost by economic professors specialised in this particular domain of researches. To make sense of our own researches concerning politics and policymaking, we cannot help but to compare them with economic theories of politics and policymaking; especially to public choice theories.

Conducting our researches concerning politics and policymaking in the case of rights exercised about actions has lead us to interpret economic theories of politics and policymaking differently than how economists usually interpret them. In that regard, Dennis Mueller can arguably be said to have written the most complete anthology of public choice theories, namely: the well-known textbook *Public Choice*. On page one of this textbook, Mueller explains what public choice is all about in his eyes.

‘Aristotle, observing the Greeks in the fourth century B.C, though that man’s natural proclivities were toward discourse and political activity. Adam Smith, observing the Scots in the eighteenth century A.D, saw instead a propensity to engage in economic exchange. From the observations of these two intellectual giants, two separate fields in the social sciences have developed: the science of politics and the science of economics.

Traditionally, these two fields have been separated by the type of questions they ask, the assumptions they make about individual motivation, and the methodologies they employ. ... Political science has often assumed that political man pursues the public interest. Economics has assumed that all men pursue their private interests,.. But is this dichotomy valid? Public choice can be defined as ... the application of economic to political science. ... **The basic postulate of public choice, as for economics, is that man is an egoistic, rational, utility maximize.**’ (Mueller 1-2) [Emphasis added by us]

The researches we have conducted in the dissertation concerning policymaking in the case of rights exercised about actions have led us to reject Mueller’s interpretation of public choice as studying politics on the basis of postulates pertaining to man’s nature in regards especially to what fundamentally motivates man. We rather consider that what truly defines public choice as a body of theories concerning politics and policymaking is that, in public choice, it is always postulated that the object of any public policy is wealth. We contend that, as things stand now, there is no such thing as a public choice theory not based on the postulate that the object of any public policy is wealth. In fact, we argue that what is modeled by public choice theories are controversies of a political nature whose issues are, in each case, the formulation of a public policy whose object is wealth.

For instance, let us consider the media voter theorem³⁶. What is modeled by the median voter theorem is, of course, an election. What is postulated to be the issue of the election modeled by the median voter theorem? This issue is the formulation of a policy taking the form of a public good supplied by the state to members of civil society. This

³⁶ For a more complete exposé of the median voter theorem, see Mueller (65-67).

issue is depicted by the median voter theorem as being controversial. The reason is that members of civil society are assumed to not all have the same preferences concerning the quantity of the public good at issue the state should supply them.

Now, let us move on to public choice theories of collective action. For instance, let us consider Becker's theory of collective action (1985). Becker models collective action as a phenomenon pitting against each other two rival social groups, namely: the taxed against the subsidized. What else could care about any member of a group called either the taxed or the subsidized but wealth? As a result, the political controversy modeled by Becker's theory of political pressure is one whose issue is the formulation of the fiscal policy of the state.

Finally, Niskanen has developed a theory of bureaucracy³⁷. Niskanen's theory of bureaucracy is built on the assumption that the bureaucracy has a principal. The principal of the bureaucracy is, in essence, the citizenry. However, Niskanen models the relation between the bureaucracy and its principal as being conflicting. The issue of this conflict is the size of the budget that society as a whole should award to the state bureaucracy to carry out its duties of implementing public policies on its behalf. Bureaucrats are, therefore, modeled by Niskanen as caring about how the policies they are in charge to implement are each formulated. The reason is that how these policies are each formulated in turn affects the size of the budgets, and consequently the amount of wealth, bureaucrats can request to be endowed with to implement them.

We argue that, in the present moment, there is no such thing as a public choice theory of politics/policymaking not based on the assumption that the object of public policies is wealth. When public choice is described in that way, this has the effect of

³⁷ For a more detailed exposé of Niskanen's theory of bureaucracy, see Mueller (251-255).

highlighting the innovative aspect of our own researches concerning politics and policymaking. Far from us the idea of contesting that there are public policies out there whose object is wealth. Far from us the idea of contesting that, in society, there are conflicts and political controversies about the issue of the allocation of wealth and resources. However, we claim that conflicts and political controversies about wealth are not the only game in town so to speak in society. In society, there are also conflicts and political controversies about actions. We are the first to use the deductive methodology to predict how conflicts about actions should be observed to play out on the political scene.

This last point finally brings us to what we consider to be the main theoretical contribution of the dissertation: the concept of relations generated by the performance of actions. Relations are basically events of a social nature whose particularity is that they revolve around actions as opposed to wealth. That is, relations are events whose objects are actions.

It is possible to compare and contrast events whose objects are actions with the ones whose objects are rather wealth. In that regard, let us first note that economists often invoke what we consider to be fairytales to explain why they have been led to develop theories of politics in the first place. For instance, Gordon Tullock (1984) claims that the reason why economists have been led to develop theories of politics and policymaking is that that economics is an imperialistic science whose members enjoy conquering the field of study of other social sciences such as political science. This, in our view, is pure nonsense.

What really has led economists to pay attention to politics and policymaking in the first place is rather, as far as we can tell, that the models economists have developed

over the years of events taking place in society whose objects are wealth have led them to conclude that: (i) conflicts can occur in society about wealth and, (ii) any conflict about wealth can be waged by political means. Waging a conflict about wealth by political means is no different from waging a conflict about any action by political means. To wage a conflict against someone else about anything by political means, it is necessary to ask the state to change how a policy it already has about this thing is presently formulated such that this policy is going to be reformulated in a way having the effect to at once improve one's welfare and also negatively affecting the welfare of the person against whom one is waging that conflict.

At any rate, this is exactly how we have proceeded in the dissertation to study politics and policymaking in the case of rights exercised about actions. In that regard, we have first developed a model of events whose objects are actions (i.e., a model of relations generated by the performance of actions). Afterward, we have studied the government of relations. This has led us to demonstrate the result that conflicts can occur in society about actions, and that these conflicts can be waged by political means.

Our researches concerning policymaking can, therefore, be interpreted as a critique of public choice as it exists today. Our work is critical of public choice because what we basically assert is that public choice, in its current incarnation, only provides a partial view, and consequently a partial understanding, of politics and policymaking. Public choice depicts the logic and dynamic of politics and policymaking only when what is at issue in these arena/processes is the formulation of policies whose object is wealth. To repeat, we do not deny that there are state policies whose object is wealth. However

we assert that, in addition to policies whose object is wealth, there are also policies whose objects are actions.

Our researches concerning politics and policymaking are critical of the public choice view of politics only insofar as one considers that public choice as it exists nowadays provides a complete picture of political life in society. For our part, we consider that our researches concerning politics and policymaking in the case of rights exercised about actions are complementary to existing public choice theories. The reason is that we consider that events whose objects are wealth and events whose objects are actions are entirely different affairs which, however, coexist side-by-side in society. These two sorts of events coexist in society but, for the most part, they unfold separately and independently from one another according to, in each case, entirely different logics and dynamics. How different are events whose object is wealth from the ones whose objects are rather actions (i.e., relations)? There are two major differences between events, and especially controversies, about wealth and the ones rather about actions.

The first of these differences is *size*. On average, a controversy whose issue is the formulation of a policy whose object is wealth is going to involve a greater number of individuals than a controversy whose issue is rather the formulation of a right exercised about an action. How large are political controversies waged about wealth? Most of these controversies are described by public choice theories as involving no less than each and every member of civil society. Sometimes, these controversies are described as Hobbesian wars of the type 'all against all'. This is the case notably of the median voter theorem. All members of civil society are assumed in the media voter theorem to have preferences concerning the quantity of some public good the state should supply them.

Members of society are, therefore, depicted by the median voter theorem as attempting to realize their personal preferences about the policy issue of the quantity of some public good the state should supply them at the expense of the ones of all the other members of civil society having different preferences than theirs concerning this issue. The controversy of a political nature described by the median voter theorem is, therefore, anything but a small or local affair involving only a few members of civil society. It is, rather, an affair pitting against each other all members of civil society.

Other public choice theories, such as Becker's theory of political pressure and also Niskanen's theory of bureaucracy, depict controversies in which all members of civil society are involved, but neatly divided a priori in two groups or factions whose interest is assumed from the outset to be diametrically opposed. With Becker, society as a whole is divided from the outset between the taxed and the subsidized. Any member of society, whether he likes it or not, belongs to one of these two rival groups; and consequently takes part in the never-ending conflict that these two groups are perpetually waging against each other in society about the issue of wealth allocation. The same goes for Niskanen. Niskanen divides society between bureaucrats, and the rest (i.e., the citizenry). Thus, one thing that can be said about how public choice theories usually describe the political arena is that the conflicts and controversies that are waged in it are not described as being small affairs. These conflicts are rather modeled in a way such that they are depicted as involving all members of society.

Conflicts about actions are, however, much smaller affairs in most cases. Take for instance the conflicts occurring in firms between an employer and his own employees. Who will be involved in any of these conflicts? All members of civil society? Of course

not. Members of civil society do not all work for the same employer. Most conflicts that occur in firms only involve an infinitesimal percentage of the total population of society.

The same goes with many conflicts whose issue is whether the performance of some action should be allowed or not. Some of these conflicts may actually involve a greater percentage of the total population of society than the ones taking place in firms. Nonetheless some of the conflicts about the performance of actions can also be very small. For instance, consider the case of a couple with young children wanting to get a divorce, but that cannot agree about the issue of which one of them should have custody of their children. Given that they cannot settle this issue on their own, this couple will have to turn to the court system to settle this issue on their behalf. The question is: how will the competent court settle this conflict?

We consider that what the court is asked to do in this case is to formulate the right to perform an action. This action is: the action of having custody of the children. What the court must actually decide here, given that mommy and daddy both want to perform this action of having custody of their kids at the same time while being apart, is really which one of them will be forbidden to perform it. Because this conflict is one whose issue is the formulation of the right to perform an action, we predict that how the competent court should proceed to settle it is by using a process identical to the one described in chapter four by which the right to perform any action, like the right to extract oil from tar sands for instance, should be formulated.

First of all, we predict that the court should handle divorces involving custody issues separately and independently from one another such that each divorce is settled on its own merits. Moreover we predict that, to settle any divorce, the court should take into

consideration empirical information. To do so, the court will let the two parties involved in any divorce provide themselves the empirical information that it considers as being relevant to take into consideration to settle this kind of conflicts. In that regard, daddy could argue, and especially attempt to demonstrate, that mommy is a drunk and consequently an unfit mother. Mommy could respond by showing evidence that daddy is a work alcoholic, and also that he already has found himself a new girlfriend to replace her not that much older than their own kids. This evidence demonstrating that daddy does not have all that much free time after all to take good care of the children.

This case of a divorce between a couple with young children is interesting to consider because it shows the extent to which certain controversies about the formulation of rights to perform actions can be small affairs. Some of these conflicts are so small that some could question whether how they are settled policy-wise can appropriately be seen as policymaking occurrences. Indeed, when a court makes a ruling in the case of a divorce to specify which one of the two parents involved will have custody of the children, what the court does is to formulate the right to perform this action. But are custodial rights public policies? Many would consider the issue of who, in a divorce, gets custody of the children as being a private matter; even when this issue is settled by the state via its judiciary branch. But, nonetheless, the state is the one having settled this issue according to a process no different from the one it uses to settle any other controversy whose issue is how the right to perform any action should be formulated. The line between what is public versus private in the case of policies taking the form of rights exercised about actions is, therefore, sometimes a little difficult to draw. This explains why, throughout the dissertation, we have preferred to talk about state policies rather than

public policies. We just do not consider the distinction between what is public and what is private as being especially useful to predict and explain how policymaking in the case of rights exercised about actions should be carried out.

All this to say that a major difference between political controversies whose issue is the formulation of a policy whose object is wealth and political controversies whose issue is rather the formulation of a policy whose object is an action is the number of individuals being, on average, involved in these two types of controversies. Typically, a controversy whose issue is the formulation of a policy whose object is wealth will involve a lot more individuals than a controversy whose issue is rather the formulation of a right exercised about an action. This size difference between these two types of political controversies explains the other major difference between them.

Controversies whose issue is the allocation of wealth typically pit against each other individuals who do not know the identity of their opponents. For instance, someone who is looking to obtain a subsidy from the state does not have to point the finger at anyone else that the state would have to tax more to collect the money necessary to finance the subsidy she covets. One dollar obtained by the means of a state subsidy has the same value or utility to the one receiving it no matter from whose pocket it has been taxed away in the first place. In fact, as shown by both Becker and Olson³⁸, it is rational for anyone receiving a subsidy to keep quiet about it, and especially to refrain from broadcasting this news all around. This is for two reasons. The first is to avoid provoking political resistance on the part of those who pay taxes, thereby financing this subsidy. If taxpayers ever learn about the existence of this subsidy, they may question why this subsidy is handed out at all in the first place. The other reason is to avoid having others

³⁸ In Olson's case, see for instance Mueller (308-319).

attempting to join the group already benefiting from the subsidy. In that regard, the greater is the membership of any group receiving a subsidy, the smaller are going to be the piece of it each member of the group receives.

Conflicts about wealth, therefore, pit against each other opponents who remain usually unknown to one another. That is why this sort of conflicts is usually waged by intermediaries (i.e., designated or self-proclaimed champions) like political parties or candidates. This, in turn, explains why any election is more likely to be fought about wealth related issues than about issues having to do with how rights exercised about actions should be formulated.

However, those who are involved in a controversy whose issue is the formulation of a right exercised about an action will usually know the identity of their opponents in that controversy. The reason is that, after all, we model such controversies as relations generated by the performance of actions. The reason why we call any event whose object is an action a relation is, precisely, that we consider that it stands to reason to assume that anyone whose welfare is affected by the performance by someone else of an action should know the identity of the person or entity, other than her, who happens to be performing this action affecting her welfare.

Relations generated by the performance of actions are, therefore, relatively small in terms of the numbers of individuals they each involve on average. However, a relation will usually involve individuals who all know the identity of the other individuals with whom they are in relation. The fact that two parties in conflict with one another know the identity of their opponent in this conflict will have the effect of giving to this conflict a more personal flavour than if this was not the case. By a personal flavour, we mean that

these conflicts can unfold in a nastier fashion than the ones that rather occur about wealth.

A good example of this is the one used above of a couple going through the court system to get a divorce because they cannot agree on the custodial rights they should each have vis-à-vis their own children. The parties involved in such a conflict will, of course, know each other very well. As a result, they will not hesitate at all to use their personal knowledge of the other to attempt to destroy his/her reputation and good name so as to win the battle they are waging in court. They will, literally, tear each other apart on the court's floor. Divorces in that regard are well known to be nasty affairs when they are settled by the court system.

The same applies with conflicts that occur in firms. Employees know the identity of their employer. Depending on the size of his firm, an employer will either know each of his employees by name or, have a file somewhere containing this information. Even though most conflicts occurring in firms are rather small affairs, they nonetheless tend to generate a fair amount of thunder and lightning. In that regard, when employees go on strike, they try to grab as much as possible the attention of the general public; usually by disrupting the routine of those that have to come anywhere near the location of the firm where they work. If asked, employees on strike will not hesitate at all to describe their employer by using all the unflattering names and adjectives they know. Moreover, especially in the past, there have been many conflicts having occurred in firms that have degenerated into bloody affairs. In the case of conflicts, their size in terms of the numbers of people they involve is often negatively correlated to how nasty they unfold. That is, it is often the smallest conflicts that are the nastiest.

In the end, it can be seen that how politics and policymaking are going to be depicted to unfold in no small part depends on what is postulated to be the object of state policies. In fact, society as such does not at all look the same depending on whether one looks at it by paying attention to the events taking place in it that are about wealth or, events that are rather about actions. From the standpoint of wealth, society appears as being something that makes sense when considered as a whole. The reason is that, after all, resources can all be traded for one another. This explains why economists are able to talk about a general equilibrium to describe how resources are/should be allocated in society.

But, would it make sense to similarly talk about a general equilibrium in the case of actions as well as, by ricochet, in the case of the exercise of power in society? Obviously not. The reason is that what takes place in any relation generated by the performance of an action has no bearing whatsoever on what is going on in any other relation. The fact that power is exercised in some relation to determine the way the action generating it is performed does not mean that there is less power available elsewhere for those involved in other relations to determine the way the actions generating these other relations are going for their part to be performed. Each relation generated by the performance of an action is, therefore, a self-contained world of its own.

In any society large enough for its population to be counted in terms of millions of individuals, there will be in it a large number of relations generated by the performance of actions. However the countless different relations generated by the performance of actions that exist at any given point in time in society do not amount to something making any sense when considered all at once from a global, overarching, perspective.

They will not constitute some system, or economy, in which all relations are linked with one another such that whatever happens in one of them has an impact on all the others. Attempting to make sense of society by looking, if that was possible, simultaneously at what is going on in all the relations generated by the performance of an action that exists in it would most likely lead one to describe society as a whole in a manner similar to this famous Shakespeare's quote: '[It] is a tale told by an idiot, full of sound and fury, signifying nothing.'³⁹

6.4 Future Researches

We consider that, in the dissertation, we have only scratch the surface in terms of exploiting the predictive power of the concept of relations generated by the performance of actions to describe and make sense of what is going on in society. The main reason is that, in chapter three, we have demonstrated that there are five different kinds of relations that can be generated by the performance of actions. Yet, we have formally and extensively considered the government of only two kinds of relations generated by actions in the dissertation, namely: zero-sum relations and relations of partial divergence of the first kind.

Policymaking in the case of rights to perform actions can also be considered by using the concept of nonzero-sum relations of total divergence. However, as discussed in chapter three, a nonzero-sum relation is more likely to involve parties being in relation because each of them performs an action affecting not only its own welfare but also the welfare of all the other parties also involved in the relation than parties in relation

³⁹ This widely-known Shakespearian quote comes from *Macbeth*; act five, scene five.

because only one of them performs an action affecting not only its own welfare but also to the welfare of all the others. By using an example of a relation generated by an action performed by each of the parties involved in it modeled as a nonzero-sum game of total divergence, it is possible to consider the regulation of the different firms of a specific industry such as air transport for instance.

The different firms of a given industry all perform the same action, which is: the action of producing some good or service being sold to the customers of a specific market. The different firms of a given industry all want to put their competitors out of business in order to become a monopoly on the market they serve. This can be done notably by convincing the state to forbid their competitors to perform the action putting them in relation. Such a kind of relation is therefore going to be conflicting. The conflict taking place in the relation will be about how the rights exercised by each of the parties involved in the relation to perform the action generating it should each be formulated. These parties will all want to be the only one allowed to perform the action generating the relation. The interesting aspect of modeling an industry involving at least two firms as a nonzero-sum relation of total divergence is that regulation is going to constitute in that case, unlike in the case of a relation modeled as a zero-sum game, a policy choice that can be made to formulate the rights exercised by all those involved in the relation to perform the action generating it compatible with the objective of maximizing social welfare.

Modeling a regulated industry as a nonzero-sum relation of total divergence implies the conclusion that the firms of this industry are not colluding at all with each other to maintain the legal/bureaucratic apparatus regulating them at the expense of the

interest of their respective customers. The case of a nonzero-sum relation of total divergence is not all that different from the one of a zero-sum relation of total divergence as far as are concerned the parties involved in such relations. The reason is that, in a nonzero-sum relation of total divergence, all the parties involved in the relation receive a negative payoff from the performance by each of the other parties also involved in the relation of the action generating it. That is, the welfare of all those involved in a nonzero-sum relation of total divergence is negatively affected by the performance of all the actions generating the relation except for one of them: the action each of them personally performs. What has the effect of making of such a relation a nonzero-sum game of total divergence rather than a zero-sum game of total divergence is the fact, even though the parties involved in the relation each receive a negative payoff from the performance by all the other parties also involved in the relation of the action generating it, the aggregated value of the negative payoffs these parties each receive from the performance of these actions is not as great in absolute value as the one of the positive payoff they receive by performing this same action themselves. Because these parties all receive a negative payoff from the performance of the action that they themselves perform when it is performed by anyone else, they all want everyone else to be forbidden to perform it. That is, they all go after the rights exercised by anyone else, except for themselves, to perform this particular action. We therefore predict that the firms of any regulated industry should, far from colluding with each other to each keep intact their respective protected market shares, rather wage war against other in order to strip their competitors of the rights they have to perform the action that puts them in relation. Looking at how, in Canada, the air transport industry has evolved in the 1990s from a regulated duopoly on international

markets to a monopoly (for a while) lends credential to this prediction that the different firms of a regulated industry should not collude with each other to keep up the regulation of their industry⁴⁰.

The government of relations of partial divergence of the second kind is also interesting to consider. The reason is that, despite the fact that the preferences of the parties involved in a relation of partial divergence of the second kind are divergent, conflicts and political controversies are not likely to occur in this kind of relations. This result implies the conclusion that diverging preferences in the case of actions does not always give rise to conflicts and controversies. That is, it is not because X's preferences about an action diverge from the ones of Y and X depends on Y to realize them that it is necessarily going to be rational for X to wage war against Y to attempt to realize them. If X's dependency toward Y to realize preferences about an action takes the form of a game of partial divergence of the second kind, the tactic that X should use vis-à-vis Y to attempt to realize his preferences about this action is to offer Y a compensation to convince Y to perform this action in the way that he, X, prefers rather than in the way that Y wants to perform it.

The government of relations of no-divergence may also be interesting to consider. As pointed out by Schelling, games of no-divergence are the ones which are, and by far, the less studied in game theory (87). However, it is important to recall that games basically model dependency. Dependency is first and foremost a constraint. The fact that

⁴⁰ Our master essay was written about the deregulation of the air transport industry in Canada on the transborder market between Canada and the United States of America. Throughout the 1990s, Air Canada waged war on Canadian International to invade its profitable routes linking western Canada to Asia. There was no collusion between Air Canada and Canadian International to each keep their respective protected markets on the international scene. Air Canada has had to buy Canadian International to finally be able to launch its own services between Canada and Asia.

X's preferences concerning something do not diverge at all from Y's does not mean that, if X depends on Y to realize his preferences about this thing, X will not have to overcome any constraint to realize them. Schelling in that regard claims that, when the dependency one experiences towards someone else takes the form of a game of no-divergence, this may give rise to a problem of coordination (86). Y may not be opposed at all to the idea of realizing X's preferences about something. There may however be constraints making it difficult for X and Y to coordinate their actions and behaviour (i.e., their respective strategies) about this thing such that Y does indeed realize X's preferences about it.

This problem of coordination discussed notably by Schelling is the reason why we consider that relations of partial divergence of the first kind are not the only kinds of relations likely to be organized as employer-employee relations. Relations of no divergence may also, for coordinating purposes, be organized in some cases as employer-employee relations. For instance, Y may be someone out of work. Y may consider that, if X accepts to hire him to perform any action on his behalf, he would accept to perform this action for X in any way X may ask him to do it. However, as argued in chapter five, Y's good intentions in that regard do not imply that Y will necessarily be able, simply upon X's request, to do anything that X asks him to do for him exactly in the way X wants this thing to be done. If Y fails at doing whatever X has asked him to do in the way X wants it to be done not because of Y's lack of willingness in that regard but rather because Y lacks the personal qualities necessary to do it, X may want to get rid of Y after all. X will have to be Y's employer to do that. Employing someone else to perform an action constitutes a tactic rational to use not only in order to be able to get rid of the individual performing this action if he refuses to perform it in the way one asks him to do

it, but also if the individual performing this action is simply not able to perform it in the way one is asking him to do it.

There are therefore interesting questions to investigate by considering the government of nonzero-sum relations of total divergence, the government of relations of partial divergence of the second kind, and the government of relations of no-divergence. There are also questions about the government of zero-sum relations that were left aside in chapter four because of space constraint⁴¹. The main topic that can be investigated by considering the government of zero-sum relations is policymaking in the case of rights to perform actions. In that regard, we have demonstrated that it is necessary to know empirical information about any action being the object of a controversy in society concerning the issue of whether performing this action should be allowed or not to be able to formulate the right to perform it in a way compatible with the objective of maximizing social welfare. This result however begs the following question: where will the state obtain the information of an empirical nature that it has to know about an action being the object of a controversy in society to be able to formulate the right to perform it such that this action contributes as much as possible to social welfare? The answer is: primarily from those who consider their personal welfare to be affected by the performance of this action.

On the basis of this conclusion, it would be possible to study what economists call: collective action. That is to say in this case: how should those involved in a controversy whose issue is whether performing any action should be allowed or not act and behave toward each other and also toward the state in the process set up by the latter to gather empirical information concerning this action. In that regard, it is possible to

⁴¹ Even though chapter four is the longest chapter of the dissertation.

conclude that the parties involved in a political controversy whose issue is the formulation of the right to perform an action should act and behave in the process set up by the state to gather empirical information about it in a way reminiscent of what political scientists call: social movements.

Social movements are politically motivated groups whose tactic of choice to advance their cause is: identity politics⁴². Identity politics amounts to show oneself in the public eye in order to create awareness concerning one's cause. The gay rights movement constitutes the poster child of a social movement relying primarily, and with considerable success, on identity politics as a tactic to protect and promote the interest of its members. The gay rights movement urges all gays and lesbians to come out of the closet, and incite all those who do so to participate to the parades it organizes each year in all the major cities of Europe and North America. These gay parades are designed to catch the attention of the public and, by doing so, to make sure that the political issues of interest to gay people are known, and consequently properly considered.

As mentioned in the preceding section, no interest group looking to get or to keep a subsidy should use a tactic like identity politics to do so. However, when a group is politically active because its members consider being either negatively affected by the performance by someone not part of their group of an action or because they are not allowed to perform an action that they wish to legally perform, it will make sense for this group to be as visible as possible on the political scene. The reason is that, for such a group, the greater is its membership, the greater are going to be its chances to succeed on the political scene. For instance, the greater is the number of people claiming to be negatively affected by the performance of an action, the greater are the chances that a

⁴² For an exposé on social movements and Identity politics, see for instance Diani (1992).

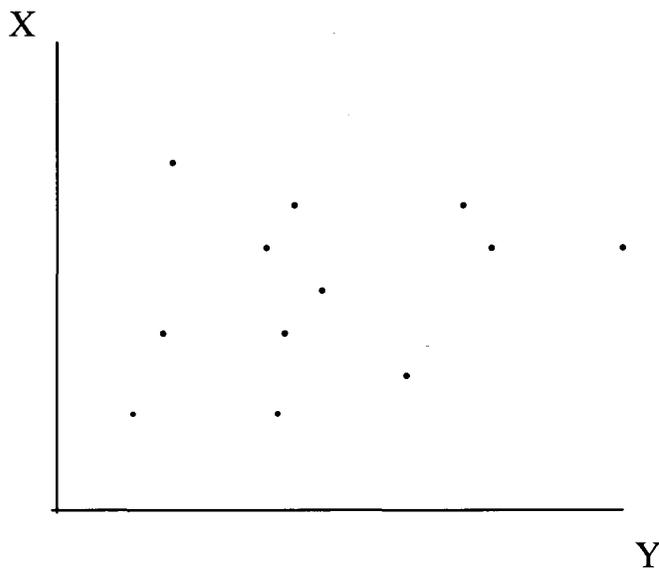
welfare state will consider this action as producing more harm than good, and consequently the greater are the chances that this welfare state will choose to forbid the performance of this action. Identity politics, the staple of social movements, is a tactic to further a political cause that is more likely to be employed by people having preferences about an action than people that only care about wealth. This idea that, in society, there are controversies waged about the formulation of rights to perform actions, therefore, allows to generate new predictions concerning the tactics and strategies that politically active groups may be observed to use on the political scene to protect and promote the interest of their members.

Finally admitting that, in addition to policies whose object is wealth, there are also policies whose objects are actions makes it possible to explain a theoretical puzzle initially identified by Charles Plott. This theoretical puzzle is why the formulation of most public policies is not modified after each election⁴³. What led Plott to predict that each election should produce policy changes on a large scale, a phenomenon called policy cycles in public choice, is the fact that Plott models the policy issues space by assuming that public policies are all public goods. The problem when public policies are all assumed to be public goods is that there is no reason to expect that voters' preferences concerning the formulation of these policies are going to be polarized. Without polarization, it is unlikely that there will be a political equilibrium; that is, a policy platform which would beat any other in an election. If from one election to the next, it is never the same policy platform allowing some party or candidate to win, then it follows that each election should produce substantial policy changes.

⁴³ For an exposé of Plott's theory of policy cycles, see Mueller (67-68).

The reason why preferences' polarization is unlikely to occur concerning public goods is that the preferences of any voter concerning this question can be located anywhere in the policy issues space. For instance, let us consider the following figure depicting a policy issues space constituted of two public goods, X and Y, supplied by the state to members of civil society.

Figure 6.1

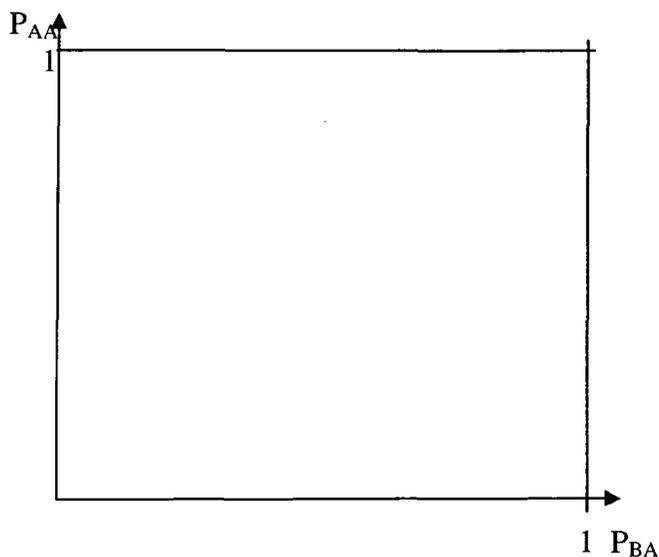


X and Y are two public goods. The quantities of X and Y supplied by the state to members of civil society are measured on each of the two axes of the graph. The points appearing on the graphs are the preferences of voters concerning the quantities of X and Y they each want the state to choose to supply them. Any of these ideal points can, in theory, be located *anywhere* in the graph. The reason is that, a priori, each of the coordinates of the graph constitutes a policy choice as likely to be the one most preferred by any voter as any other. This consideration implies that it is most likely that the different ideal points of voters will constitute, when considered as a whole, some sort of cloud located somewhere *inside* the graph. If that is the case, then Plott has shown that

their will likely not be a political equilibrium. That is, there is not going to be any policy choice concerning how much X and Y the state should supply to members of civil society that would garner more votes among the latter than any other policy choice that can alternatively be made in that regard.

However, it is impossible that the respective preferences/ideal points of different individuals about a specific action displayed on a graph representing the policy issue of the formulation of the right to perform this action be scattered in the latter such that they would form a cloud located somewhere *inside* the graph. The reason is that V_i is linear in P_{XY} . This implies that when a graph is used to display the preferences of each of those whose welfare is affected by the performance of some action concerning the issue of how the right to perform this action should be formulated, the ideal point of each of these individuals concerning this policy issue can only be located at an extreme points (i.e., one of the four corners) of the graph. For illustrative purpose, let us reproduce one of the graphs used in chapter four to represent the relation between A and B created by condition 1.

Figure 6.2



Because of the linearity of P_{XY} in V_i , the ideal point of any individual having preferences about the policy issue of how the right to perform the action giving rise to the relation between A and B should be formulated can only be located at one of the four corners of the box formed by the two axes of the graph, and the two perpendicular segments indicating the maximum values P_{AA} and P_{BA} can respectively take. Now, we have polarity. This polarity makes it extremely unlikely that one outcome of the relation (i.e., one of the policy choices that can be made concerning the issue of how the right to perform the action generating the relation should be formulated) will not be preferred to any other by a majority of voters.

One way to explain Plott's theoretical paradox that policies changes (i.e., policy cycles) are much less frequent than his researches in that regard predict it is, therefore, by admitting the idea that not all public policies are public goods. Certain public policies are, rather, rights exercised about actions such as rights to perform actions. From this, it can be predicted that the formulation of policies whose object is wealth should be modified more frequently than the one of policies whose objects are rather actions.

Intuitively, this prediction appears to be correct. For instance, the state reformulates its fiscal policy at least once a year by tabling a new budget every year to do so. That is frequent policy change. That is in fact policy changes occurring more frequently than there are elections. However, the formulation of rights to perform specific actions is often left unchanged for many years in a row even when there are controversies concerning how these rights should be formulated. Abortion constitutes a good example of such a case. The question of whether abortion should be allowed or not still generates a

fair amount of debates and controversies in Canada. Yet, the Canadian policy concerning the issue of abortion has not been changed since 1989!⁴⁴ That is, twenty years ago at the time this chapter is being written.

Our explanation of Plott's paradox fares well when compared to other explanations of it. The reason is that others have tackled the question of policy cycles by developing entirely new models of political controversies whose object is wealth. These other models yield the opposite prediction, namely that policy cycles should not occur at all⁴⁵. This amounts to going from one extreme to the other. This prediction in fact amounts to creating a new theoretical paradox, which is: why are there any policy change at all?

By admitting this idea that, in addition to policies whose object is wealth, there are also policies whose objects are rather actions, this has the effect of restricting the domain of application of Plott's theory on policy cycles to only policies whose object is wealth. This restriction of the domain of application of Plott's theory on policy cycles, in turn, allows it to not be falsified by empirical evidence. This is just one example, among many, illustrating how public choice gains by realizing that its theories of politics and policymaking are first and foremost based not on postulates about man's nature and motivations, but rather on postulates about the object of public policies. This insight, in the end, constitutes the major theoretical contribution this doctoral dissertation has to offer to public choice: in addition to policies whose objects is wealth such as public goods and the fiscal policy, there are also policies whose objects are rather actions.

⁴⁴ The Canadian policy about abortion was last modified by the Supreme Court of Canada via its ruling on *Daigle v. Tremblay*, which was handed on July 20 1989.

⁴⁵ This prediction is notably obtained by modeling elections in a probabilistic fashion, as opposed to in a deterministic one. About probabilistic voting, see Mueller (196-205).

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