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LEGAL AND MORAL DUTY IN GAME THEORY: COMMON LAW CONTRACT AND CHINESE ANALOGIES

ROBERT L. BIRMINGHAM*

I. MORALITY AND LAW

The limited efficacy of legal restraints when unaccompanied by moral repugnance at their violation has long been recognized in Western culture. Spinoza stated: "He who tries to determine everything by law will foment crime rather than lessen it."¹ Oliver Goldsmith added: "Nothing can be more certain than that numerous written laws are a sign of a degenerate community, and are frequently not the consequences of vicious morals in a state, but the causes."²

The distinction between social control through moral suasion and through rules of criminal law assumes its most Manichaeian form in Chinese legal thought. Confucian philosophy admonishes: "If you govern the people by laws, and keep them in order by penalties, they will avoid the penalties, yet lose their sense of shame. But if you govern them by your moral excellence, and keep them in order by your dutiful conduct, they will retain their sense of shame, and also live up to this standard."³ The guiding concept, *li* (禮), "implies the performance of right actions because, through habituation, they are felt to be right, and without external compulsion."⁴ The basis of the character represent-

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1. Quoted in A. Sinclair, *Prohibition: The Era of Excess* 369 (1962).

2. *Id.* at 178. The inability to enforce Prohibition provides the most obvious American illustration of the validity of these statements. When it became certain that existing controls were inadequate to assure abedience, extremists merely advocated weightier sanctions:

One woman suggested that liquor law violators should be hung by the tongue beneath an airplane and carried over the United States. Another suggested that the government should distribute poison liquor through the bootleggers; she admitted that several hundred thousand Americans would die, but she thought that this cost was worth the proper enforcement of the dry law. Others wanted to deport all aliens, exclude wets from all churches, force bootleggers to go to church every Sunday, forbid drinkers to marry, torture or whip or brand or sterilize or tattoo drinkers, place offenders in bottle-shaped cages in public squares, make them swallow two ounces of castor oil, and even execute the consumers of alcohol and their posterity to the fourth generation.

Id. at 26. Actual penalties were perhaps sufficiently severe. In 1929 Mrs. Etta Mae Miller was convicted of having sold a quart of liquor. As this was her fourth such offense, she was sentenced to life imprisonment as an habitual criminal. The General Secretary of the Board of Temperance, Prohibition and Public Morals stated: "Our only regret is that the woman was not sentenced to life imprisonment before her ten children were born. When one has violated the Constitution four times, he or she should be segregated from society to prevent the production of subnormal offsprings." *Time Capsule*/1929, at 66 (1967).

3. Confucius, *The Analects* 8-9 (W. Soothill transl. 1937), quoted in S. van der Sprenkel, *Legal Institutions in Manchu China* 30 (1962).

4. *Id.* at 31.

ing this concept is the symbol denoting an influx from heaven, which has been given the extended meaning "to teach."⁵

It was felt that a ruler could minimize contention within his community by providing an enlightening example to others through living virtuously himself. Confucius said: "When a prince's personal conduct is correct, his government is effective without the issuing of orders. If his personal conduct is not correct, he may issue orders, but they will not be followed."⁶ Mencius agreed: "When the ruler is benevolent, all will be benevolent. When the ruler is righteous, all will be righteous. When the ruler is correct, all will be correct."⁷ The governor Han Yen-shon, asked to decide a dispute between brothers, lamented:

I am lucky enough to be the example for the whole province, yet I am unable to demonstrate the moral influence, thus bringing about litigation among relatives. This is not only harmful to the customs, but it also brings shame to the virtuous magistrate, the local officials, and those who are "filial and fraternally submissive" in the community. The blame is on the governor of the province. I should be the first to resign.⁸

Opposing theories were advanced by the competing Legalist or Realist school:

In his rule of a state, the sage does not depend on men doing good themselves, but brings it about that they can do no wrong. Within the frontiers of a state there are no more than ten people who will do good of themselves; nevertheless, if one brings it about that the people can do no wrong, the entire state can be kept peaceful. He who rules a country makes use of the majority and neglects the few, and does not concern himself with virtue but with law.⁹

Legal rules were denoted by the character *fa* (法), combining the water radical with a symbol of an empty vessel and its cover and meaning to make

5. L. Wieger, *Chinese Characters* 29 (2d ed. L. Davrout transl. 1927).

6. Quoted in T. Ch'ü, *Law and Society in Traditional China* 256 (1965).

7. Quoted in *id.* at 254.

8. Quoted in *id.* at 253. Propriety was occasionally carried to extremes:

In 650 B.C. the retainers of the Duke of Sung faced a powerful invading enemy army over a river. The duke's aides urged him to attack at once and catch this force as it waded through the water, but the duke peremptorily replied: "You cannot." They then begged him to order the charge before the enemy could assemble on the hither bank. But again he tersely declined. Only when his adversary's forces were fully ready for the fray did the duke order the attack. He was wounded in the thigh, and his army disastrously defeated, but when his entourage upbraided him for his foolishness, the duke coolly replied: "The sage does not crush the weak, or assault the enemy until he is formed up."

D. Bloodworth, *The Chinese Looking Glass* 25 (1967). This is paralleled by actions of Alexander at Gaugamela in 331 B.C.: "[T]he oldest of his commanders . . . besought him to attack Darius by night, that the darkness might conceal the danger of the ensuing battle. To this he gave them the celebrated answer, 'I will not steal a victory'" Plutarch, *The Lives of the Noble Grecians and Romans* 824 (Modern Library ed. 1932). Alexander, however, won.

9. Statement by Han Fei-tzu, quoted in S. van der Sprenkel, *supra* note 3, at 32.

morals smooth, like water, by extirpating vices.¹⁰ Advocates asserted: "A sage king does not value righteousness, but he values the law."¹¹ They argued:

If you govern by punishment the people will fear. Being fearful, they will not commit villainies; there being no villainies, people will be happy in what they enjoy. If, however, you teach the people by righteousness, then they will be lax, and if they are lax, there will be disorder; If there is disorder, the people will suffer from what they dislike.¹²

It was contended that "even if a law is bad, it is better than none," since any law could "unify the mind of the people."¹³

Conflict between these competing ideologies was in part resolved by Hegelian synthesis: rulers paradoxically sought to compel adherence to the idealistic standards of Confucius and his followers by threat of criminal sanction.¹⁴ Since mere dispute was a manifestation of unacceptable disharmony, the legal process was consciously made so unpleasant for all concerned that resort to it was considered an act of desperation. The K'ang-hsi Emperor, who ruled from 1662-1722, stated:

[L]awsuits would tend to increase to a frightful amount, if people were not afraid of the tribunals, and if they felt confident of always finding in them ready and perfect justice. As man is apt to delude himself concerning his own interests, contests would then be interminable, and the half of the Empire would not suffice to settle the lawsuits of the other half. I desire, therefore, that those who have recourse to the tribunals should be treated without any pity, and in such a manner that they shall be disgusted with law, and tremble to appear before a magistrate.¹⁵

He concluded: "As for those who are troublesome, obstinate and quarrelsome,

10. L. Wieger, *supra* note 5, at 288. An alternative interpretation asserts that the right side of the ideograph is derived from the character representing the unicorn, to which was "attributed the faculty of distinguishing the just from the unjust and the good from the bad." J. Escarra, *Chinese Law* 26 n.25 (G. Browne, transl. 1936).

11. Statement by Shan Yang, fourth century B.C. advisor to the ruler of Ch'in, the first Legalist state, quoted in T. Ch'ü, *supra* note 6, at 263. His doctrines were immoderate: Mention of culture made Shan Yang reach for his sword, and he specifically condemned music, poetry, history, and all morality as being among the most corrupting of influences. He looked on love as the arch enemy, and it is recorded that when the loyal people of Ch'in mistakenly sacrificed an ox in the hope that they could thus cure their sick duke, the sick duke punished them severely, for good government must not be endangered by any affection between subject and ruler.

D. Bloodworth, *supra* note 8, at 37. The policies he advanced nevertheless permitted Ch'in eventually to overpower neighboring feudal states and give its name to what we know today as China.

12. Statement by Shan Yang, quoted in T. Ch'ü, *supra* note 6, 263-64.

13. Quoted in *id.* at 261.

14. "[O]nly fourteen centuries separated Gethsemane and the Grand Inquisition, and Confucianism was no more fortunate than Christianity." D. Bloodworth, *supra* note 8, at 32.

15. Quoted in Cohen, *Chinese Mediation on the Eve of Modernization*, 54 Calif. L. Rev. 1201, 1215 (1966).

let them be ruined in the law-courts—that is the justice that is due to them.”¹⁶ A Chinese proverb asserts: “[I]t is better to be vexed to death than to bring a lawsuit.”¹⁷

In this paper an attempt is made to clarify this dichotomy, so striking in Chinese thought but also present in Western legal tradition, by examining it in the light of Prisoner's Dilemma, a paradox of game theory which is currently the focus of much attention from economists and other social scientists.¹⁸

16. Quoted in *id.* at 1215. This approach appears analogous to that adopted by the Prussian ruler Friedrich Wilhelm, who in 1737 decreed: “[I]f an advocate or a procurator or any similar person ventures to present any petition to His Royal Majesty, either personally or through somebody else it is the pleasure of His Royal Majesty that the aforesaid person should be hanged without mercy, and a dog be hanged by the side of him.” N. Micklem, *Law and the Laws* 115 (1952).

17. Quoted in Cohen, *Chinese Mediation on the Eve of Modernization*, 54 *Calif. L. Rev.* 1201 (1966). Parallel assertions may be found in Western literature. Learned Hand has stated: “[A]s a litigant I should dread a lawsuit beyond almost anything else short of sickness and death.” Quoted in M. Mayer, *The Lawyers* 9 (1967). Chinese law nevertheless offered greater incentive for forbearance. One found to have made a false accusation generally received a punishment at least as severe as that associated with the crime he had denounced. D. Bodde & C. Morris, *Law in Imperial China* 461-67 (1967). Since procedure was accusatory in all actions, “the unavoidable consequence of a legal case once started was punishment for at least one person.” *Id.* at 69. “[A]n innocent person who was falsely denounced was still guilty of having disturbed the peace, and so was the victim of any public violence . . .” D. Bloodworth, *supra* note 8, at 114. The judicial process need not be painful: “These African societies are strongly litigious; litigation is like a sport or an art in that it is an end in itself. Lindblom says of the Akamba that ‘to go into law is one of the most exquisite enjoyments . . .’” Redfield, *Primitive Law*, 33 *U. Cin. L. Rev.* 1, 19 (1964), reprinted in *Law and Warfare—Studies in the Anthropology of Conflict* 3, 20 (P. Bohannan ed. 1967).

18. The term “game” denotes “[a] set of rules, for individuals or groups of individuals involved in a competitive situation, giving their permissible actions, the amount of information each receives as the competition progresses, the probabilities associated with the chance events that might occur during the competition, the circumstances under which the competition ends, and the amount each individual pays or receives as a consequence.” *Mathematics Dictionary* 169 (G. James & R. James eds. 1959).

Game theory is a method for the study of decision making in situations of conflict. It deals with human processes in which the individual decision-unit is not in complete control of other decision units entering into the environment. It is addressed to problems involving conflict, cooperation, or both, at many levels. The decision-unit may be an individual, a group, a formal or an informal organization, or a society. . . . The essence of a “game” in this context is that it involves decision makers with different goals or objectives whose fates are intertwined. The individuals are in a situation in which there may be many possible outcomes with different values to them. Although they may have some control which will influence the outcome, they do not have complete control The individual must consider how to achieve as much as is possible, taking into account that there are others whose goals differ from his own and whose actions have an effect on all. . . . He must adjust his plans not only to his own desires and abilities but also to the desires and abilities of others. . . . The outcome of a game will depend on the strategies employed by every player . . . and possibly on events beyond the control of any player. . . .

M. Shubik, *Game Theory and the Study of Social Behavior: An Introductory Exposition*, in *Game Theory and Related Approaches to Social Behavior* 3, 8, 9, 13 (M. Shubik ed. 1964). See R. Luce & H. Raiffa, *Games and Decisions—Introduction and Critical Survey* (1957); A. Rapoport, *Two-Person Game Theory* (1966); J. von Neumann & O. Morgenstern, *Theory of Games and Economic Behavior* (rev. ed. 1953). Discussions of the Prisoner's Dilemma include J. Boot, *Mathematical Reasoning in Economics and Management Science* 90-92 (1967); A. Rapoport & A. Chammah, *Prisoner's Dilemma* (1965); Rapoport, *Escape from Paradox*, *Scientific Am.*, July 1967, at 50.

First, the paradox will be explained and illustrated. How rules of law and moral suasion form alternative bases for its resolution will then be demonstrated. Finally, the relevance of certain conclusions to various areas of legal analysis will be explored.

II. THE PRISONER'S DILEMMA

Assume two individuals, 1 and 2, have robbed a bank. They have been apprehended by the police and isolated in separate cells. The district attorney tells each that although he is certain of their guilt he has insufficient evidence to convict them of robbery. He asserts, however, that even without further information he will be able to secure their conviction on a lesser charge carrying a penalty of imprisonment for one year. He urges each of the prisoners to confess, promising that if one cooperates and the other remains silent, he will escape punishment, while his recalcitrant partner will be incarcerated for ten years. If both confess, each will receive a sentence of six years. 1 and 2 accept the accuracy of this outline of possible consequences and must decide whether to confess.

Results of choices which confront the prisoners are depicted in figure 1. The first and second numbers in each set of parentheses measure on an ordinal scale the worth or utility of designated outcomes to 1 and 2 respectively. An ordinal scale is one which "allows only the determination of the rank of a set of objects, but not the 'distances' between them."¹⁹ Following Bentham, we may define "utility" as "that property in any object, whereby it tends to produce benefit, advantage, pleasure, good, or happiness (all this in the present case comes to the same thing.)"²⁰ The value of solutions to each individual is here assumed to vary inversely with the length of the prison sentence imposed on him.

	a_2	b_2
a_1	(1, 1)	(-2, 2)
b_1	(2, -2)	(-1, -1)

FIGURE 1

By choosing a_1 (remaining silent) or b_1 (confessing) player 1 can select the outcomes of either the first row or the second row. Similarly 2 can choose between the first and second columns. For example, joint silence yields a utility of 1 to each prisoner, which can be determined from the upper left set of solutions.

Since $2 > 1 > -1 > -2$, individual 1 will prefer the outcome at the

19. A. Rapoport, *Strategy and Conscience* 310 (1964).

20. J. Bentham, *An Introduction to the Principles of Morals and Legislation* 18 (Dolphin ed. 1961).

lower left. The upper left is more desirable to him than the lower right, while the upper right is least satisfactory. Outcomes may be similarly ranked in order of decreasing desirability to individual 2: upper right, upper left, lower right, lower left.

Obviously each prisoner can maximize his own well-being through confession. Assume that player 1 chooses to confess. Then, if player 2 remains silent, 1's choice yields to him a utility of 2, greater than the level 1 which he could obtain through silence. On the other hand, if player 2 confesses, player 1's confession gives a utility of -1, rather than the -2 which 1 would obtain if he had remained silent. Player 2 faces a similar outcome pattern.

Thus, each prisoner, acting rationally, will confess. Their joint confessions will dictate the outcome in the lower right corner, a utility of -1 to each. If both had remained silent, each would have obtained a utility of 1. Rational decision paradoxically results in incarceration of each prisoner for five more years than would be necessary if both had irrationally remained silent.

A generalization of the example of the preceding section is shown in figure 2, where unidentified letters replace the more specific values of figure 1. So long as

$$s < p < r < t$$

for each player, rational behavior will induce equilibrium at the lower right values. A Pareto Optimum is a set of imputations such that it is impossible to increase the utility of any one individual without reducing the utility of some other. All outcomes except that resulting from the anticipated independent decisions of the players are Pareto optimal. Numbers need not measure utility ordinally but may designate some cardinal value, such as money return. If reward magnitudes can be compared, an additional condition,

$$s_1 + t_2 < r_1 + r_2 > t_1 + s_2,$$

will preclude maximization of joint gain through selection of the upper right or lower left solutions.

	a_2	b_2
a_1	(r_1, r_2)	(s_1, t_2)
b_1	(t_1, s_2)	(p_1, p_2)

FIGURE 2

The concept of Prisoner's Dilemma is relevant to decision making processes in many fields. For instance, students could avoid preparation for examinations if test results were fitted to a curve and each participant could be certain that if he did not study no one else would. Obvious examples on an international

plane include arms races,²¹ reciprocal escalations of military effort in wars of little strategic importance,²² and trade equilibrium at high tariff levels.²³

A recently devised game provides a striking, if unrealistic, illustration of the impact of inability to enforce cooperation among individuals. Assume there are three players. Player 1 will pay one dollar to the other player bidding the most for it. Players 2 and 3 may not coordinate their bids. After each bid by either 2 or 3, the other is informed of his opponent's offer and may raise his bid by a cent or more. The game terminates when neither player wishes to rebid. Player 1 is awarded the last bids of the others. Each player bids so as to utilize any opportunity to increase his gain or reduce his loss, always calculating the advantage of any action without regard to the possibility of subsequent responsive readjustment of the competing offer. Under these conditions bidding will continue indefinitely, the loss to 2 and 3 eventually exceeding any finite sum. Ability to cooperate would have allowed them to divide a small gain.²⁴

III. CONTRACT AND PROMISE

The law of contract²⁵ may be viewed as a means of resolving a class of situations involving the Prisoner's Dilemma. We may reinterpret figures 1 and 2 to illustrate a choice between acceptance and refusal of the obligations of an agreement.²⁶

Generally, both the individual and his community profit from the honoring of at least certain types of promises:²⁷

Now, as much of the business of human life turns or moves upon conventions, frequent disappointments of those expectations which conventions naturally excite, would render human society a scene of baffled hopes, and of thwarted projects and labours. To prevent disappointments of such expectations, is therefore a main object of the legal and moral rules whose direct and appropriate purpose is the enforcement of pacts or agreements.²⁸

21. See M. McGuire, *Secrecy and the Arms Race* (1965).

22. See H. Kahn, *On Escalation* (1965).

23. See K. Rose, *Theorie der Aussenwirtschaft* (1964).

24. I am indebted to one of my students, Mr. Arthur Wolfe, for this example.

25. "A contract is a promise or a set of promises for the breach of which the law gives a remedy, of the performance of which the law in some way recognizes as a duty." *Restatement of Contracts* § 1 (1932).

26. "An agreement is a manifestation of mutual assent by two or more persons to one another." *Id.* § 3.

27. "A promise is an undertaking, however expressed, either that something shall happen, or that something shall not happen, in the future." *Id.* § 2(1).

28. J. Austin, *Lectures on Jurisprudence* 299-300 (2d ed. 1861). "[I]f there is one thing which more than another public policy requires, it is that men of full age and competent understanding shall have the utmost liberty of contracting and that their contracts entered into freely and voluntarily shall be held sacred and shall be enforced by Courts of Justice." *Printing Numerical Registering Co. v. Sampson*, L.R. 19 Eq. 462, 465 (1875). "[I]mplicit in the existence of human society at however primitive a level is the keeping of agreements and contracts. It is impossible to imagine human society without this

Let a_1 and a_2 in the figures represent decisions to form and fulfill an agreement. Then b_1 and b_2 would stand for refusal either to enter into an agreement or to honor an obligation already undertaken. The benefit to the parties of making and carrying out a set of promises rather than not establishing the relationship is thus the difference between the utilities of the upper left and lower right solutions.

That each player prefer the former to the latter outcome is a necessary condition for agreement. Even after promises are exchanged, moreover, discovery that both will lose from the transaction will motivate rescission. Difficulties arise because in the absence of legal or moral sanctions one party will frequently find advantage in breach of an agreement honored by the other. It is likely, in other words, that either player 1 or player 2 can gain by selection of alternative "b" if the other can be persuaded to adhere to alternative "a." Such action would induce either the upper right or the lower left outcomes. Since these are least satisfactory to the player honoring his promise, under these conditions one would expect either no agreement or violation by both parties. The equilibrium solution is thus the lower right, although both players would prefer the upper left outcomes in any situation where agreement would occur if the upper right and lower left alternatives were excluded.

The function of the law of contract is simply to make possible equilibrium at a_1a_2 by rendering outcomes b_1a_2 and a_1b_2 unattractive to players 1 and 2 respectively:

If a Covenant be made, wherein neither of the parties perform presently, but trust one another; in the condition of meer Nature, (which is a condition of Warre of every man against every man,) upon any reasonable suspition, it is Voyd: But if there be a common Power set over them both, with right and force sufficient to compell performance; it is not Voyd. For he that performeth first, has no assurance the other will performe after; because the bonds of words are too weak to bridle mens ambition, avarice, anger, and other Passions, without the feare of some coercive Power; which in the condition of meer Nature, where all men are equall, and judges of the justnesse of their own fears, cannot possibly be supposed. And therefore he which performeth first, does but betray himselfe to his enemy . . . But in a civill estate, where there is a Power set up to constrain those that would otherwise violate their faith, that feare is no more reasonable; and for that cause, he which by the Covenant is to perform first, is obliged so to do.²⁹

principle. . . ." Wheeler, *Natural Law and Human Culture*, in *Natural Law and Modern Society* 194, 200 (J. Cogley ed. 1963).

29. T. Hobbes, *Leviathan* 105 (Oxford ed. 1909).

Now if the law did not step in with its constraining power, the law which upholds a contract once concluded, the former understanding would not come to execution on account of the want of present agreement of interests. The recognition of the binding force of contracts, considered from the standpoint of the idea of purpose, means nothing else than securing the original purpose against the prejudicial influence of a later shifting of interest, or of a change of

Occasionally the undesirable solutions b_1a_2 and a_1b_2 are excluded directly through requiring specific performance of contractual obligations. Such relief is at least in theory broadly available in civil law jurisdictions.³⁰ Generally, however, the common law seeks not to eliminate these undesirable outcomes but to compensate the player choosing solution "a" for the loss which would otherwise result from selection of "b" by his partner:

The duty to keep a contract at common law means a prediction that you must pay damages if you do not keep it—and nothing else. If you commit a tort, you are liable to pay a compensatory sum. If you commit a contract, you are liable to pay a compensatory sum unless the promised event comes to pass³¹

Such a remedy may not only protect the innocent player when a contract is breached, but may also prevent breach by reducing the attractiveness of repudiation to the dishonoring party.³²

Both common law and civil law courts normally protect the expectation interest of an obligee: "In awarding compensatory damages, the effort is made to put the injured party in as good a position as that in which he would have been put by full performance of the contract"³³ At times, however, the Anglo-American remedy protects only the reliance interest by restoring the innocent party to his position prior to contracting rather than placing him where he would be if the contract had been fulfilled.³⁴ French law appears similarly variable: "It would be surprising if French judges did not, in practice, consider the reliance measure more appropriate in certain circumstances than the expectancy measure."³⁵ In German law recovery is limited to the reliance interest where there is error, unauthorized agency, certain types of initial impossibility of performance, and certain types of statutory prohibition.³⁶

judgment touching his interest on the part of one of the parties. . . . *Promise* denotes a very great progress. . . . But in order that the word shall take the place of the act, there must be security that it will be exchanged for the act at the proper time The guarantee for such fulfilment depends upon coercion.

R. von Jhering, *Law as a Means to an End* 55, 198-99 (I. Husik transl. 1924).

30. See A. von Mehren, *The Civil Law System* 502-03 (1957).

31. Holmes, *The Path of the Law*, 10 Harv. L. Rev. 457, 462 (1897).

32. "[O]ne recalls first how seldom law touches *directly* any case in which a promise has been performed, or in which an inadequate performance has been received in satisfaction. Promise, performance and adjustment are in this sense primarily extra-legal. It needs no argument that if they did not normally occur without law's intervention, no régime of future dealings would be possible." Llewellyn, *What Price Contract?—An Essay in Perspective*, 40 Yale L.J. 704, 718 (1931).

33. Restatement of Contracts § 330, comment a (1932). "Les dommages et intérêts dus au créancier sont, en général, de la perte qu'il a faite et du gain dont il été privé" C. Civ. art. 1149 (64e ed. Petits Codes Dalloz 1964). "Der zu ersetzende Schaden umfaßt auch den entgangenen Gewinn. Als entgangen gilt der Gewinn, welcher nach dem gewöhnlichen Laufe der Dinge oder nach den besonderen Umständen, insbesondere nach den getroffenen Anstalten und Vorkehrungen, mit Wahrscheinlichkeit erwartet werden konnte." BGB § 252 (Goldmann 1961).

34. See Fuller & Perdue, Jr., *The Reliance Interest in Contract Damages*, 46 Yale L.J. 52 (1936).

35. A. von Mehren, *supra* note 30, at 509.

36. *Id.* See BGB §§ 122, 179, 307, 309 (Goldmann 1961).

The impact of damage remedies may be readily assessed. Let the numbers of figure 1 represent cardinal values, for instance, dollars. Protection of the expectation interests of the parties entails assurance that each will receive the benefit of his bargain even if the other does not fulfill his obligations. In our illustration, therefore, adherence to choice "a" guarantees the adhering player a gain of 1 if a contract is initially formed. Combined actions a_1b_2 and b_1a_2 yield a joint product of 0. Since players 1 and 2 must obtain 1 in the first and second of these situations respectively, the breaching party receives only -1. Legal controls thus transform the game of figure 1 in the manner shown in figure 3. Choice "a" is now clearly advantageous to each participant; the new equilibrium solution entails formation and performance of the contract. The outcomes no longer conform to the Prisoner's Dilemma pattern. Figure 4 restates these results in terms of the more general symbols of figure 2.

	a_2	b_2		a_2	b_2
a_1	(1, 1)	(-2, 2)	\longrightarrow	a_1	(1, 1) (1, -1)
b_1	(2, -2)	(-1, -1)		b_1	(-1, 1) (-1, -1)

FIGURE 3

$$\begin{array}{c|cc} & a_2 & b_2 \\ \hline a_1 & (r_1, r_2) & (s_1, t_2) \\ b_1 & (t_1, s_2) & (p_1, p_2) \end{array} \longrightarrow \begin{array}{c|cc} & a_2 & b_2 \\ \hline a_1 & (r_1, r_2) & (r_1, t_2 + s_1 - r_1) \\ b_1 & (t_1 + s_2 - r_2, r_2) & (p_1, p_2) \end{array}$$

FIGURE 4

The effect of protection of the reliance interest on the game of figure 1 is illustrated in figure 5. Here legal controls assure each party that breach by the other will not leave him in a position less satisfactory than that he would have occupied if he had not contracted. Player 1 when a_1b_2 is selected and player 2 when b_1a_2 is selected are therefore guaranteed a return of -1. Since the amount to be divided among them remains 0, the breaching party obtains 1. In this example the satisfaction of each player is independent of his actions. Given initial agreement, presumably each solution is equally probable.

	a_2	b_2		a_2	b_2	
a_1	(1, 1)	(-2, 2)	\longrightarrow	a_1	(1, 1)	(-1, 1)
b_1	(2, -2)	(-1, -1)		b_1	(1, -1)	(-1, -1)

FIGURE 5

These results are generalized in figure 6. It is obvious that effectiveness of

protection of the reliance interest in assuring fulfillment of contractual obligations requires that:

$$\begin{aligned} r_1 &> t_1 + s_2 - p_2 \\ r_2 &> t_2 + s_1 - p_1 . \end{aligned}$$

Breach will be avoided, in other words, so long as legal sanctions cause loss to a party violating his agreement.

	a_2	b_2		a_2	b_2
a_1	(r_1, r_2)	(s_1, t_2)	\longrightarrow	a_1	(r_1, r_2) $(p_1, t_2 + s_1 - p_1)$
b_1	(t_1, s_2)	(p_1, p_2)		b_1	$(t_1 + s_2 - p_2, p_2)$ (p_1, p_2)

FIGURE 6

Parallel conditions are applicable where the expectation interest is protected:

$$\begin{aligned} r_1 &> t_1 + s_2 - r_2 \\ r_2 &> t_2 + s_1 - r_1 . \end{aligned}$$

Here the constraints are trivial. The inequalities may be rewritten as follows:

$$\begin{aligned} r_1 + r_2 &> t_1 + s_2 \\ r_1 + r_2 &> s_1 + t_2 \end{aligned}$$

thus the breaching party will lose unless the sum of the gains to both players is increased by his actions. This would violate the assumptions underlying figure 2. If it is nevertheless possible, the parties would find advantage in revising the contract to permit such nonfulfillment.

Ineffectiveness of the legal sanction may be much more frequent where only the reliance interest is safeguarded. The marginal case is illustrated by the game of figure 5, where

$$\begin{aligned} r_1 &= t_1 + s_2 - p_2 \\ r_2 &= t_2 + s_1 - p_1 . \end{aligned}$$

Any increase in r_1 , r_2 , p_1 , or p_2 or any decrease in s_1 , s_2 , t_1 , or t_2 would induce breach of contract by at least one player. Nevertheless $r_1 + r_2$ is significantly larger than either $t_1 + s_2$ or $s_1 + t_2$.

The possibility that the reliance measure will prove more advantageous to the innocent party is unrealistically precluded in our model by neglect of uncertainty: if r were not greater than p for each player, agreement would not occur.

Morris and Felix Cohen have stated: "The law of contract," as Pollock and Maitland warned us, has, on occasion, 'threatened to swallow up all public

law. . . .³⁷ Certainly there are few legal transactions that have not, at one time or another, been treated on a contract basis.³⁸ The Prisoner's Dilemma principle is similarly relevant to a profusion of problems of legal theory. It has been most frequently applied in analysis of economic organization.³⁹ Much basic antitrust legislation, for example, may be viewed as promoting efficiency by preventing concerns from establishing agreements permitting movement from lower right to upper left solutions. Statutes encouraging joint action by workers or establishing controls over farm output, on the other hand, are designed to facilitate achievement of equilibrium at the upper left by groups so large that unaided coordination is difficult. Prisoner's Dilemma patterns may be interpreted as explaining law in general if one adopts the analytically productive fiction of the social contract.

IV. MORAL OBLIGATION

Justice Holmes asserted: "Nowhere is the confusion between legal and moral ideas more manifest than in the law of contract."⁴⁰ He thought the consequences unfortunate:

I often doubt whether it would not be a gain if every word of moral significance could be banished from the law altogether, and other words adopted which should convey legal ideas uncolored by anything outside the law. We should lose the fossil records of a good deal of history and the majesty got from ethical associations, but by ridding ourselves of an unnecessary confusion we should gain very much in the clearness of our thought.⁴¹

The honoring of agreements has indeed normally been considered an ethical duty: "[T]he Scriptures . . . teach us that God himself, who cannot be compelled by any instituted law, would act contrary to his nature, except he performed his promises. Whence it follows, that the performance of promises proceeds from the nature of immutable justice, which is, in a certain way, common to God and to all rational creatures."⁴²

Legal coercion will be unnecessary to the extent that society is able to convince the individual that keeping his word is an ethical duty. Bentham believed that "law and morals . . . had the same central aim, utility, 'directing

37. Readings in Jurisprudence and Legal Philosophy 100-01 (M. Cohen & F. Cohen eds. 1951).

38. See Shubik, *A Game Theorist Looks at Antitrust Laws and the Automobile Industry*, 8 Stan. L. Rev. 594 (1956); Shapley & Shubik, *Concepts and Theories of Pure Competition*, in *Essays in Mathematical Economics in Honor of Oskar Morgenstern* 63 (M. Shubik ed. 1967).

39. Holmes, *supra* note 31, at 462.

40. *Id.* at 464.

41. H. Grotius, *On The Rights of War and Peace* 148 (W. Whewell transl. 1853). "Why should promises be enforced? The simplest answer is that of the intuitionists, namely, that promises are sacred *per se*, that there is something inherently despicable about not keeping a promise, and that a properly organized society should not tolerate this. This may also be said to be the common man's theory." M. Cohen, *Law and the Social Order* 88-89 (1933).

the actions of men in such a way as to produce the greatest possible sum of good.'"⁴² Kant equated a person confronted with a moral issue to a lawmaker:

The categorical imperative, which is limited to expressing generally what constitutes "obligation," is this: Act according to a maxim which can also claim validity as a universal law. Therefore you must consider your actions in the first place according to the principle with which they comply. Whether this principle is also universally valid can be ascertained only through your reason putting it to the test of whether or not, from the aspect of the role of a universal legislator, it would qualify to form part of a legal system of universal validity.⁴³

The impact of social control through moral suasion rather than through force of law may be incorporated into our analysis simply by making the value of a solution to each player depend in part on the gain or loss to the other. Assume training has induced contracting parties to select that alternative which maximizes joint benefit. Then a game having the dollar payoffs shown in figure 2 will be transformed as depicted in figure 7. Equilibrium has shifted from solution b_1b_2 to solution a_1a_2 , each individual honoring his agreement because of concern for injury to the other resulting from breach.

	a_2	b_2		a_2	b_2
a_1	(1, 1)	(-2, 2)	\longrightarrow	a_1	(1, 1) (0, 0)
b_1	(2, -2)	(-1, -1)		b_1	(0, 0) (-1, -1)

FIGURE 7

The consequences of inculcation of a sense of moral responsibility are generalized in figure 8. The coefficients α_1 and α_2 weight gain to others relative to direct personal profit. Obligations will be fulfilled so long as

$$r_1 + \alpha_1 r_2 > t_1 + \alpha_1 s_2$$

$$\alpha_2 r_1 + r_2 > \alpha_2 s_1 + t_2.$$

If α_1 and α_2 are set equal to 1, as they would be if each player were intent on maximizing total advantage without regard to its distribution, the requirement reduces to

$$r_1 + r_2 > t_1 + s_2$$

$$r_1 + r_2 > s_1 + t_2.$$

We have seen that this condition is also needed to assure performance through protection of expectation interests by provision of a damage remedy. In the limiting case where each player is concerned only with gain to his fellow player there is, of course, no determinate solution. Willingness of one party to sacrifice

42. J. Stone, *Human Law and Human Justice* 128 (1965).

43. I. Kant, *Philosophy of Law* 3 (W. Hastie transl. 1887).

direct personal gain to cause injury to the other can be shown by making α_1 or α_2 negative.

$$\begin{array}{c}
 \begin{array}{cc}
 & \begin{array}{cc} a_2 & b_2 \end{array} \\
 \begin{array}{c} a_1 \\ b_1 \end{array} & \left[\begin{array}{cc} (r_1, r_2) & (s_1, t_2) \\ (t_1, s_2) & (p_1, p_2) \end{array} \right] \longrightarrow
 \end{array} \\
 \begin{array}{cc}
 & \begin{array}{cc} a_2 & b_2 \end{array} \\
 \begin{array}{c} a_1 \\ b_1 \end{array} & \left[\begin{array}{cc} \frac{r_1 + \alpha_1 r_2}{2}, \frac{\alpha_2 r_1 + r_2}{2} & \frac{s_1 + \alpha_1 t_2}{2}, \frac{\alpha_2 s_1 + t_2}{2} \\ \frac{t_1 + \alpha_1 s_2}{2}, \frac{\alpha_2 t_1 + s_2}{2} & \frac{p_1 + \alpha_1 p_2}{2}, \frac{\alpha_2 p_1 + p_2}{2} \end{array} \right]
 \end{array}
 \end{array}$$

FIGURE 8

V. FAMILY LAW: CHINESE ANOMALIES

Ideally, legal and ethical pressures function as mutually reinforcing forms of social control. Occasionally, however, a community seeks through law to coerce activities so dependent on subjective attitudes that they can only be induced through moral suasion. Chinese attempts to compel adherence to Confucian precepts regarding family relationships dramatically illustrate the impossibility of achieving certain desirable patterns of behavior through application of criminal law sanctions.

Bloodworth asserts: "Confucian moral law was founded on conscience, and across the Chinese conscience was written one word: *Chia*—family."⁴⁴ Filial piety was the dominating principle of Chinese morality. Strict obedience to parental commands was supplemented by reaffirmation in ritual of the honored status of preceding generations. The T'ang Code required all officials to retire from office for twenty-seven months following the death of a parent and directed that any couple conceiving a child during this mourning period be sentenced to penal servitude for one year.⁴⁵ Therefore "a brilliant scholar but a bad son commanded no respect in Imperial China and could hope for little advancement."⁴⁶

"The Chinese marriage system . . . was not based on the rule of law but rather . . . largely constructed on the foundation of the rules of propriety . . ."⁴⁷ Confucian teaching stressed female inferiority: "The Master said, Women and people of low birth are very hard to deal with. If you are friendly with them,

44. D. Bloodworth, *supra* note 8, at 108.

45. D. Bodde & C. Morris, *supra* note 17, at 39. See Confucius, *The Analects* 89 (A. Waley transl. 1938).

46. D. Bloodworth, *supra* note 8, at 108.

47. Chiu, *Marriage Laws of the Ch'ing Dynasty, the Republic of China and Communist China*, in 2 *Contemporary China* 64 (E. Kirby ed. 1957).

they get out of hand, and if you keep your distance, they resent it."⁴⁸ Wives were thus subordinated to their husbands: the traditional Chinese term for divorce, *ch'u-ch'i*, means literally "to oust the wife."⁴⁹

Chinese authorities sought to assure the success of family relationships, largely dependent on personal affection, through establishment of a finely graduated system of severe criminal punishments. Mourning was controlled by a rigid schedule making both duration and attire a function of relationship to the deceased. The authority of the parent was rendered almost absolute by state support. A classic Chinese text asserts: "[N]o crime is more grave than that of filial impiety."⁵⁰ Offenses by a parent against a child and by a child against a parent were punished less and more harshly respectively than similar wrongs against those unrelated.

A case involving parricide by mistake demonstrates the extremes which reliance on legal control induced:

Têng Fêng-ta fell while engaged in a fight, his opponent on top of him. The latter picked up a stone and Têng's son fearing that it would be hurled at his father grabbed a knife and made for the attacker. The latter moved and the knife entered Têng's father's belly, killing him. The authorities considered that the son had sought to rescue his father. They presented his case to the emperor and asked that his sentence be reduced from "dismemberment" to "immediate beheading." This was granted.⁵¹

"Detention in prison for strangling" for "disobeying instructions and causing a parent to commit suicide" was the punishment decreed in the following case:

Ch'ên Wên-hsüan scolded his son when the latter brought him a cup of cold tea. The father poured the tea on the ground and picked up a stick with which to beat his son. The son ran away, the father after him. The ground was slippery because of the spilled tea and Wên-hsüan lost his footing, struck his head, and died as a result of his injury.⁵²

48. Confucius, *supra* note 45, at 216-17.

49. Chiu, *supra* note 47, at 66. Little cause was required: "Tsêng Shên, a disciple of Confucius, divorced his wife because she undercooked a pear for his parents. Pao Yung . . . (end of the 1st century B.C.) divorced his wife because she shouted at a dog in her mother-in-law's presence. Chiang Shih . . . (1st century A.D.) divorced his wife because she took too long to fetch water from the river for her mother-in-law who was thirsty." T. Ch'ü, *supra* note 6, at 120-21.

50. Statement from Hsiao-ching chu-su, quoted in T. Ch'ü, *supra* note 6, at 42.

51. Quoted in T. Ch'ü, *supra* note 6, at 47.

52. Quoted in *id.* at 52. The position of a wife involved in the death of her husband was comparable:

Chung Liang-shan, having come home drunk, asked his wife for tea. Impatient because the water took so long to boil, he scolded and struck her with an iron weight, injuring her in the head. To hold him off, she picked up a wooden club. It touched his shoulder, causing pain. Liang-shan then took the club from his wife, grabbed her, and struck her. While dragging her about, he fell. His wife ran off, but Ching again caught up with her, and struck her with his head. In the melee, he hit his head on the door frame, injuring himself. He died the following day.

Id. at 108.

A son who accused his parent of criminal conduct was under the earlier dynasties put to death. In the fourteenth century, however, the punishment was lightened: "Only when the accusation was false was strangling invoked. When the accusation proved to be true, a son was given one hundred strokes and three years' imprisonment."⁵³ The parent, if guilty, was pardoned.

Parental atrocities were considered less serious:

Wang Ch'i's eldest son, Wang ch'ao-tung, hated his younger brother. At one time, the former chased the latter, knife in hand. The father caught Wang ch'ao-tung, tied his hands together and scolded him. The son answered back. This so angered Wang Ch'i that he buried his son alive. He was sentenced by the General of Chi-lin for killing his son inhumanely after the latter had disobeyed instructions. But the Minister of Justice held that since a son who scolded his father was punishable by death, the case should not be considered under the article that dealt with a child who was killed because he had disobeyed instructions. As a result, Wang Ch'i went unpunished.⁵⁴

During the Sung dynasty, in the fifth century, a request by a parent that an unfilial child be sentenced to death was automatically granted.⁵⁵

VI. FAMILY LAW: WESTERN PARALLELS

Use by the Chinese of legal controls to enforce Confucian duties among family members had consequences which appear ludicrous to us. This same conflict between principles of *li* and *fa*, however, affects, though less dramatically, familial institutions in the Western world. Its impact can be illustrated within the framework of our model of Prisoner's Dilemma.

The family has been interpreted as the source of status relationships which formed the basis of society until the triumph of modern libertarian doctrines:

Starting, as from one terminus of history, from a condition of society in which all the relations of Persons are summed up in the relations

53. *Id.* at 72.

54. *Id.* at 24.

55. *Id.* at 26. Similar attitudes have been noted in rural Mexico:

They were discussing a case at dinner of a son who had to go to jail in Villa Alta because he hit his father. I said, "For that they sent him to jail?" The father said, "Of course," and sounded surprised at my question. I probed further: "But many men beat their wives, and they never go to jail." He answered, "Wives are one thing, fathers another." Then I asked what if a father was in the wrong. The son in the family said, "Fathers are never in the wrong for beating their sons. They always do it for their own good." I asked if a father under their law could ever be proved guilty for doing wrong to a son, no matter what the son's age. The answer: "A father cannot do wrong with his children."

Nader, *An Analysis of Zapotec Law Cases*, 3 *Ethnology* 404, 415 (1964), reprinted in *Law and Warfare—Studies in the Anthropology of Conflict* 117, 134 (P. Bohannan ed. 1967). There are also African parallels: "During 'Baganda times,' when the Baganda ruled Sebeiland and brought much trouble to the land and made people work, Arapchemasyandich of Kapchesi clan came home and saw his son in the courtyard and suddenly speared him to death. Nothing was done because the son was of his own blood." W. Goldschmidt, *Sebei Law* 92 (1967). The traditional Chinese differentiation had become less pronounced by the beginning of the nineteenth century. See D. Bodde & C. Morris, *supra* note 17, at 461-67.

of Family, we seem to have steadily moved towards a phase of social order in which all these relations arise from the free agreement of Individuals. . . . All the forms of Status taken notice of in the Law of Persons were derived from, and to some extent are still coloured by, the powers and privileges anciently residing in the Family. . . . [W]e may say that the movement of the progressive societies has hitherto been a movement *from Status to Contract*.⁵⁶

While it was generally acknowledged that marriage was founded on contract, authorities asserted: "But this agreement differs essentially from all others. This contract of the parties is simply to enter into a certain status or relation. The rights and obligations of that status are fixed by society in accordance with principles of natural law, and are beyond and above the parties themselves."⁵⁷ The supposed sacredness of the obligations undertaken hindered their alteration: "Unlike other contracts, [marriage] is one instituted by God himself, and has its foundation in the law of nature. It is the parent, not the child, of Civil Society."⁵⁸ Unwillingness to accept the contracting parties as equal before the law was also an impediment to change:

The merging of her name in that of her husband, is but an emblem of the fate of all her legal rights. The torch of Hymen lights up the funeral pile on which those rights are sacrificed. The legal doctrine is, that a husband and wife become but one person, and that person is the husband. He is the substantive, she the mere adjective—he the significant figure, she the cipher. . . . In the eye of the law, he is every thing, and she nothing.⁵⁹

Erosion of beliefs supporting traditional views of family relationships has nevertheless permitted encroachment of the premise that marriage is little more than a secular partnership. In *Pale v. Pale*,⁶⁰ Herbert's mythical Justice Wool asserted: "It is possible to hold, as some do, that marriage is a holy sacrament It is possible, again, to hold that marriage is a civil contract What is impossible, both in reason and expediency, is to combine the two views—to say that marriage is both a sacrament and a civil contract"⁶¹ His attack was directed at impediments to divorce:

56. H. Maine, *Ancient Law* 163, 164-65 (Beacon ed. 1963).

57. 1 J. Schouler, *Marriage, Divorce, Separation and Domestic Relations* 17 (6th ed. A. Blakemore 1921).

58. *Lewis v. Tapman*, 90 Md. 294, 298, 45 A. 459, 461 (1900) (quoting from a then current treatise on domestic relations law).

59. Walker, *The Legal Condition of Women*, 1 W.L.J. 145, 147 (1849), reprinted in part in *The Golden Age of American Law* 316, 318 (C. Haar ed. 1965). "Marriage, by Natural Law, we conceive to be such a cohabitation of the male and female, as places the female under the protection and custody of the male; for such a union we see in some cases in mute animals. But in man, as being a rational creature, to this is added a vow of fidelity by which the woman binds herself to the man." H. Grotius, *supra* note 41, at 95. For an interesting example of elevation of women in an archaic society see K. Polanyi, *Dahomey and the Slave Trade* (1966). "[I]n ancient Egypt, the husband was required to promise to obey the will of his wife." T. Coffin, *The Sex Kick—Eroticism in Modern America* 38 (1966).

60. A. Herbert, *Uncommon Law* 425 (1935).

61. *Id.* at 427-28.

[A] man who wishes to surrender his rights under a contract of marriage is impeded by obstacles which have an ecclesiastical origin wholly alien to the principles of civil law. For example, it is impossible to imagine a civil action in which, both parties having violated clauses which were essential to the real purpose of a contract, the Court would nevertheless insist that the contract should still subsist and be binding on them both.⁶²

If one may equate divorce with rescission, or with a damage remedy where provision is made for support, it is obvious that perpetuation of an unsuccessful marriage is an attempt to enforce specific performance of the original agreement. Such action can, of course, be defended through positing benefits to children or society external to the contracting parties. However, it remains very poor contract law, since legal process is unable to compel the parties to honor their obligations: "[F]amily relationships belong above all to that part of morals which governs sentiments In the first rank of these sentiments we find love But the law is powerless with respect to the duty of love and even, to a degree, the duty of familial piety inasmuch as it involves love."⁶³ Hegel argues:

The family, as the immediate substantiality of mind, is specifically characterized by love The right which the individual enjoys on the strength of the family unity . . . takes on the *form* of right . . . only when the family begins to dissolve. At that point those who should be family-members . . . now receive their share separately and so only in an external fashion by way of money, food, educational expenses, and the like.⁶⁴

The predicament which may result is illustrated in figure 9. Preclusion of divorce prevents attainment of solution b_1b_2 . Because the law is unable to control the subjective requirements of happy family life, however, it is impossible to assure the preferred outcome a_1a_2 . The parties to the marriage, if incompatible, are thus left to select unsatisfactory solutions a_1b_2 or b_1a_2 , or some combination of these.

62. *Id.* at 428.

63. J. Dabin, *General Theory of Law*, in *The Legal Philosophies of Lask, Radbruch, and Dabin* 225, 467 (K. Wilk transl. 1950). Current Chinese legal theory is in accord: "It cannot be thought that by using an outside coercive force, affection between husband and wife can be created or sustained. . . . Punishment actually is unable to resolve problems involving the quality of people's affection, thinking, and morality. . . . Punitive legal restraints are inadequate for improving husband and wife relationships or family relationships." Tung, *A Discussion of Bigamy and Adultery*, 4 *Fa-Hsüeh* 36, 37-38 (1957), reprinted in J. Cohen, *The Criminal Process in the Peoples Republic of China, 1949-1963: An Introduction* 318, 319-20 (1968).

64. G. Hegel, *Philosophy of Right* 110-11 (T. Knox transl. 1942). "A family the members of which reciprocally insist upon their legal rights has already disintegrated in most cases as a social and economic association. If they appeal to the judge, they have arrived at the point where they part company." E. Ehrlich, *Fundamental Principles of the Sociology of Law* 56 (W. Moll transl. 1962).

GAME THEORY

	a ₂	b ₂
a ₁	(1, 1)	(2, -10)
b ₁	(2, -10)	(-1, - 1)

FIGURE 9

VII. CONCLUSION

The Chinese concepts *li* and *fa* encapsulate the distinction between moral and legal controls common in Western thought. This dichotomy can be viewed as the source of alternative solutions to the predicament of nonoptimal equilibrium characterized by the Prisoner's Dilemma. The social need for binding promises can be satisfied by expanding the preference function of the individual to include as a value the welfare of others. On the other hand, as in the law of contract, legal sanctions can discourage default by compelling one whose conduct is unacceptable to bear its costs. Aspects of Chinese and Anglo-American family law demonstrate that these two techniques are not perfect substitutes: some advantageous relationships require subjective attitudes not amenable to extrinsic regulation.

