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INDIVIDUAL RIGHTS AND COLLECTIVE RATIONALITY: SOME IMPLICATIONS FOR ECONOMIC ANALYSIS OF LAW

Bruce Chapman*

In recent years there has been much discussion of two theorems in economics that relate individual rights to Pareto optimality. In the area of law and economics, Ronald Coase is well known for demonstrating that in a world without transaction costs bargaining will always result in a Pareto-efficient outcome, whatever the initial distribution of rights.¹ In social choice theory, however, Amartya Sen has shown that for certain configurations of individual preferences, the reasonable exercise of individual rights can lead to outcomes that are Pareto-inferior to other outcomes that are attainable.² Clearly, there is some tension between these two results. The purpose of this paper is to point to the lessons we might learn from Sen’s theorem in particular and from social choice theory in general, and to suggest some implications for the treatment of individual rights within the currently fashionable economic analysis of law. Specifically, I shall argue that rights cannot be sensibly incorporated within any kind of maximization framework, and that this conclusion renders suspect Richard Posner’s normative defense of wealth maximization as a goal for legal systems.

RIGHTS AND THE PARETO PRINCIPLE: SEN VERSUS COASE

Efficiency, as Richard Posner is quick to tell us in his influential

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book Economic Analysis of Law, “means exploiting economic resources in such a way that ‘value’—human satisfaction as measured by aggregate consumer willingness to pay for goods and services—is maximized.” Coase’s major contribution in The Problem of Social Cost is to show that economic efficiency can be attained, in a world without transaction costs, regardless of how the initial assignment of rights was made in a conflict over the use of a given resource. For example, if a factory were polluting the atmosphere at a cost to the comfort or health of the surrounding homeowners, and if the cost to the factory owner of shutting down, moving, or installing some kind of abatement device were greater than the total pollution cost to the homeowners, then, if the rights were assigned to the homeowners to be free from pollution, the factory owner would have every incentive to buy the right from the owners and continue polluting. On the other hand, if the right to pollute lay with the factory owner, then he would be unwilling to sell that right (and stop polluting) at a price that the homeowners would be willing to pay. Thus, regardless of how the right might initially be distributed, the final allocative result, absent income effects, would be the same. Moreover, the result would be efficient. An analogous result can be obtained for the case in which the right is less valuable to the factory owner than it is to the homeowners.

Since, according to Coase, economic efficiency will be obtained in a world without transaction costs regardless of the initial assignment of rights, it follows that efficiency considerations alone will tell us little about what the initial assignment of rights should be in such a world. The way is still open, however, to introduce other considerations, such as those that might derive from more purely rights-based ethical theories. At this point Sen’s theorem becomes important.

Sen claims to have shown that the following two ethical principles are not always consistent with one another given a sufficiently unrestricted domain of individual preferences. (I) The Pareto principle: If everyone in society prefers some state of affairs to another one, then y should not prevail if x is attainable. (II) The principle of individual liberty: For each individual in society there are some personal matters such that if the privileged individual prefers, say, w to z, then z should not prevail if w is attainable (e.g., to sleep on one’s back (w) or one’s stomach (z), all other things in society being equal). To illustrate his theorem on “the impossibility of a Paretian libertarian,” Sen asks us to suppose that the book Lady Chatterley’s Lover has just been published and that a single copy is available at some public library. There are two individuals in society, namely Prude and Rude, who are contemplating reading the book, and so there are three possible social states (all other things being equal): the social state in which neither individual reads the book (o), the social state in which only Prude reads the book (p), and the social state in which only Rude reads the book (r). (Since there is only one copy of the book, it is not possible for both to read it at once.) Suppose that the two individuals have the following orderings of the three alternative social states. Prude prefers that no one read the book, but given that someone must read it, he would prefer that he read it rather than Rude, since he cannot stand the idea of Rude gloating over that muck. Thus, Prude’s ordering is: o, p, r. Rude considers the social state in which no one reads the book to be worst, but agrees with Prude that if only one individual can read the book, Prude should read it, since Prude will then be exposed to Lawrence’s masterly prose and have his rather narrow literary horizons expanded. Thus, Rude’s ordering is: p, r, o.

A libertarian, concerned with the exercise of free choice, would, according to Sen, choose to assign the pair of social states (o, p) to Prude, since this choice only concerns his reading of the book and he should be allowed to make this choice for himself. Similarly, the libertarian would assign the rightful pair (o, r) to Rude. Thus, on grounds of individual freedom, since Prude prefers o to p and this preference involves his own rightful domain of choice, o is declared socially preferred to p. (Note that this means only that p should not prevail as the social choice if o is attainable; it does not imply that o should actually end up being chosen.) Similarly, since Rude prefers r to o, r is socially preferred to o. However, p is Pareto-superior to r (and, therefore, socially preferred), revealing a social-preference cycle—o preferred to p, p preferred to r, and r preferred to o. But
acyclicity, the condition that requires that there not be any such social-preference cycle, is a necessary condition for a chosen alternative to exist, at last if choice is to accord with the ethical principles proposed by Sen. In Sen's example, for instance, if society tries to choose, as it must, any of the three alternatives, $o$, $p$, and $r$, this choice will violate either some individual's right or the Pareto principle. The question for Sen and others who are troubled by the theorem is which of the seemingly reasonable principles so far proposed—the Pareto principle, the liberty principle, unrestricted domain of preferences, or acyclicity—is to be relaxed.

Although the Coase and Sen theorems lie respectively within the two quite different domains of positive and normative economics, it is not uncommon for critics of Sen's result to appeal to Coase's theorem to solve Sen's problem. If transactions are costless, the argument goes, individuals will bargain their way out of the Pareto-inferior state of affairs and such bargains will respect individual rights. In Sen's own example, for instance, it will be in the interest of both parties, Prude and Rude, to engineer a trade and arrive at a contract ensuring that Prude reads the book. Such a trade not only avoids the Pareto inferiority of having only Rude read the book but also seemingly does not coerce anyone to read or not to read it against his or her will.\(^\text{9}\)

Sen has acknowledged this objection but has argued that in a libertarian world such contracts may not be forthcoming.\(^\text{10}\) With respect to his own example he has argued that either Prude or Rude may refuse to enter into such a trade despite utility gain if he is libertarian enough to see no moral gain in the trade (namely the deal involving Prude reading a book that he detests to prevent Rude reading it with pleasure).\(^\text{11}\) Of course, the distinction which Sen wishes to make between a utility gain and a moral gain raises the spectre of the revealed preference theorist who will define utility only in terms of what is chosen, irrespective of why (or on what moral motivation) it is chosen. Thus, the refusal to trade away from the Pareto-inferior state of affairs in which Rude reads the book towards one in which Prude reads it instead serves to show that there actually is no such utility gain for the reluctant party and thus indicates that the state of affairs in question is not really Pareto-inferior after all.

Sen's defense of his theorem against the combined attack of the Coasians and the revealed preference theorists seems to be rather weak, partly because it is unnecessarily constrained by his own particular example. A different example may better serve to illustrate his point: Let $x$ be some status quo, and let $y$ be a state of affairs exactly like the status quo except that in $y$ the exiled Shah of Iran has contracted with a United States Government hospital for medical care. Suppose in particular that the Shah is dying in $x$. Let $z$ be exactly like $y$ except that the Iranian oil producers have agreed to boycott the United States. Presumably, the United States and the Shah have the right to contract as they see fit, and the Iranian oil producers have the right to sell or not to sell their oil when and to whom they wish. Thus, after the manner of Sen, the rightful partitions are $(y, x)$ for the United States, and $(z, y)$ for the Iranian oil producers.

The following preference orderings seem reasonable:

<table>
<thead>
<tr>
<th>United States Government</th>
<th>Iran</th>
</tr>
</thead>
<tbody>
<tr>
<td>$x$</td>
<td>$y$</td>
</tr>
<tr>
<td>$y$</td>
<td>$x$</td>
</tr>
<tr>
<td>$z$</td>
<td>$y$</td>
</tr>
</tbody>
</table>

That is, the United States Government prefers a contract with the Shah for his hospital care to the status quo in which he is dying, but likes least the idea of suffering an Iranian oil embargo. The Iranians prefer most the status quo in which the Shah is dying for lack of proper care, but choose to have an oil embargo given that the United States chooses to treat the Shah. The result is that if the United States rightfully chooses $y$ over $x$, then Iran will rightfully choose $z$ over $y$, and so $z$, the Pareto-inferior alternative,\(^\text{13}\) prevails as the social choice.

This scenario and its outcome roughly parallel Sen's original example in which Prude refuses to rush to the library to read the book he dislikes and Rude ends up reading it instead. Just as in that case,

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9. For a discussion of the acyclicity condition in the context of Sen's example, see A. Sen, supra note 2, at 81-82.

10. For examples of this type of answer to Sen, see Sugden, Social Choice and Individual Liberty, in CONTEMPORARY ECONOMIC ANALYSIS (M. Aris & A. Nobay eds. 1978); Gibbard, A Pareto-Consistent Libertarian Claim, 7 J. ECON. THEORY 388, 397-401 (1974).


12. Sen, Personal Utilities, supra note 11, at 551.

13. The Shah clearly prefers $z$ to $y$, and so $z$ is not, strictly speaking, Pareto-inferior. I have chosen, however, to ignore the Shah's preferences in this example since I am more concerned with the revealed preference theorist than with the Pareto principle. What preference is revealed by the United States' reluctance to trade?
however, there may be a Coasian contract in the offing. It seems likely, for example, that Iran might make the following offer: Cease treating the Shah and we shall restore the status quo oil supplies, that is, an offer to restore the status quo $x$ over the prevailing Pareto-inferior state of affairs $z$.

Suppose, as seems likely, that the United States Government would refuse to make such a contract. Does this imply that the United States prefers $z$ to $x$, the status quo? Surely not, for that suggests that the United States would actually prefer an oil embargo over the status quo so long as the United States also got a chance to treat the Shah! A more reasonable interpretation seems to be that although the United States does prefer the status quo $x$ to the state of affairs $z$ as an outcome, it is not prepared on principle to actually enter into a contract (i.e., to be part of the means) to see the status quo $x$ restored. Indeed, it seems quite possible that, although the United States would not choose to move out of $x$ if it thought $z$ might be the eventual result, if it actually were in $z$ it would not act (i.e., contract) so as to move out of $z$ and back to $x$. It will be argued in later sections of this paper that this concern for how (i.e., the process by which) a state of affairs is chosen over another has serious implications both for the conventional models of economic rationality and for certain proposed models of individual rights.

For the moment, however, it is enough to suggest that there seems to be something in Sen's theorem which resists the quick solution of either a Coasian or a revealed preference theorist. Nor should we be surprised by this—at least if we stand back for a moment from the particularities of the various examples and consider what Sen is actually saying. It is well known that for an individual's right to autonomous action is traded off against his or her own welfare. What Sen suggests by way of his theorem is that we might choose a less paternalistic society even though the exercise of our autonomy might make us all worse off than we would be were we not allowed the relevant freedoms. Thus, the Pareto principle may not be so very sacred after all—certainly not sufficient, but probably not even necessary—either as a normative criterion, or even as a descriptive aid as to how people might behave in a world without transaction costs.

**The Maximization Thesis**

Although the remarks of the previous section suggest my general sympathy with the thrust of Sen's theorem as opposed to the Coasian response, Sen's use of one of the usual collective rationality conditions from social choice theory arguably makes a nonsense of his own concern for individual rights. By showing the particular form that a relaxation of these conditions must take, I hope to gain some better insight into a more appropriate model of individual rights. To accomplish this, a brief discussion of some fundamentals of social choice theory is in order.

Formally, we might characterize the general problem of social choice in the following way: Let us refer to the set of descriptions of possible states of the world as alternative *social states* (or states of affairs) and call this set $A$. At any one time it seems likely that only some subset of $A$ will actually be available for choice; call this the

14. The die-hard welfare economist will invoke long-run welfare considerations to explain the United States' short-run reluctance to trade. Analogous examples, however, can be found where the reluctance to trade "on principle" results in the reluctant party's own death (i.e., where the long run is very short indeed). For historical examples, see generally D. Daube, COLLABORATION WITH TYRANNY IN RABBINIC LAW (1963).
15. See text accompanying notes 46-97 infra.

benefit. What Sen has shown is that individual rights may not only be sufficiently important to frustrate the more intense interests of others not holding the right (perhaps even a majority), but also that the exercise of those rights, important for their own sake, may lead to outcomes which make us all worse off than we might otherwise be. Consider, for example, the standard prisoner's dilemma in which it is well known that there is a danger of a Pareto-inferior outcome, but in which it might also be thought important that the prisoners have a right to decide, on their own and independent of a contract, whether to confess or not. Or think of a quite usual definition of paternalism in which an individual's right to autonomous action is traded off against his or her own welfare. What Sen suggests by way of his theorem is that we might choose a less paternalistic society even though the exercise of our autonomy might make us all worse off than we would be were we not allowed the relevant freedoms. Thus, the Pareto principle may not be so very sacred after all—certainly not sufficient, but probably not even necessary—either as a normative criterion, or even as a descriptive aid as to how people might behave in a world without transaction costs.
attainable set and denote it by the letter $S$, where $S \subseteq A$. The lower case letters $x$, $y$, $z$ will denote individual social states and thus will be the objects of choice in some attainable set $S$. Let $C(S)$ represent the chosen set from the set $S$. Of course, $C(S)$ is a subset of $S$.

The problem of social choice is to move from the set $S$ to the set $C(S)$. For this we need choice criteria, or reasonable conditions for social choice. According to the conventions of social choice theory, the attainable set $S$, the chosen set $C(S)$, and the conditions for social choice are all normally related in the following way: A social state $x$ of $S$ will be chosen—will be in $C(S)$—if and only if there is no $y$ of $S$ which is preferred to $x$ according to the conditions for social choice, whatever they may be. Conversely, a social state $x$ of $S$ will not be chosen if and only if there is a $y$ of $S$ which is preferred to $x$ according to the relevant choice criteria. In symbols, and denoting the above-mentioned relation “is preferred to” by the letter $P$, the social choice theorist’s definition of a chosen element, designated as (1), is written:

$$(1) \ x \in C(S) \text{ if and only if } x \in S \text{ and for no } y \in S, yPx.$$  

It should be made clear that $C(S)$ need not contain just one social state. For example, if $S$ is the set $(x, y)$ and neither $x$ is preferred to $y$ nor $y$ is preferred to $x$, then $C(S)$ is equal to the set $(x, y)$. Choices between members of $C(S)$ can be made randomly. More important, however, is that to ensure that $C(S)$ exists (i.e., is not empty), assuming it is defined as (1) above, it is necessary that the social-preference relation $P$ satisfy the collective rationality property, acyclicity (i.e., if $x_1Px_2, x_2Px_3, \ldots, x_{n-1}Px_n$, then not $x_nPx_1$). If this was not the case, then for any alternative which was chosen, there would always be some other alternative in the attainable set which would be preferred to it, and this would contradict (1).

Now (1) seems to be a reasonable way to define the elements of the chosen set $C(S)$ and, indeed, the above definition seems to be at least as old as the Marquis de Condorcet. After all, why should we choose some alternative social state if there is another alternative social state which is preferred according to our own choice criteria? Nevertheless, Thomas Schwartz has criticized (1) for being too ambitious and, in particular, for being a “maximizing” notion of choice. According to (1), $x$ can be chosen only if it is better than, or at least as good as, every other alternative in the attainable set. Call this the maximization thesis. Schwartz has proposed instead that $x$ should be chosen if and only if $x$ is an element of $S$ and for no $y$ of $S$, which is not chosen, is $y$ preferred to $x$ according to the relevant choice criteria. In symbols, the Schwartz definition of a chosen element, designated as (2), is written:

$$(2) \ x \in C(S) \text{ if and only if } x \in S \text{ and for no } y \in (S - C(S)), yPx.$$  

In other words, $x$ may be chosen even if $y$ is preferred to $x$ (i.e., even if there is a better alternative) so long as $y$ is also chosen. It is this possibility which seems to pull against the idea of maximization.

In criticizing the maximization thesis of social choice, Schwartz is in good company. A number of philosophers, including John Rawls and Bernard Williams, have argued that the concept of maximizing is closely tied up with a very particular type of ethical theory, namely consequentialism, which holds that the rightness of any given action is to be determined only by the goodness of its results. Given some notion of “good,” notions of “better” (preferred) and “best” (most preferred) quite naturally follow. Yet, other kinds of ethical theory and in particular deontological theories, put the “right” before the “good,” maintaining that the rightness of an action or process can, at least sometimes, be determined by the nature of the action or process itself. The question of its consequences need not arise at all. Moreover, this argument contends that what is right or just or fair is not equally subject to maximization as the ill-formed comparatives, “righter” or “more right,” and the superlatives, “rightest” and “most right” suggest. It should also be noted that concerns for individual rights are usually thought to be bound up with deontological rather than consequentialist ethical theories.

19. Both this notation and the definition of a chosen alternative are standard form in social choice theory. See, e.g., K. Arrow, Social Choice and Individual Values 15 (1963); A. Sen, supra note 2, at 10.

20. See text accompanying note 9 supra.

22. Strictly speaking, Schwartz also requires that no non-empty proper subset of $C(S)$ should satisfy (2). That is, if we can discard some inferior alternatives from $C(S)$ without reducing $C(S)$ to the null set, we should do so. Id.
25. Id. at 85.
26. Id. at 87.
27. Id.
28. Id.
29. R. Nozick, Anarchy, State, and Utopia 28-30, 153-66 (1974); Williams, supra note 24, at 88-89. The reader may recognize that the distinction between consequentialism and
Thus, according to Schwartz, to decide in favour of the first rather than the second characterization of social choice is to decide in favour of maximization.46 Then, according to philosophers such as Rawls and Williams, the decision to maximize implies choosing consequentialist over deontological principles.51 Why this second step must be so is not made clear. Can one not maximize according to deontological principles so that if some alternative $y$ is preferred to another alternative $x$ according to those principles, then $x$ should not be chosen if $y$ is attainable? Indeed, isn’t this precisely what Sen tries to do with his liberty principle? The answer to the former question seems to be a guarded yes. It must be emphasized, however, that to maximize according to deontological principles is to maximize over a social-preference relation which does not link descriptions of social states: If the social-preference relation does hold between social states, and even if this relation reflects some apparent deontological concern for individual rights and liberties, then, if the maximization thesis holds, we are well on our way to ensuring that the final social choice from the attainable set will be quite independent of the choice process, if it exists at all. This independence obviously contradicts deontology which is concerned with the rightness of the process (or action) by which final results (or consequences) are achieved. In the next two sections I shall show exactly why this is so, first by connecting maximization to the collective rationality condition, acyclicity,52 and second, by connecting acyclicity to the property of path independence—a property, I shall argue, which makes a nonsense of both choice sequences or processes and of individual rights and liberties.53

**Maximization and Acyclicity**

To see why deontology and the maximization thesis are at odds with one another, we should recall that acyclicity is a necessary condition for ensuring that the set $C(S)$ exists, assuming it is defined as (1) above. Again, acyclicity requires of the attainable alternatives that if $x_1 P x_2, x_2 P x_3, \ldots, x_m P x_1$, then not $x_i P x_j$. If this was not the case, then for any alternative which was chosen there would al-

30. See text accompanying notes 21-22 supra.
31. See text accompanying notes 23-26 supra.
32. See text accompanying notes 34-37 infra.
33. See text accompanying notes 38-53 infra.
34. See text accompanying note 20 supra.
Now, it is easy to see that condition GC will not distinguish (1), the maximization thesis, from (2), Schwartz's definition of a chosen element. This is because condition GC only ensures that the alternative, say y, which is at least as good as every other attainable alternative, is among the alternatives from the chosen set. It could still be that an alternative x is chosen from the set S even if y is the unique choice from the pair (x, y), that is, even if y is shown to be preferred to x. This would violate maximization. If we are to ensure maximization we must therefore look to the second of the two conditions which together define acyclicity, namely condition C. This condition, although already presented as a contraction-consistency property for the inclusion of chosen alternatives, can be reformulated in terms of its contrapositive as an expansion-consistency property for the exclusion of unchosen alternatives. That is, if x is in S₂, but does not belong to C(S_j), then it does not belong to C(S_j) when S_j is a subset of S_1. Looked at this way, it is easy to see why condition C is the maximizing condition in acyclicity: If y was the unique choice from the pair (x, y), indicating yPx, then, according to condition C, it could not be that x belongs to C(S) for a larger set S containing both x and y. This, of course, would be in keeping with maximization.

Having isolated the maximizing feature of acyclicity in choice-theoretic terms, it remains to make the connection with deontology. This we shall do by looking at the property of path independence, a property best introduced by examining the familiar paradox of majority voting.

**Path Independence, Acyclicity, and Individual Rights**

Suppose there is a committee of three individuals considering three alternatives. Each individual ranks the alternatives (in order of preference from left to right) in the following way:

- Individual 1: x y z
- Individual 2: z x y
- Individual 3: y z x

It is easy to see that each alternative has some other alternative preferred to it by a majority of two to one: x is so preferred to y, y to z, and z to x, a violation of acyclicity. Since a majority can do nothing, but choose a minority-preferred alternative, this is often referred to as the paradox of majority voting.

Suppose this committee, either as a time saver or because it is following Robert's Rules of Order, imposed the condition that any alternative defeated by a majority should be eliminated from any further consideration. If the individual preferences were as assumed above, this condition would make the final social choice entirely dependent upon the sequence in which the alternatives were considered. We shall call this property path dependence. In our hypothetical, for example, the final social choice would always be that alternative which was not considered first. If the committee had voted first on x against y, x would have been majority-preferred, but z would have defeated x in the next round. Similar results can be obtained for any other sequence. The dependency of the final choice on the sequence of consideration, or on the choice path, allows the person deciding the order in which the alternatives are presented (for example, the committee chairman) to bias the voting in favour of any one of the three alternatives. In general, it might be observed that the later an alternative enters the voting, the greater its chance of adoption.

The idea of path independence was first introduced into the social choice literature by Kenneth Arrow, but recently it has been discussed more fully by Charles Plott. According to Plott, the process of choosing, from a dynamic point of view, frequently proceeds in a type of "divide and conquer" manner. The alternatives are "split up" into smaller sets, a choice is made over each of these sets, the chosen elements are collected, and then a choice is made from them. Path independence, in this case, would mean that the final result would be independent of the way the alternatives were initially divided up for consideration.

In symbols, path independence can be represented as,

\[ P_l: C(S_1 \cup S_2) = C(C(S_1) \cup C(S_2)) \] for all sets S₁, S₂.

Thus, according to \( P_l \), in choosing from a set, say \((x, y, z)\), it should make no difference to the final result whether a choice is first exercised over the pair \((x, y)\), or the pair \((x, z)\), or the pair \((y, z)\), with the

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37. It is easily demonstrated that this is the equivalent of C above. Suppose some x of S₁ did belong to C(S_j), but not to C(S_j) where S_j \(\subseteq\) S₁. A chosen alternative from the superset S₁ has then become unchosen in the subset S_j, a violation of condition C.

38. K. Arrow, supra note 19, at 2; A. Sen, supra note 2, at 38.
40. K. Arrow, supra note 19, at 120.
42. Id. at 1079-80.
winner in the first pair to be compared with the only remaining alternative. In other words, the final social choice is to be independent of the choice sequence or process.

This appears, however, to strike rather hard at deontology. The very point of deontological thinking is to take choice processes or sequences seriously. Moreover, if we want to afford individual rights any serious consideration, then PI becomes a rather suspect property. To see why this is so, it is instructive to reconsider Sen's original example to illustrate the impossibility of a Paretian libertarian.  

Recall that Sen argued that a libertarian would partition the set of the three alternatives \((o,p,r)\) into the two sets \((o,p)\) and \((o,r)\), assigning the first partition to Prude and the second to Rude on the basis of freedom to choose over a personal domain. Sen then went on to show that the exercise of these rights might violate the Pareto principle. But there is a more fundamental point: If we were to impose PI on the method of social choice (when the social choice in this case would be made up of the choices of the individuals), then, according to that property, it should not matter whether these choices were exercised over the pairs \((o,p)\) and \((o,r)\). They could just as easily have been divided up \((o,p)\) and \((p,r)\), or \((o,r)\) and \((p,r)\), or even \((o,p,r)\) and \((o)\). The result, according to PI, should be the same. In other words, given PI, the rightful domain of individual choice is, quite literally, inconsequential. This would not evidence a very serious concern for individual rights.

Sen, however, does not require PI to prove his particular theorem. Indeed, all Sen does impose on his method of social choice is acyclicity, since he is concerned only with satisfying the maximization thesis. Nevertheless, it is instructive to consider that had Sen required the only slightly stronger collective rationality property, quasi-transitivity (i.e., if \(x_1 P x_2, x_2 P x_3, \ldots, x_n P x_1\) then \(x_1 P x_n\)), then he would have implicitly imposed PI on his liberal method of making social choices, since that rationality property implies PI. This becomes evident once we examine the definition of both quasi-transitivity and PI in choice-theoretic terms.

Plott and Blair have shown that quasi-transitivity of the social-preference relation is equivalent in choice-theoretic terms to the conjunction of three conditions, namely, the Generalized Condorcet con-

dition \((GC)\), the Chernoff condition \((C)\), and a superset condition \((S)\). The first two of these conditions have already been defined above. Condition \(S\) requires that if \(S_2\) is a subset of \(S_1\) then the chosen set from \(S_1\) should not be a proper subset of the chosen set from \(S_2\). In symbols,

\[
S: \text{If } S_2 \subseteq S_1 \text{ then } C(S_1) \not\subseteq C(S_2) \text{ for all sets } S_1, S_2.
\]

Again, by way of example, condition \(S\) states that if Mozart and Bach are (equally) the best composers of the eighteenth century, then it should not be that just Mozart is the best composer of all time (although it may be that just Mozart and Brahms are).

Blair and his coauthors have also shown that PI is equivalent to the conjunction of the two conditions \(C\) and \(S\). Thus, PI is weaker than quasi-transitivity since it does not imply condition \(GC\), but obviously quasi-transitivity implies PI. Therefore, if the imposition of PI on a method of making a social choice makes a nonsense of a rightful domain of individual choice, then, a fortiori the imposition of quasi-transitivity must have the same result.

Sen, however, does not impose quasi-transitivity on his liberal method of social choice, and so one might legitimately wonder whether the preceding discussion is relevant. Before jumping to this conclusion, however, we should consider the following question: If PI makes a nonsense of deontology in general, and of a rightful domain of individual choice in particular, which of the choice-theoretic conditions, \(C\) or \(S\), which together define PI, should be relaxed?

The arguments of the last two sections seem to suggest that condition \(C\) is the prime candidate to be relaxed because condition \(C\) is common both to PI and to acyclicity. Acyclicity, it will be recalled, is a necessary condition for C(S) to exist, given the maximization thesis, but Rawls and others have argued that maximization is a consequentialist, and not a deontological notion. Of course, one could relax condition \(S\) and thus, in relaxing PI, leave acyclicity (and Sen's theorem) intact. This, however, would still leave Rawls' deontological objections to maximization unexplained. Moreover, it is difficult to see how one might interpret a relaxation of condition \(S\).

43. A. Sen, supra note 2, at 80.
44. See text accompanying notes 6-9 supra.
45. A. Sen, supra note 3, at 87-88.
46. Id. at 15.
47. Blair, supra note 35, at 366 (Theorem 1); Plott, supra note 41, at 1085 (Theorem 3).
48. See text accompanying notes 35-36 supra.
50. Id. at 366 (Theorem 1).
51. See text accompanying note 20 supra.
52. See text accompanying notes 23-28 supra.
Why would a choice from a superset be strictly contained in a choice from its own subset? On the other hand, a reasonable interpretation of a relaxation of condition C is available. Moreover, it will be argued in the next two sections that this interpretation makes some sense both of procedural justice and of the often discussed distinction between positive and negative rights.

**Choice Hierarchies**

Ronald Dworkin refers to two kinds of ordering within the law, one horizontal and the other vertical. The horizontal ordering ensures that the principles justifying a decision at one level are consistent with the justification offered for other decisions at that level. The vertical ordering, on the other hand, "is provided by distinguishing layers of authority; that is, layers at which official decisions might be taken to be controlling over decisions made at lower levels." According to Dworkin, an obvious example of such a vertical ordering is the constitutional government of the United States:

The constitutional structure occupies the highest level, the decisions of the Supreme Court and perhaps other courts interpreting that structure the next, enactments of various legislatures the next and decisions of the various courts developing the common law different levels below that. [A judge] must arrange justification of principles at each of these levels so that the justification is consistent with principles taken to provide the justification of higher levels. The idea of a hierarchy of decisionmaking powers is not uncommon in legal theory; some form of it is contained in Kelsen's hierarchy of norms, in Hart's distinction between primary and secondary rules, in Hohfeld's separation of rights from powers, and even in Austin's belief that the sovereign is subject to constitutional constraint. Ignoring here the important question whether unconstitutional should be identified with unlawful, or whether, as Austin argued, constitutional law is "positive morality merely," it is instructive to consider how such a constitutional hierarchy might be interpreted in social choice terms.

To begin, it is important to consider what is meant when we say that certain choices are "constrained by" or "consistent with" choices or decisions made at higher levels. It should be apparent that it is not sufficient to say only that lower level choice authorities have a different jurisdiction than higher level choice authorities. This would not justify the use of the term hierarchy, nor would it explain why the constraints do not operate equally well in both directions, up and down. There must, therefore, be some sense in which the choices made at lower levels are dependent upon the choices made at higher levels, and not vice versa, so that had the choices at the higher levels been different, the range of alternatives from which lower level choice authorities must make their choice would not have been the same.

Choice at any level involves separating chosen from unchosen alternatives. Therefore, if choice at some lower level is to be dependent upon that first or higher level's choice, it must either choose so that previously chosen alternatives are no longer chosen, or choose so that previously unchosen alternatives become chosen. It should be emphasized that the lower level choice authority cannot do both: If it could both unchoose that which was previously chosen, as well as choose that which was previously unchosen, then the lower level choice authority would not be constrained at all, and the whole idea of a choice hierarchy would be a nonsense. Similarly, it cannot be the case that the lower level choice authority must neither unchoose that which was previously chosen, nor choose that which was previously unchosen, for if that were true, the lower level authority would have no real choice at all; the very idea of a choice hierarchy would become absurd.

It should be noted that the latter realization has immediate implications for the strongest of the collective rationality conditions of the economic theory of social choice—full transitivity of the social-preference relation. It will be recalled from the previous section that quasi-transitivity requires that if \( x \) is socially preferred to \( y \), and \( y \) is socially preferred to \( z \), then \( x \) is socially preferred to \( z \). Full transitivity imposes the stronger requirement that if \( x \) is at least as good as \( y \) (i.e., \( x \) is socially preferred or indifferent to \( y \)), and \( y \) is at least as good as \( z \), then \( x \) is at least as good as \( z \). That is, where quasi-transitivity requires transitivity only of strict social preferences, full
transitivity requires transitivity of social indifference as well. However, Arrow has shown that full transitivity of the social-preference relation is equivalent to the following choice-theoretic condition, referred to by Kotaro Suzumura as the Arrowian condition. In symbols, the condition can be represented,

\[ \text{AC: If } S_2 \subseteq S_1 \text{ and } S_2 \cap C(S_1) = \emptyset, \text{ then } (C(S_1) \cap S_2) = C(S_2) \]

for all sets \( S_1, S_2 \).

In words, condition AC requires that if some alternatives are chosen out of a set \( S_1 \), and the range of alternatives is narrowed down to a subset \( S_2 \), a set which still contains some previously chosen alternatives, then no previously chosen alternative should become chosen and no previously unchosen alternative should become chosen. Thus, by requiring full transitivity of the social-preference relation, an economist would immediately preclude the possibility of a constitutional hierarchy of the very sort we have described above.

To make sense of a hierarchy of choice, lower level choice authorities must either choose from previously unchosen alternatives, or unchoose previously chosen alternatives, but not both. The question becomes: Which of the two powers is the more reasonable for lower level choice authorities? Do such authorities generally have (1) the right to choose from previously chosen alternatives, leaving previously unchosen alternatives alone, or (2) the right to choose from previously unchosen alternatives, leaving previously chosen alternatives alone? It seems clear enough that the former is the usual interpretation. That is, lower level choice authorities are generally prevented from making certain choices by higher level authorities; they are not required by those same authorities to make particular choices.

If this correctly describes the power of lower level choice authorities, then the choice condition which partially defines both path independence and acyclicity, namely condition C, must be relaxed, since condition C requires that chosen alternatives from a set \( S \) should remain chosen in a subset of \( S \) if the subset contains some previously chosen alternatives. This is precisely the requirement that a concession to powers of form (1) would tend to violate. Therefore, it would appear that a constitutional hierarchy of decision-making not only represents a rejection of full transitivity, as argued above, but also requires the relaxation of the weakest collective-rationality condition—acyclicity. Since acyclicity is a necessary condition for the maximization thesis to hold, it follows that under a constitutional hierarchy we can no longer be maximizing over a social preference relation which links social states. Moreover, as already remarked, the relaxation of condition C also undermines path independence. Thus, the constitutional procedure, or sequence of choice, appears to make sense of Rawls' close identification of deontology with the failure to maximize.

The possibility of making this connection through constitutional considerations should not surprise those who are familiar with Rawls' own theory of justice as fairness. Consider these remarks with which Rawls begins the second part of his influential book: "[M]y aim is to illustrate the content of the principles of justice. I shall do this by describing a basic structure that satisfies these principles and by examining the duties and obligations to which they give rise. The main institutions of this structure are those of a constitutional democracy." Later in the book Rawls speaks more generally of the basic structure of his theory:

\[ \text{[T]he contrast between a teleological [consequentialist] theory and the contract doctrine may be expressed in the following intuitive way: the former defines the good locally, for example, as a more or less homogeneous quality or attribute of experience, and regards it as an extensive magnitude which is to be maximized over some totality; whereas the latter moves in the opposite fashion by indentifying a sequence of increasingly specific structural forms of right conduct each set within the preceding one, and in this manner working from a general framework for the whole to a sharper and sharper determination of its parts. Hedonistic utilitarianism is the classical instance of the first procedure and illustrates it with compelling simplicity. Justice as fairness exemplifies the second possibility. Thus the four-stage sequence (§ 31) formulates an order of agreements and enactments designed to build up in several steps a hierarchical structure of principles, standards, and rules, which when consistently applied and adhered to, lead to a definite consti-} \]

63. K. Arrow, supra note 19, at 13; A. Sen, supra note 2, at 8.
66. See text accompanying notes 34-53 supra.
67. See text accompanying note 23 supra.
68. J. Rawls, supra note 23, at 195.
Unfortunately, a full and fair exposition of Rawls' basic structure would take us too far from the present argument. It must suffice to say that Rawls' theory of constitutional democracy is similar in form to Dworkin's idea of a vertical ordering in law. Yet this, by itself, says little about the exact nature of individual rights in either theory. We shall discuss this in the next section.

Before turning to that discussion, however, it is worth commenting on a recent contribution by Gerald Kramer, a social choice theoretist, to the debate on due process. Kramer contrasts two types of choice procedure, labeling them parliamentary and judicial respectively. In the first kind of procedure it is characteristic that "every last division [choice] is between the status quo X and some proposal." For example, if a member of parliament proposes some change A, and another member suggests an amendment B to that change, then the first vote typically takes place between the initial proposal and its amendment—between A and B. The second vote is between the status quo X and whichever of A or B survived the first vote. Kramer contrasts this kind of procedure with the judicial procedure used in a criminal court for determining the verdict and sentence for a defendant. Typically, the court proceeds first by determining the defendant's guilt or innocence, and then, given a verdict of guilty, by deciding on an appropriate sentence. Thus, severe or lenient sentences are never compared with the do nothing or status quo alternative (i.e., finding the defendant innocent). Kramer, much like the Queen who said to Alice at the trial, "No! No! . . . Sentence first—verdict afterwards!" obviously favours the parliamentary over the judicial procedure, since only the former satisfies condition C, which, as argued above, is necessary for any kind of rational choice procedure, at least within the conventions of social choice theory. It seems plausible, however, to argue that the idea of proper procedure might somehow be bound up with deciding first a defendant's verdict and then his sentence, the demands of economic rationality notwithstanding. Kramer's attraction towards the parliamentary procedure in preference to due process may be explained in part by the conventions of rational social choice, but also perhaps by the natural proclivity of a consequentialist to prefer knowing what the final result will be before committing himself or herself to any proposed change. This discussion does not show that Kramer is wrong in his approach, only that his analytical tools commit him more than he might think to a very particular view of proper choice.

**The Nature of Higher Order Individual Rights**

In the last section I argued that higher level choice authorities in a constitutional hierarchy restrain lower level choice authorities by preventing certain alternatives from being chosen at the lower level. I also argued, however, that if the lower level choice authorities were to have some choosing of their own to do, then it could not generally be that the alternatives actually chosen at the higher level would remain chosen at the lower level. This must mean, therefore, that higher level choices are, to some extent at least, choices between lotteries—choices between alternative bundles in which there is more than one possible final outcome. The final outcome within a chosen bundle is determined only at the lowest level.

At this point it will be useful to introduce some common definitions in economic theory. Economists say that if our choice leads invariably to a single specific outcome, we are choosing under conditions of certainty. If our choice, on the other hand, leads to more outcomes for social action.  

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69. Id. at 566 (emphasis added).
71. Id. at 282-85.
72. Id. at 281-85. Kramer actually calls judicial procedure sequential procedure, but he uses judicial procedure as an example of a sequential procedure.
73. Id. at 285.
74. Id. at 281-82.
76. Kramer is quite explicit on this subject. The judicial procedure is declared inadmissible because it fails to satisfy condition C. Kramer, supra note 70, at 285. To see how condition C is violated in the usual judicial procedure, suppose that there are three possible final outcomes: a finding of innocence (I); a verdict of guilty with a severe sentence (S); and a verdict of guilty with a lenient sentence (L). Thus, the choice is from a set of outcomes 

(C = \{(I,S,L)\}). The first level decision to find the defendant guilty is, however, represented as \(C(I,S,L) = (S,L)\) and the second level decision in favor of a lenient sentence is represented as \(C(S,L) = L\), a violation of condition C. Were the court to decide the sentence first—for example, by choosing over the set \((S,L)\) and then follow by choosing over either the set \((I,S)\) or \((I,L)\) depending upon which of S or L was chosen first—condition C would not be violated. This explains Kramer's sympathy with the parliamentary procedure. Moreover, had Kramer required that the procedure generate a fully (or even quasi) transitive ordering over the set \((I,S,L)\), then the partition may not even have been \((I,S)\) or \((I,L)\). The result should be the same, since path independence would be implied. Id. at 281-82.
77. Cf. Ramachandra, Liberalism, Non-Binary Choice and the Pareto Principle, 3 THEORY & DECISION 49, 52-53 (1972): "At the first [i.e., the highest] level, the problem is choice of a 'Constitution.' The domain of the [social choice rule] here will have various alternatives, which are bundles of several policies . . . . The outcome of the first-stage decides the domain of the [social choice rule] in the second stage."
than one possible outcome, it is said that this choice is from a position of uncertainty.\textsuperscript{79} If, however, our choice leads to a set of possible outcomes, with each outcome occurring with a known probability, economists say that we are choosing under conditions of risk.\textsuperscript{79} Thus, in these terms, choices at a higher level in the constitutional hierarchy are choices in the face of either risk or uncertainty. Indeed, only choices at the lowest level in the hierarchy can be certain choices, since it is only at this level that the final outcome is uniquely determined. As I shall now argue, this realization leads to an interesting characterization of individual rights according to Dworkin’s liberal theory of law.

Dworkin thinks of rights as “political trumps held by individuals.”\textsuperscript{80} Individuals have rights when a collective goal or policy, such as economic efficiency or a more equal distribution of wealth, “is not a sufficient justification for denying them what they wish, as individuals, to have or to do, or [is] not a sufficient justification for imposing some loss or injury upon them.”\textsuperscript{81} Dworkin’s belief that individual rights can only be taken seriously when consequentialist doctrines are set aside is evidenced by his reference to “state of affairs” in the following passage:

\begin{quote}
Some state of affairs is a goal within a particular political theory if it counts in favor of a political act, within that theory, that the act will advance or preserve that state of affairs, and counts against an act that it will retard or threaten it. . . . [But] an individual has a right to a particular political act, within a political theory, if the failure to provide that act, when he calls for it, would be unjustified within that theory even if the goals of the theory would, on the balance, be disservicesd by that act.\textsuperscript{82}
\end{quote}

Dworkin even goes so far as to say that the strength of a particular right is measured by the degree of its disservice to the goal in question.\textsuperscript{83} It should be apparent, therefore, that in terms of the constitutional hierarchy, or Dworkin’s own vertical ordering, rights constrain goals and not vice versa.\textsuperscript{84}

If, however, individual rights are higher in the constitutional hierarchy than either policies or goals, then it follows from the above arguments that the exercise of rights must be likened to choice in the face of uncertainty or risk. Rightful choices cannot be said to secure specific final outcomes for individuals because the specifics are left up to the lower level choice authorities. One might ask, therefore, what a right does for an individual. The answer is that a right secures the individual against specific final outcomes. Given the exercise of the individual’s higher order right, certain alternatives are not choosable at the lower goal-based level.

It may appear that we have introduced a rather arbitrary asymmetry into the discussion. Why should the exercise of a right secure an individual against particular outcomes, but not as easily secure particular outcomes for the individual? In fact, this asymmetry follows necessarily from the argument as it has thus far been presented. That is, it follows from the nature of a constitutional hierarchy and from Dworkin’s concern for ordering individual rights above collective goals. Although the exercise of a higher order right can be a choice only between alternative bundles of outcomes, all the particular outcomes of an unchosen bundle must nevertheless remain unchosen at the lower level. Thus, the individual, by choosing appropriately at the higher level, can, with certainty, secure himself against quite specific final outcomes. He cannot, however, by making the appropriate choice, actually ensure that any particular outcome is the final social choice: That would leave nothing for the lower level choice authority to do, and would therefore make a nonsense of a constitutional hierarchy.

It will be instructive to attempt a characterization of the right described above in Hohfeldian terms.\textsuperscript{85} For convenience of exposition we shall speak of an individual’s higher order constitutional right and of the lower level choice of a legislature. Assume that an individual has a constitutional right to choose over the set of three alternatives \((x, y, z)\). Because the lower level legislature must generally have some choosing of its own to do, we shall assume that \(A\) has to choose between the bundle \((x, y)\) and the single alternative \((z)\). Suppose \(A\) chooses \((x, y)\), leaving the final choice over this bundle to the legislature. In Hohfeldian terms, we then can say that \(A\) has the right that \(z\) not be chosen at the legislative level, and that the legislature has a correlative duty not to so choose. \(A\), however, has no right that either \(x\) or \(y\) not be chosen at the legislative level, and so
the legislature has the correlative liberty to make either of these two choices. It is also worth noting that had A chosen differently at the constitutional level, then the legislature’s liberties and duties would not have been the same. In Hohfeldian terms, we speak of A’s power to change the legal obligations of the legislature and of the legislature’s correlative liability to have its obligations so changed. Since the legislature, however, cannot similarly influence A’s constitutional right of choice, we speak of the legislature’s disability in that respect, and of the individual’s correlative immunity. As might be realized from this discussion, the pairs of words, right—no right, liberty—duty (not), power—disability, and liability—immunity, express legal opposites.

So far we have spoken only of individual rights against legislative action. This is the natural consequence of incorporating Dworkin’s concern for the priority of rights above all collective goals into his notion of a vertical ordering. It is, however, apparent that individuals also have rights against other individuals; we shall characterize these kinds of rights in the same way. That is, we shall speak of a vertical ordering of individual rights of choice with lower order individuals taking the place of a lower order legislature, at least with respect to some issues. Thus, to reiterate the above example, an individual A may have a right to not-x, but no right either for or against the alternatives x or y. Correlatively, individual B has a duty to not-z, but a liberty to choose either x or y or both. But if individual A has the higher order choice, or the right over the set (x,y,z), then he or she has an immunity against B with respect to that choice, leaving B subject to a disability. Similarly, because B’s liberties are subject to change according to A’s actual choices, B is under a liability and A has the correlative power. Thus, jural relations between individuals can exactly parallel jural relations between an individual and his or her legislature.

RELEVANCE FOR ECONOMIC ANALYSIS OF LAW

Some comments on the implications of the preceding discussion

86. Thus, this is a liberty which does not include a duty to make a particular choice. Because a liberty to choose x is only the legal opposite of a duty not to choose x, it could, technically, include a duty to choose x. Compare Williams, The Concept of Legal Liberty, in ESSAYS IN LEGAL PHILOSOPHY 121, 121-45 (R. Summers ed. 1956) with Smith, Liberties and Choice, 19 AM. J. JURIS. 87, 87-93 (1974).


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for economic analysis of the law are now in order. First, it should be observed that although much of this paper has been normative rather than descriptive in nature, and directed to problems of social choice theory, this discussion may have behavioural implications for individual choice as well. For example, if an individual is motivated by such deontological concerns as rights, processes, or corrective justice, then, over observable alternatives, the individual may not reveal a transitive preference ordering and so cannot therefore be construed as maximizing anything. We have already alluded to this problem in a roundabout way in our earlier discussion of Coase’s theorem, but the following example makes the point more explicitly.

Suppose an individual must choose which of three candidates, A, B, or C, should be given an award. The individual responds that in a choice between A and B he would choose A, since A will do more good with the award than B. For the same reason, he chooses B over C. Thus, since A will do more good with the award than B, and B will do more good than C, by transitivity (and, let us suppose, by assumption), A will do more good with the award than C. But the individual says that in a choice between A and C he would choose C, since A owes C some money and the individual feels it right and proper on grounds of corrective justice to give the award to C in the presence of A. The result is an intransitive revealed-preference ordering of the three alternatives for choice. Yet, there does not seem to be anything irrational going on. The concern for corrective justice is what motivates the individual to choose C over A, since A owes C money. This relationship of debtor-creditor holds only between A and C, or, in terms of our earlier discussion, only for the partition (A,C) of the alternatives. That is, it is not that more corrective justice applies in the choice over (A,C) than applies in the choice over (A,B) or (B,C). Rather, corrective justice considerations do not apply for the latter partitions at all. Not surprisingly, therefore, such
an individual's choices may be partition (or path) dependent and, consequently, inconsistent with revealing a transitive, or even an acyclic-preference ordering. Without such an ordering, however, the individual cannot be thought of as a (utility) maximizer and so the behavioural maxims of economics, and in particular of economic analysis of law, may not apply.

On the normative side, the implications for economic analysis of law as a rationale for social choice can be treated more briefly. It is clear from a recent article by Posner91 that the normative basis for economic analysis of law involves a kind of maximization principle—in particular the principle of wealth maximization. Posner claims that this principle mixes the virtues of Kant and Bentham without the disadvantages of either.92 Yet, Kant and Bentham are probably the most prominent deontological and consequentialist theorists respectively, and we should be suspicious of any attempt to mix the two under the single rubric of a maximization principle. It would thus seem that the normative basis for economic analysis of law will have to be found elsewhere.

Finally, something should be said about "the comparative institution approach" in economics,93 an approach which has fathered much of economic analysis of law. Contrasting itself with the "nirvana approach"94 (which points to discrepancies between an ideal and a real institution and concludes that the real is inefficient), the comparative institution approach attempts to assess which alternative real institutional arrangement seems best able to cope with the economic problem. The economic problem, of course, involves getting people what they want at the lowest cost. But, as Plott has suggested,95 the lessons of social choice theory may be pointing to the futility of this whole exercise. It may be incoherent even to ask what kinds of processes give people what they want, since what people want will depend upon the process or institution generating the outcomes. And, as Plott has indicated,

[i]f there is no outcome that the group "wants" independently of

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92. Id. at 119-36.
94. See Demsetz, supra note 93, at 1-2.
96. Levine & Plott, supra note 95, at 588-89.