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Individual Rights and Legal Validity*

Abstract: The condition of liberty which Sen used in his famous theorem on the impossibility of the Paretian liberal was defined in terms of individual preferences. The preference-based approach has been the subject of much criticism, which led to the evolution of the game-theoretic analysis of rights. In this approach no references to individual preferences are made. Two questions are examined in this paper: how can different types of right be distinguished within a game-theoretic setting, and how do rights come into existence? These questions are addressed on the basis of ideas originating from legal theory. The discussion shows that an analysis of rights should take account of the whole legal system of which a legal norm forms part. Furthermore, it reveals that preferences should be re-introduced into the formal study of individual rights.

1. Introduction

Social scientists, especially those working in the *homo economicus* tradition, often adopt—explicitly or implicitly—a welfarist approach to the question of how social states should be ranked in terms of their relative goodness. They assume that the social ranking of states of affairs should be based exclusively on the individual preferences regarding those alternatives. However, as Sen has argued so persuasively on many occasions, non-welfarist considerations should also play a role in the analysis and evaluation of decision making procedures. Sen's theorem on the impossibility of the Paretian liberal (Sen 1970, 78–88) directly disputes the acceptability of a particular form of welfarism, viz. Pareto-inclusive welfarism. According to this form of welfarism, unanimity of individual preferences should always be reflected in the social ranking. Sen's theorem makes it clear that there are good reasons for questioning the Pareto condition if we do take account of non-welfarist considerations; it re-

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veals the inherent tension between a condition of 'minimal liberty' and the Pareto condition. If we take the idea of liberty seriously, we have to abandon, or at least weaken, the Pareto condition.

Sen's theorem, and his later work in this area, forms an important and influential critique of the welfarist approach. Indeed, as Arrow recently remarked, Sen's critique of welfarism "has even reached the point that the lesson has begun to sink in" (Arrow 1995, 7). Although the relevance of the theorem is clear, its formulation has been subject to much criticism. In Sen's framework, the assumption about the liberty of individuals is formulated in terms of the notion of *decisiveness* and thus in terms of the *preferences* of individuals. An individual is said to be decisive over a pair of social states, say x and y, whenever his preferences regarding those social states is precisely reflected by the social preference: if the individual prefers x to y then x is socially preferred to y, and if the individual prefers y to x then y is socially preferred to x. The condition of 'minimal liberty' states that there at least two individuals who are decisive over a pair of social states.

Many authors have argued that such a preference-based approach to individual rights leads to counter-intuitive results and that a game-theoretic approach would be more appropriate.[1] In such a game-theoretic framework rights are not formulated in terms of the preferences of individuals, but in terms of the things individual are and are not allowed to do, i.e., in terms of admissible strategies. Although this approach to the analysis of rights does not run into the intuitive problems associated with the analysis within Sen's original framework, it leaves some important questions as yet unaddressed. In this paper we shall try to make a contribution to the further development of the game-theoretic analysis of rights by analyzing some of these questions. We do so through the use of results adopted from legal theory. First of all, we address the question of how different types of right can be distinguished within a game-theoretic setting. Such a distinction is important when applying game-theoretic models to the analysis of legal problems. In order to do justice to the intricacies of a particular legal problem, we have to be able to distinguish different types of right, to see what consequences those rights have for the range of actions of individuals, to determine which rights are mutually compatible and which are not, etc. We show how categorizations of rights developed in the logic of law can be applied to the game-theoretic analysis and thereby obtain a precise game-theoretic characterization of types of rights.

Secondly, the game-theoretic analysis has thus far been more concerned with the question of what rights are, rather than with the question of how they come into existence. How do we determine whether a right exists or not? How are rights granted to individuals, and how do we find out that rights

[1] Most importantly, see Gaertner/Pattanaik/Suzumura 1992.

have ceased to exist? Obviously, such questions are extremely important for a proper understanding of law. To address these questions we analyze the notion of *legal validity* as it has been used by legal positivists. The analysis reveals, first of all, that the study of rights should take account of the whole legal system of which a legal norm forms a part. Furthermore, it shows that the *existence* of a particular legal system is not independent of its *evaluation.* This conclusion suggests a return to Sen's original framework: the analysis of individual rights should, in the end, refer to individual preferences.

The plan of the paper is as follows. In Section 2 we present the game-theoretic framework and show how different types of right can be distinguished within it. Section 3 contains a discussion of the notion of legal validity, in particular its formal aspect. The game-theoretic model is extended in order to take account of this formal aspect. In Section 4 we discuss the foundation of the legal system. We argue that this 'constitutional' aspect of the notion of legal validity can only be properly analyzed if individual preferences are re-introduced into the model.

2. Game Forms and Types of Right

Sen's theorem elicited quite a lot of criticism from authors who argue that the preference-based approach to the analysis of rights runs into serious problems.[2] As a result of this criticism, a game-theoretic approach in which rights are analyzed in terms of game forms developed. A game form is a specification of

(1) a set of individuals;
(2) a function assigning a set of admissible strategies to each individual;
(3) a set of feasible outcomes;
(4) an outcome function assigning exactly one outcome to each play, i.e., each combination of individual strategies.

Since a game form does not contain any reference to the preferences of individuals, a definition of rights in terms of a game form avoids the intuitive problems connected with the approach taken by Sen.[3] Given a game form, the rights of an individual are specified by the freedom each individual has to choose any of his or her admissible strategies and by the obligation not to choose a non-admissible strategy (Gaertner/Pattanaik/Suzumura 1992, 173; Suzumura 1991, 229). Intuitively, we say that an individual has the right to

[2] For an extensive discussion of those problems, see Gaertner/Pattanaik/Suzumura 1992.

[3] It should be noted that such a non-preference based approach to the analysis of rights does not imply that preferences of individuals are unimportant; whereas they need not be specified when establishing which rights individuals have, they do determine the way individuals *exercise* those rights.

do x when he (or she) has an admissible strategy which leads to a state of affairs in which x is the case, when he (or she) is free to choose that strategy and when the other individuals are not allowed to choose a strategy which leads to a contrary state of affairs.

This rather informal definition of a right does not yet make it sufficiently clear how a game form can be used to describe different types of rights. Drawing on (Van Hees 1995) we present a typology of rights originating from the logic of law and 'translate' it in terms of game forms.[4] A right can be seen as a permission or obligation to see or not to see to it that some state of affairs is realised. With respect to each action (or forbearance), it is possible to specify whether it is permissible ('individual i may see to it that ...') or obligated ('individual i shall see to it that ...'). The resulting statements and their negations are used to distinguish simple types of right.

A *simple type of right* is a relation between two individuals i and j and a state of affairs q existing between them. We say that individual i has versus j with respect to q the simple type of right called (see Kanger/Kanger 1966; Lindahl 1977)

(1) *claim* if and only if j shall see to it that q ('$\text{ShallDo}_j q$');
(2) *power* if and only if i may see to it that q ('$\text{MayDo}_i q$');
(3) *immunity* if and only if it is not so that j may see to it that not q ('$\sim\text{MayDo}_j \sim q$');
(4) *freedom* if and only if it is not so that i shall see to it that not q ('$\sim\text{ShallDo}_i \sim q$').

Four additional simple types of right are obtained by the substitution of'not q' ('$\sim q$') for 'q' in (1) to (4). For instance, i has versus j a counterclaim with respect to q if and only if j shall see to it that not q ('$\text{ShallDo}_j \sim q$'), i has versus j a counterpower with respect to q if and only if i may see to it that not q ('$\text{MayDo}_j \sim q$'), etc.[5]

In order to define these eight simple types of right in terms of a game form G, we have to clarify what it means when we say that an individual has (or has not) the permission or obligation to see to it that some state of affairs is realised. We say that an individual has permission to see to it that something is the case ('may see to it that ...') if, and only if, he or she has an admissible strategy which leads to the state of affairs *regardless* of what the others do. Thus *any* play of the game form in which the individual takes that strategy leads to an outcome in which the state of affairs is realised. An individual

[4] An early application of game theory to the logic of norms is Apostol 1960. The use of game-theoretic concepts in the logical analysis of permissions and obligations to perform actions is explored systematically in Gärdenfors 1981; Åqvist 1985; Åqvist/Mullock 1989; Van Hees 1995. The typology of rights which we use is adopted from Kanger/Kanger 1966 which in turn is based on the earlier work of the legal theorist W. H. Hohfeld 1919; see also Lindahl 1977.

[5] It is assumed that 'not not q' ('$\sim\sim$') is equivalent to 'q'.

has an obligation to realise the state of affairs ('shall see to it that') if every admissible strategy of the individual leads to the state of affairs.

In other words, we say that individual i has versus j with respect to q the simple type of right called

(1) *claim* if and only if each play of the game form leads to an outcome in which q is true;
(2) *power* if and only if i has an admissible strategy that *always* leads to q, i.e., any play of the game form in which the individual adopts that strategy leads to an outcome in which q is true;
(3) *immunity* if and only if j has no admissible strategy which always lead to an outcome in which q is not true;
(4) *freedom* if and only if it is not true that any play of the game form leads to an outcome in which q is not true.

The game-theoretic translation of the other four simple types of rights follows immediately: replace 'q is true' by 'q is not true' and vice versa.

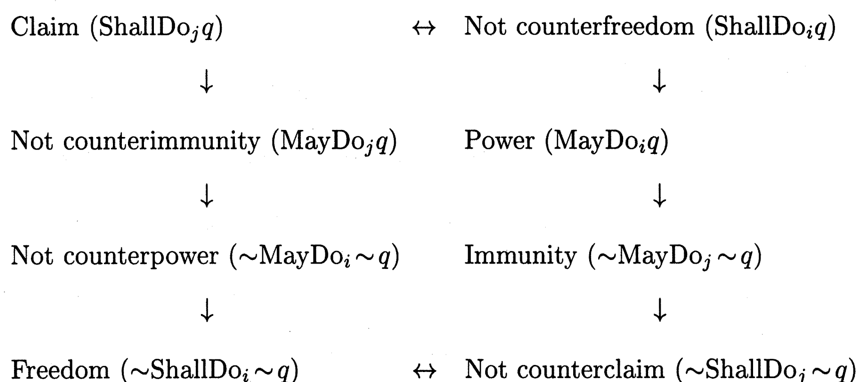
If we assume that it is always known in which outcomes of a game form a state of affairs q between two individuals is realised, then we can use these conditions to see which simple types of right exist with respect to the game form G. In other words, the specification of a game form permits the derivation of *all* simple types of right existing in society.

The game-theoretic model can be used to formulate logical relationships between simple types of right (see Figure 1). For instance, if I have a claim versus another person with respect to a state of affairs q, then I do not have a counterimmunity or counterpower versus that other person with respect to q. If all plays lead to q then it is trivially true that the other individual has at least one strategy that always leads to q (not counterimmunity), which in turns implies that I can have no strategy that always leads to not q (not counterpower). Furthermore, it is not difficult to see that I can only have a claim versus another individual if I also have a freedom versus that person: if any play of the game form leads to q then there is at least one play leading to q.

The figure reveals that some simple types of right completely describe the legal relationships between two individuals regarding a particular state of affairs. For instance, if a person has a claim or a counterclaim versus another individual with respect to a state of affairs between them, then all other simple types of right existing between those individuals with respect to that state of affairs can be deduced. On the other hand, not every simple type of right fully specifies all legal relationships existing between two actors. To say that i has versus j a counterpower with respect to q does not say anything about whether i also has a power, a freedom or an immunity versus j with respect to q. The figure also shows that some combinations of simple types of right are impossible. For example, an individual cannot have both a claim and a

counterfreedom versus another individual with respect to the same state of affairs since having a claim is equivalent to not having a counterfreedom.

Figure 1[6]



An *atomic type of right* is a specification of all simple types of rights existing between two individuals with respect to a state of affairs. We distinguish the following atomic types of right:[7]

1 Claim
2 Not counterimmunity, power, not claim
3 Not counterimmunity, not power, immunity
4 Not counterimmunity, not immunity
5 Not counterpower, counterimmunity, power
6 Not counterpower, counterimmunity, not power, immunity
7 Not counterpower, counterimmunity, not immunity
8 Counterpower, power
9 Counterpower, not power, immunity
10 Counterpower, not immunity, not counterclaim
11 Counterclaim

Each of these atomic types of right specifies a combination of simple types of right which is not only logically possible but also exhaustive. Take, for instance, the second atomic type of right, 'Not counterimmunity, power, not claim'. If we look at Figure 1 we see that

[6] 'Claim' stands for 'i has versus j a claim with respect to q', 'Not counterimmunity' for 'i does not have versus j a counterimmunity with respect to q', etc.

[7] The logic of permissions and obligations presented here is stronger that the logic presented in Kanger/Kanger 1966. Our game-theoretic model yields more logical relations between simple types of right than can be derived from their purely axiomatic-deductive model. As a result, the list of atomic types of rights is shorter than theirs.

(a) 'not counterimmunity' implies 'not counterpower', 'freedom' and 'not counterclaim';
(b) 'power' implies 'immunity', 'not counterclaim' and 'freedom';
(c) 'not claim' entails 'counterfreedom'.

In other words, if i has the atomic type of right 'Not counterimmunity, power, not claim' versus j with respect to a state of affairs q, then it follows from the game-theoretic logic that i has a freedom, a power, an immunity and a counterfreedom versus j with respect to q, but does not have a counterimmunity, a counterpower, a counterclaim or a claim versus that person and with respect to the same state of affairs. As the reader can verify, each of the other atomic types of right is associated in a similar way with a complete specification of the simple types of right that do and that do not hold between the two individuals. Furthermore, each possible combination of simple types of right is described by at least one of the atomic types of rights: any combination of simple types of right which is not entailed by one of the listed atomic types of rights is inconsistent.

To summarise, given a specification of a game form we can distinguish different simple types of right. A simple type of right specifies a permission, obligation, or the absence of a permission or obligation. The rights are relational: they are defined between two individuals with respect to a state of affairs involving those two individuals. Furthermore, we have shown how to derive atomic types of right. Each of those atomic types of rights contains a description of *all* legal relationships existing between two individuals with respect to a particular state of affairs.

3. Legal Validity and Legal Systems

After having shown how to distinguish different types of rights within a game-theoretic setting, we now turn to the question of how the existence of rights can be explained within such a framework. To do so we again make use of ideas developed in legal theory, in particular those related to the notion of *legal validity*. Although this notion plays an important role in legal theory, and in particular in legal positivism, it plays virtually no role in rational choice models (Ruiter 1994). The validity of a legal norm has two aspects, a formal aspect and a constitutional one. The *formal aspect* of the notion of legal validity refers to the structure of the legal system of which the norm forms part. A legal norm derives its validity from some other norm the validity of which has already been established. The validity of that higher-order norm can only be ascertained by examining valid norms of a yet higher order, etc. To establish the validity of a particular legal norm we therefore have to examine the whole system of legal arrangements in which the norm is embedded. The

validity of a legal norm is also related to the foundation of the legal system itself. To avoid an infinite regress, the process of deriving the validity of legal norms from the validity of other legal norms has to stop somewhere. There must be some norm which cannot be validated with an appeal to norms of a higher order. Since the validity of all other norms depends on this highest norm, grounding the latter touches upon the existence of the legal system itself. We call this the *constitutional aspect* of legal validity. In this section we discuss the formal aspect. The constitutional aspect is discussed in section 4.

We say that a norm is a legal norm if and only if it has legal validity. It has legal validity if it is part of the legal system:

> "Only valid law is law; invalid law is not law. To assert that a particular norm N is valid law simply amounts to saying that N is a constituent part of the legal system under consideration." (Weinberger 1991, 93)

A system of norms is a collection of norms that is hierarchically structured; the norms in the lower parts of the hierarchy derive their validity from higher-level norms. The formal aspect of the concept of validity is set out most prominently in the work of the legal theorists Hans Kelsen and H. L. A. Hart.

Kelsen conceives of static and dynamic systems of norms. In a *static system*, lower-order norms are derived from higher-order norms only *by virtue of* their content. The norm 'you shall not break promises' can, for instance, be derived from the more general norm 'you shall be sincere' on purely logical and semantic grounds. Since each lower-level norm can be deduced on logical grounds from higher order norms, the norm at the top of the hierarchy, the so-called *basic norm*, encompasses *all* other norms (Kelsen 1967, 198). Hence, given a specification of this basic norm, the validity of every other norm is established through the use of merely logical operations of deduction.

In a *dynamic system* higher level norms specify the *ways* in which lower ranking norms can be established. The basic norm stipulates, for instance, that a particular group of individuals has the authority to define all other norms. The norms issued by that group are not then valid because their contents fall within the content of the basic norm, but because the group in question has the authority to make such declarations. According to Kelsen, a *legal* norm does not acquire validity because its contents are derivable from the basic norm, but because it is produced in a way that is in accordance with a stipulation of some higher level. In other words, the derivation of legal norms is formal, not material. The contents of the lower-level norms are not fixed *a priori* by the content of the basic norm: the legal system is a dynamic system of norms (Kelsen 1967, 198).

Closely related to the distinction between static and dynamic systems is Hart's distinction between primary and secondary rules (Hart 1994). According to Hart, the distinction between primary and secondary rules is of

the utmost importance.[8] Primary rules specify obligations of individuals to perform or not to perform certain actions. The obligations defined by the primary rules are in terms of actions that have physical consequences (Hart 1994, 81). For instance, a rule specifying that individuals are not allowed to steal is an example of a primary rule of obligation. It implies that the physical act of stealing this apple is forbidden. Secondary rules are rules of a higher order. They specify the way to establish, change or eliminate primary rules; they do not impose obligations to perform acts with physical consequences. Some secondary rules confer powers to perform legal acts, i.e., they are *power-conferring rules*. An example of a power-conferring rule is a rule specifying the ways in which agents may transfer property rights.

We saw how game forms can be used to describe the various rights individuals may have. Given a specification of a particular game form, we can derive the simple and atomic types of rights existing in the situation described by the game form. It is usually assumed that the outcomes of a game form do not contain any reference to the way society makes its decisions and, in particular, do not describe the various simple types of right existing between individuals. Stated differently, the simple and atomic types of right that are derivable from the specification of a game form are, to use Hart's terminology, obligations or permissions defined by primary rules of obligations. They describe permissions or obligations to perform actions that have direct physical consequences, not permissions or obligations to perform actions that have consequences for the way society makes its decisions.

In order to study power-conferring rules in a game-theoretic framework, we have to analyze game forms in which the outcomes describe the rights of individuals. Since rights are modelled by game forms, this means that we should analyze game forms in which the outcomes themselves are game forms. We therefore introduce the notion of a *second-order game form*. It is a game form in which the outcomes are not, for example, social states, but game forms. Since game forms specify all simple and atomic types of right existing within society, a play of the second-order game form can be interpreted as conferring legal obligations and permissions upon individuals. The different ways in which the second-order game form can be played represent different ways of conferring such legal norms. To illustrate, consider the situation in which individual k enters into a contract obligating him to build a house for j. The act of entering into the contract can be modelled as a play of a second-order game form which has as its outcome a particular obligation, viz., 'k shall build a house for j'. The obligation is legally valid because it is the outcome of the play of the second-order game form. On the other hand, a

[8] "If we stand back and consider the structure which has resulted from the combination of primary rules of obligation with the secondary rules . . . , it is plain that we have here not only the heart of a legal system, but a most powerful tool for the analysis of much that has puzzled both the jurist and the political theorist." (Hart 1994, 98)

play in which k does not enter into the contract will have as its outcome a game form in which the obligation does not hold. In that case the obligation is not legally valid.

In the same way as was done in Section 2, it is possible to derive simple types of right and atomic types of right in which the states of affairs are legal norms. For example, if x describes the obligation 'k shall build a house for j', then we can say that j has versus k a *claim* with respect to x if and only if k shall see to it that he puts himself under an obligation to build the house, j has versus k a *power* with respect to x if and only if j has the permission to put k under such an obligation, etc. We may call these *second-order simple types of right* and derive from them *second-order atomic types of right.* To establish the validity of such second-order legal norms, the same procedure can be used as for the first-order legal norms, i.e., the legal norms defined by an 'ordinary' game form. Thus we say, for instance, that individual j has versus k a second-order power with respect to the state of affairs in which k has permission to see to q ('j may see to it that k may see to it that q') if and only if j has a strategy in the second-order game form which always leads to an outcome in which k does indeed have that permission.

To derive the legal validity of the obligations defined by a second-order game form, we have to specify a third-order game form, that is, a game form in which the outcomes are second-order game forms. For instance, in order to establish that k is indeed entitled to enter into contracts of a particular type, we have to examine the circumstances under which this right was granted to k. Given a third-order game form, we can specify the third-order simple and atomic types of right. Evidently, the legal validity of third-order types of right may also be questioned. It is determined by a fourth-order game form. The validity of the fourth-order simple and atomic types of right is derived from a fifth-order game form, etc. More generally, we define an *nth-order game form* ($n \geq 2$) as a game form which has game forms of order $n-1$ as its outcomes. From each nth-order game form, we can derive nth-order simple and atomic types of right.

To summarise, legal norms are defined by game forms. Game forms are embedded in a hierarchical structure with a finite number of levels, say m. At the highest level exactly one (mth-order) game form is defined. The outcomes of the game form at level m are game forms of order $m-1$ constituting the next level. The outcomes of the possible plays of these game forms are the game forms of the next level, etc. The bottom level of the structure contains 'ordinary' game forms, i.e., game forms with ordinary outcomes. To see whether an obligation defined by a primary rule of obligation is valid, we look at the second-order game form from which that obligation originates. The legal norm defined by a power-conferring rule also derives its validity from a game form, namely from the one which has that norm as its outcome.

In this way, the legal validity of all except the highest order norm can be established: the hierarchy of game forms is the game-theoretic counterpart of the notion of a legal system.

4. Legal Validity and the Constitutional Question: Bringing Preferences Back in

The introduction of the notion of legal validity has important consequences for the game-theoretic modelling of rights. In the previous section we saw that the formal aspect of legal validity makes clear that game-theoretic models should take the whole system of norms into account; we should not focus on one particular game form, but on structures of mutually related game forms. This immediately yields the question of how the validity of the norms at the highest level can be ascertained. In this section we shall discuss this constitutional aspect of the notion of legal validity. The analysis reveals that there is a close relation between the existence of the legal system and its acceptance by the members of society. This acceptance depends in large part on the day-to-day functioning of the legal system and on the preferences individuals have regarding the outcomes of the system.

In order to avoid a *regressus ad infinitum*, the appeal to higher-level norms must terminate somewhere. The question of the ultimate foundation of the legal system may be called the *constitutional question*. Different answers have been given to it. As we have seen in the previous section, the structure of our model results from ideas presented by legal positivists, in particular by Kelsen and Hart. Both authors conceive a legal system as a hierarchical system of norms, albeit in different ways. Consequently, each of these authors is confronted with the question of how the highest level itself should be founded.

In Kelsen's theory the basic norm denotes the norm that underlies the whole legal system:

> "All norms whose validity can be traced back to one and the same basic norm constitute a system of norms, a normative order. The basic norm is the common source for the validity of all norms that belong to the same order—it is their common reason of validity. The fact that a certain norm belongs to a certain order is based on the circumstance that its last reason of validity is the basic norm of this order. It is the basic norm that constitutes the unity in the multitude of norms by representing the reason for the validity of all norms that belong to this order." (Kelsen 1967, 195)

According to Kelsen, the existence of the basic norm must be *presupposed*, for were it derivable from some other norm, it would no longer be the basic norm. The basic norm is *fictitiously valid*; individuals acting within a legal

system act *as if* the basic norm is valid (Kelsen 1991, 256). However, not every norm can be assumed to be fictitiously valid. In Kelsen's opinion, it is the *efficacy* of the legal system as a whole which is a necessary condition for the possibility of assuming the validity of the basic norm. The validity of a basic norm can be assumed only if the system of legal norms it is thought to constitute is more or less efficacious.

> "However, a legal order does not lose its validity when a single legal norm loses its effectiveness. A legal order is regarded as valid, if its norms are *by and large* effective (that is, actually applied and obeyed)." (Kelsen 1967, 212)

Kelsen emphasizes that efficacy is a condition of validity, but that it does not coincide with it (Kelsen 1967, 213). Efficacy may be necessary: it is not sufficient.

Kelsen's basic norm bears a close resemblance to Hart's rules of recognition (Ruiter 1994). A *rule of recognition* specifies general criteria used to identify rules of obligation. An obligation is part of the legal system if and only if it has been identified in the appropriate way by a rule of recognition. In a way, to speak about the legal validity of a rule is to adopt an *internal* point of view (Hart 1994, 89). The term presupposes the legal system or, in Hart's words, it presupposes the existence of rules of recognition. Despite the resemblance between the two concepts, there is a difference between Hart and Kelsen in regard to the ways they apply the validity concept. Whereas Kelsen speaks of the validity of the basic norm, Hart refuses to speak of the validity of rules of recognition or about the validity of the system itself. A rule of recognition itself "can never be valid nor invalid but is simply accepted as appropriate for use in this way" (Hart 1994, 109). This terminological difference does not restrain Hart from asking questions about the rules on which the whole legal system ultimately rests. According to Hart, the status of the rules of recognition can only be assessed when an *external* point of view is adopted. This status concerns the existence of the entire legal system. Like Kelsen, Hart is of the opinion that a legal system can only be said to exist if it is generally efficacious (Hart 1994, 104). The idea of efficacy is put on a par with the notion of *acceptance.* Hart distinguishes two conditions that are assumed to be necessary and sufficient for the existence of a legal system. The conditions exhibit the same duality as the legal system itself (Hart 1994, 117). There are primary rules of obligation that should be generally obeyed by private citizens, and secondary rules that should be accepted by the system's officials:

> "On the one hand, those rules of behaviour which are valid according to the system's ultimate criteria of validity must be generally obeyed, and, on the other hand, its rules of recognition specifying the criteria of legal validity and its rules of change and adjudication must be effec-

tively accepted as common public standards of official behaviour by its officials." (Hart 1994, 116)

How can we incorporate the notion of acceptance into our game-theoretic model? We might hold that individuals accept the legal system if they do indeed obey the rules defined by it. In our game-theoretic model, this would mean that individuals tend to adopt admissible strategies and to avoid non-admissible strategies. However, it has been shown that such a merely behaviouristic account of the idea of acceptance poses serious problems (Shiner 1992). Acceptance not only refers to the behaviour of individuals, but requires some intentional or motivational element. This element can be accounted for by examining the *preferences* on which individual behaviour is based. To say that a legal system is accepted implies that a sufficient number of members of society indeed prefer that particular legal system to other arrangements. Or, stated differently, it implies that there is not a sufficient number of individuals whose disaffection leads to the system's breakdown. The same holds true for the loyalty of the officials in society. The acceptance of the secondary rules by officials does not merely follow from the officials' applications of those rules; it depends on the values officials attach to them.

The question of how, exactly, the preferences of members of society are related to their acceptance of the legal system lies beyond the scope of this paper. It may be that the acceptance of the members of society (officials and citizens alike) is determined by their judgments about the rules *qua* rules. On the other hand, it may also be true that individuals accept the system as long as they are satisfied with the day-to-day outcomes the system generates. Empirical research should eventually decide how and under what circumstances individuals will accept a legal system. Such research may well show that conditions for acceptance change over time and across societies. However, this contingency of the relation between the legal system and preferences, and, more particularly, between rights and preferences, should not lead one to the conclusion that rights can be defined and analyzed without reference to individual preferences: the *existence* of such a relation need not be a contingent matter. In other words, if we want to take account of these aspects we have to examine the relation between preferences and the legal system.[9] Hence, the analysis of the constitutional aspect of legal validity reveals the necessity of re-introducing preferences into the model. After all, preferences do matter.

[9] The analysis of this question demands a synthesis of social choice theory and game theory along the lines suggested by Pattanaik/Suzumura 1992. See also Van Hees 1995, 145–166.

5. Conclusion

Sen's famous impossibility result makes it clear that we should take account of information about the liberty and rights of individual when evaluating social outcomes. The condition of liberty which Sen used for establishing his famous impossibility result was defined in terms of individual preferences. The game-theoretic analysis of rights, which developed as a critique of Sen's preference-based approach, contains no reference to individual preferences. The object of this paper was to 'enrich' the game-theoretic model by incorporating insights from legal theory. First, it has been shown how different types of right can be distinguished within the game-theoretic framework. The categorization makes clear how types of right are modelled by a particular game form, enables the formulation of entailment relations between the various types of right, and can be used to indicate which combinations of individual rights are possible. Second, we have examined what it means when we say that a right exists. The notion of legal validity is crucial for a proper understanding of the existence of rights. Although it is one of the central concepts of legal theory, it plays virtually no role in the game-theoretic analysis of rights. A study of the formal aspect of legal validity reveals that we have to examine the whole legal system of which a legal norm forms a part. This means that we have to study complex structures of mutually related game forms, and not just one particular game form. The constitutional aspect of the notion of legal validity pertains to the existence of the legal system itself. It has been argued that this aspect cannot be analyzed without reference to the preferences of the individuals. The existence of a legal system is dependent on the acceptance of the system by the members of the society. This acceptance depends in turn on the preferences individuals have. Hence, preferences should play a role in the analysis of rights, albeit in a less direct way than Sen suggested.

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