THE DARK SIDE OF THE FORCE*

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> **... /T/he age of chivalry is gone. That of sophisters, economists, and calculators, has succeeded: and the glory of Europe is extinguished for ever.[2]**

Edmund Burke wrote that accusation against our profession back in the year 1790. Yet, 200 years later, it seems we economists and sophisters have still not managed to extirpate chivalry and generosity. In an article in the current issue of the JOURNAL OF ECONOMIC PERSPECTIVES[3] that received extensive journalistic coverage,[4] the authors reviewed the notorious evidence that people perversely persist in contributing to charities and public goods. And violating the self-interest postulate again, in Prisoners' Dilemma experiments most subjects choose COOPERATE rather than DEFECT. However, one walk of life stands out as an embarrassing exception. Who is it who turn out to be almost as selfish as economic theory makes out? The answer: only economists and their students! Thus, like Socrates, we economists are convicted not only of untruth but of corrupting the young.

Nevertheless, I am among those who remain skeptical about the significance of self-reported contributions to charity, or about behavior in hypothetical or small-stakes Prisoners' Dilemma experiments. My guess is that economists are not more selfish, but only more <u>acceptant</u> of human selfishness as a fact of life.

There's an updated proverb from <u>Ecclesiastes</u>:

> **The race is not always to the swift, or the battle to the strong -- but that's the way to bet.**

Similarly, unselfishness certainly exists, but don't bet on it.

With regard to the power of love and chivalry as organizing principles

of social life, as usual Adam Smith said it best:

> **In civilized society [man] stands at all times in need of the co-operation and assistance of great multitudes, while his whole life is scarce sufficient to gain the friendship of a few persons.**[5]

Love and friendship may sustain cooperation among a few partners, but the elaborate division of labor essential for modern life has to rely on the force of self-interest.

Pushing this point to an extreme, Hayek has contended that only when people learned to be selfish, learned to overcome their innate instincts toward communal sharing, did it become possible to make the transition from primitive society to free civilized life. Adapting his words slightly:

> **These habits [of generosity] had to be shed ... to make the transition to the ... open society possible.... [The] mores [of the market economy] involve withholding from the known needy neighbours what they might require, in order to serve the unknown needs of thousands of unknown others.**[6]

So, Hayek would claim, economists aren't corrupting the young by teaching them selfishness -- we're civilizing them!

But my point today is different. I want to argue that our profession has on the whole taken not too harsh but rather too benign a view of the human enterprise. Recognizing the force of self-interest, the mainline Marshallian tradition has nevertheless almost entirely overlooked what I will call the dark side of the force -- to wit, crime, war, and politics. That's like telling the story of Luke Skywalker and Obe Wan Ben Kenobe without mentioning Darth Vader.

"Crime", "war", "politics" -- the words do not even appear in the Index

to Marshall's Principles of Economics.[7] Or take the characteristically flat and prosaic way Marshall defines economics on p. 1 of the Principles:

> ....ECONOMICS is a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of wellbeing.

So, for Marshall, economics is bean-counting. Boring, boring, boring. The title page of the Principles carries the famous epigraph: "Natura non facit saltum" -- Nature doesn't make leaps. What Marshall really meant was: "No excitement please, we're English here."[8]

By way of contrast, consider Vilfredo Pareto:

> The efforts of men are utilized in two different ways: they are directed to the production or transformation of economic goods, or else to the appropriation of goods produced by others.[9]

The rhetoric isn't too thrilling, I admit; perhaps something was lost in the translation. But the thought is more vigorous. Pareto is saying, sure, you can produce goods for the purpose of mutually beneficial exchange with other parties -- OK, that's Marshall's 'ordinary business'. But there's another way to get rich: you can grab goods that someone else has produced. Appropriating, grabbing, confiscating what you want -- and, on the flip side, defending, protecting, sequestering what you already have -- that's economic activity too.

Take television. Cops chase robbers, victims are stalked by hitmen (or should I say hitpersons?), posses cut off rustlers at the pass, plaintiffs sue defendants, exorcists cast spells against vampires. What is all this but muscular economics? Robbers, rustlers, hitpersons, litigants -- they're

all trying to make a living. Even vampires are making economic choices: sucking blood is presumably the cost-effective way of meeting their unusual nutritional needs.

The balance between these modes of economic activity -- the one leading to greater aggregate wealth, and the other to conflict over who gets the wealth -- provides the main story line of human history. Following my teacher Joseph Schumpeter I remind you that Karl Marx, though a flop as an economist, did appreciate the importance of the dark side, the conflict option. But Marx's vision was distorted by his preconceived idea that all kinds of conflict, including wars among nations and even the battle of the sexes, could be squeezed into the ill-fitting mold of the class struggle:

> **The history of all ... society is the history of class struggles.**[10]

This one-dimensional outlook led him to what in principle he deplored, fatuous utopianism, in fantasizing that moderation of the class struggle would bring on universal peace:

> **In proportion as the antagonism between classes within the nation vanishes, the hostility of one nation to another will come to an end.**[11]

Marx had this totally wrong: the truth is the reverse. That in-group amity rises and falls in proportion to external menace, and vice versa, is a practically universal truth.[12]

Niccolo Machiavelli saw matters more clearly:

> **It is not gold, but good soldiers that insure success... for it is impossible that good soldiers should not be able to procure gold.**[13]

This is Machiavelli's version of the golden rule: <u>he who gets to rule, will get the gold</u>.

Human history is a record of the tension between the way of Niccolo Machiavelli and what might be called the way of Ronald Coase. According to Coase's Theorem, people will never pass up an opportunity to cooperate by means of mutually advantageous exchange. What might be called Machiavelli's Theorem says that no-one will ever pass up an opportunity to gain a one-sided advantage by exploiting another party. Machiavelli's Theorem standing alone is only a partial truth, but so is Coase's Theorem standing alone. Our textbooks need to deal with both modes of economic activity. They should be saying that decision-makers will strike an optimal balance between the way of Coase and the way of Machiavelli -- between the way of production combined with mutually advantageous exchange, and the dark-side way of confiscation, exploitation, and conflict.

Crime, war, and politics have received some coverage from economists, it is true, but in the past only as specialized and rather esoteric topics. More recently, under the heading of 'rent-seeking', the struggle for resource control is coming to be recognized as a central issue. But rent-seeking, in its usual connotation of maneuvering for licenses and monopoly privileges, is to <u>conflict</u> as milkwater is to blood, sweat, and tears. The appropriative struggle can also take more energetic forms, for example strikes and lockouts, bank robbery, revolutionary warfare, and international confrontations. In short, the dark side is no mere outlying peninsula but rather an entire intellectual continent on the map of economic activity.

(As we come to explore this continent, economists will encounter a number of native tribes -- historians, sociologists, psychologists, philosophers, etc. -- who, in their various intellectually primitive ways, have preceded us in reconnoitering the dark side of human activity. Once we

economists get involved, quite properly we'll of course be brushing aside these a-theoretical aborigines.)[14]

I now offer two propositions about cooperation and conflict. First: cooperation, with a few obvious exceptions, occurs only in the shadow of conflict. Only if we understand threats and struggles can we properly appreciate how, why, and when mutually advantageous exchange -- between husband and wife, between capital and labor, between nation and nation -- can take place. In litigation, for example, it is fear of trial, with its attendant costs and uncertainties, that impels plaintiff and defendant toward negotiated settlement. And, furthermore, the perceived chances for victory at trial shape the specific terms of settlement.[15]

With regard to international conflict, I shall paraphrase Carl von Clausewitz:

> **For achieving the political aims that are the end of war, the decision by arms is what cash settlement is in trade.**[16]

Trade can be conducted without cash settlement, but the ability to make cash settlement ultimately constrains what trades a merchant can engage in. Similarly, Clausewitz is saying, a state remains influential in peacetime only owing to the damage it could inflict in the event of war.

But, you may say, what of the social arrangements, laws, and judicial systems that humans have devised to temper the power struggle? That brings me to my second proposition: when people cooperate, it is generally a conspiracy for aggression against others (or, at least, is a response to such aggression).

A nation whose institutions favor Coasian cooperation, Marshall's 'ordinary' business activity, will grow wealthy. But, Adam Smith told us:

> **An industrious, and upon that account a wealthy nation, is of all nations the most likely to be attacked...**[17]

If the gains from group aggression are big enough, invaders can get their act together. Sigmund Freud said:

> **It is always possible to bind together a considerable number of people... so long as there are other people left over to receive the manifestations of their aggressiveness.**[18]

And on the defensive side, invasion cements the unity and fighting power of the group attacked.

The bottom line is that nations with wealth-enhancing laws and institutions will not be able to enjoy the fruits thereof unless, when challenged, they can put up a tough fight. And the same holds for political parties, clubs, families, and business firms.

In what follows I will present some more detailed thoughts on the dark side of economic activity, under four headings: (1) the sources of conflict; (2) the technology of conflict; (3) the modelling of conflict interactions, and (4) the consequences of conflict.

I. SOURCES OF CONFLICT

Underlying the tradeoff between the way of Ronald Coase and the way of Niccolo Machiavelli are the contending parties' opportunities, preferences, and perceptions.

Opportunities: Economists can safely predict that decision-makers will lean in the direction of conflict or lean in the direction of cooperative production and exchange, whichever is more profitable on the margin. Productive complementarity favors the exchange option: nations that trade

more fight less (Polachek [1980]). Also, since men and women complement one another we see men fighting other men, more frequently and more intensely, than they fight women. At the opposite extreme, recall the Western movie where the villain says to the marshal: "I got nothin' against you, Wyatt Earp, but this town ain't big enough for the two of us." No complementarity there: it's a constant-sum situation, and moviegoers can count on seeing a shootout. Still, generally speaking, adversaries always share <u>some</u> mutual interest, if only in reducing the intensity of the struggle.

The law often regulates conflict. Strikes and lockouts are not supposed to involve physical violence. In the world of commerce, merchants are allowed to compete by offering lower prices, not by arson and sabotage. And in judicial proceedings, trial by lawyers has supplanted trial by combat. In olden times a claimant's rights would be upheld by a champion at sword and lance. Now litigants are represented by attorneys -- that is, by champions at lies, sophistry, and obfuscation. (Is this an improvement? If time permitted I'm sure I could convince you that replacing trial by combat with trial by lawyers was a ghastly mistake. Ask yourself, which sort of champion is more likely to be found fighting on the side of the just cause: Sir Lancelot or Melvin Belli?)

Even more important than limiting the scope and methods of conflict, the law generally stands ready to enforce agreed settlements. But note the word 'enforce': <u>regulation</u> of conflict can be achieved only if the regulator has the power to inflict even heavier damage.

I wish I had time to address another domain of sabotage and combat: the promotion ladder or tenure track, otherwise known as the rat-race. But I have to move on, taking the time only for a remark or two about the other

elements underlying the choice between settlement and conflict: preferences and perceptions.

Preferences: Whereas opposed interests (mutually inconsistent opportunity sets) can generate conflict even among entirely 'rational' parties, there are also seemingly 'irrational' factors: hatred, xenophobia, or uncontrollable anger. These sentiments and passions have presumably evolved under the force of natural selection (Hirshleifer [1977], Frank [1988]). The Darwinian rationale for strong group identification and its converse, xenophobia (however dysfunctional they may seem in modern environments), is evident enough:

> **A tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to aid one another, and to sacrifice themselves for the common good, would be victorious over most other tribes...**[19]

And:

> **Envy or hatred seems also to be a highly persistent feeling, perhaps more so than any other that can be named....It seems to be the complement or the converse of the true social instinct.**[20]

Even uncontrollable anger can serve a useful role. A predisposition to anger signals 'Don't tread on me', a warning that often serves to deter challenges.

Perceptions: Granted that decision-makers are always balancing between the two ways of making a living, the Coasian way and the Machiavellian way, no-one can ever actually know what the relative costs and benefits of the two options truly are. People have to act on the basis of perceptions. As a broad generalization, uncertainty on the conflict side swamps that on the

side of cooperation. ("War is the province of chance" -- Clausewitz.)[21] Blainey [1973] goes so far as to claim that war would never occur save for over-optimistic perceptions. He regards war as a kind of school. As soon as the weaker side truly learns its lesson, it will submit and the war must come to an end. There's something to this, but Wittman [1979] has pointed out that events like defeat in battle, which convince one party it truly is weaker and thus incline it more toward peace, make the opponent more confident and thus insistent upon more extreme terms. So reduced uncertainty about the outcome of struggle need not necessarily promote peace.

II. THE TECHNOLOGY OF CONFLICT

In dealing with productive technology, economists do not concern themselves with the design of pipes, girders, beams, engines, or transistors -- these matters lie in the province of engineers and technicians. And the proper employment of technology is the task of the businessman. Our job is to analyze might be called the <u>macro-technology</u> of production: are there increasing or decreasing returns to scale, are labor and capital complements or substitutes, and so forth.

When it comes to the <u>technology of conflict</u>, the situation is very similar. Guns, bombs, missiles, etc. are designed by technical experts, while their proper employment is the responsibility of military leaders. And even in non-military conflicts, there are players with corresponding roles. Politicians hire speech-writers and media consultants to design optimal strategies of campaign lies and propaganda; litigants hire attorneys to concoct clever ways of hoodwinking judges and juries. These

practitioners are, in effect, the engineers and entrepreneurs of the conflict industry. But, owing to the default of the economists, a huge intellectual gap has remained: very little has ever been said about the macro-technology of conflict. Yet increasing versus decreasing returns, economies of scale and scope, complementarity of labor and capital are as applicable in the conflict domain as in the productive domain.

One illustration. Starting in the 15th century, cannon replaced catapults and trebuchets as siege weapons; as personal armament, the musket supplanted bow and arrow. One's first impression might be that the newer weapons were unambiguously superior, technically speaking. The correct answer is by no means so simple; it involves comparative costs, increasing returns, and complementarity. Cannon allowed industrial skills in the factory and workshop to substitute for scarcer battlefield skills. And economies of scale in cannon manufacture gave kings a cost advantage over petty lords and barons. As for muskets, they were so inaccurate that, until the rifle came along, a man with a firearm was no match for a trained archer. In the musket's favor were, once again, economies of scale in industrial production and, even more important, the opportunity to combine capital with less-skilled labor. It took years of practice and indeed a whole way of life to make an effective bowman. But a week of drill sufficed for training a musketeer to shoot off his weapon in the general direction of the foe.[22]

In analyzing the macro-technology of conflict, one would like to have plausible functional forms analogous to the Cobb-Douglas or CES formulas of production theory. These functions would describe how 'inputs' of fighting efforts on the two sides generate 'outputs' in the form of victory or

defeat. Two canonical families of such 'Contest Success Functions' have been described.[23] In the one family, the outcome depends upon the ratio of the fighting efforts, in the other family upon the difference. The ratio form is applicable when clashes take place under theoretically ideal conditions such as a uniform battlefield, full information, and absence of fatigue. The difference form applies in the more realistic case where what Clausewitz called friction[24] plays a role: where there are sanctuaries and refuges, information is imperfect, and even the victor is subject to disorganization and exhaustion. And while I have been using military metaphors and examples, analogous statements can be made about the 'technology' for translating fighting efforts into victory even in non-military struggles like lawsuits or political campaigns.

Somewhat analogous to rapidly diminishing returns in production would be low decisiveness in conflict activity. A superior force is by definition always at an advantage, but how much of an advantage? Sometimes a small edge can have drastic consequences. In the Punic Wars the opponents were very nearly matched, and conceivably the outcome might have gone either way. But the balance having tilted toward Rome, the outcome was decisive in the most total sense: Carthage was razed to the ground. The Franco-Prussian War of 1870 was far less decisive. Despite clear Prussian victory on the battlefield, France had only to pay an indemnity and surrender two provinces. Less than 50 years later, a turn of the tide reversed this outcome.

When decisiveness is low the parties are more likely to choose peace -- or, at any rate, to reduce the intensity of struggle. In domestic politics, constitutional protections for minorities reduce the decisiveness of

majority supremacy. If election defeat doesn't entail deprivation of life and property, people need not be excessively concerned about or invest as much effort in political campaigns.[25]

Economic conflict theory helps explain a major paradox of modern politics. We are so used to seeing wealth redistributed from the rich to the poor that it no longer seems surprising. Yet the half of the population above the median wealth surely has more political strength than the half below the median. How can the lower half gain at the expense of the upper half, i.e, the weak defeat the strong in the redistributive struggle? The main answer -- note that I set aside sheer generosity on the part of the rich -- is that the poor have a comparative advantage in conflict as opposed to production. Or looking at it from the other point of view, when it comes to appropriative struggles the rich constitute an attractive target while the poor do not. Think of this as the four P's: populist politics are profitable for the poor. And more generally, when the decisiveness of political conflict is not too great, groups finding themselves poorer than before will typically become politically more bellicose, while newly enriched groups become more pacific and accommodating. When the textile industry is doing well, it concentrates on doing business. When times are hard, it sends delegations to Washington instead.

In military contests similarly, sometimes the weaker side unexpectedly 'wins' -- at least in the relative sense of improving upon its initial position. The Vietnam War is an evident instance. Once again, this is most likely to occur when the decisiveness of conflict is low. In Vietnam, topography and international relations combined to make for low decisiveness. (The U.S. of course owned nuclear weapons that could have

been totally decisive, but diplomatic considerations precluded their use.)

On the other hand, if the decisiveness parameter is sufficiently high, i.e., if a preponderance of force makes an enormous difference for the outcome, the advantage tilts heavily to the stronger side. This corresponds to a 'natural monopoly' in the conflict industry, leading very likely to a struggle to the death -- as between Rome and Carthage, or Czarists versus Bolsheviks in revolutionary Russia.

Many other aspects of conflict technology cry out for investigation, for example when does the offense have the advantage and when the defense, and what are the roles of geographical distance and terrain? But I must move on to my next major topic.

III. MODELLING CONFLICT AND ITS OUTCOME

To some extent this will be familiar ground. Conflict interactions, like all economic interactions, involve equations of optimization on the decision-making level and of equilibrium on the society-wide level. But just as we have different models in standard theory depending upon the intended application to international trade or industrial organization or income distribution, differing 'stylized facts' serve to shape the models appropriate for various domains of conflict theory. In labor-management relations both factors are essential for production, so a strong community of interests works to moderate the struggle. Litigation is closer to a constant-sum game. Yet litigation is far from total war, for one thing thanks to the exclusion of direct violence, for another because of limited stakes: at issue are only the specific rights or damages claimed.[26]

In contrast with standard theory, conflict theory can only rarely use

the 'large numbers - perfect competition' simplification. We almost always are dealing with small numbers à la Cournot, Stackelberg, etc. The question then becomes, essentially: who fights whom, and how hard?

I want to propose here a distinction between two elemental 'atoms of conflict' -- the horizontal and the vertical. In horizontal conflict, while one party might be stronger than the other, strategically they are on a level, making the Cournot solution applicable. Vertical or hierarchical conflict, in contrast, involves a superior and inferior. The parties are no longer strategically on a level; the superordinate player is one able to issue a credible threat and/or promise as to how he will respond to the subordinate's behavior.[27]

By combining these 'atoms', various molecular configurations can be visualized. The Prisoners' Dilemma is a triangular pattern in which a single superior seeks to defeat or exploit two potentially allied subordinates, the issue being whether the subordinates can get together to frustrate the superordinate.[28] Or conceivably, the triangle might be inverted with two allied superiors cooperating yet competing in the attempt to exploit an inferior. I believe that exploration of these patterns would shed considerable light upon the various types of alliances[29] formed by individuals, groups, and nations. But once again, I must break off to say just a few words about my final topic.

IV. THE CONSEQUENCES OF CONFLICT

Possibly starting with the alleged extermination of the Neanderthals by modern Homo sapiens, the main outlines of human geography and history have been shaped by the interaction of the productive versus conflictual modes of

economic activity. The sizes and shapes of nations are determined by increasing and decreasing returns to geographical extension, as influenced by military and productive technology.[30] As already suggested, the introduction of cannon into siege warfare favored larger over smaller political units, hence led to a sharp reduction in the number of independent principalities from the 15th century on. Or, to mention one other example, starting about the same time the combination of cannon and all-weather sailing vessels made possible the imperial expansion of the European powers to America, Africa, and Asia.

Looking within, the state is traditionally defined as having an effective monopoly of force within defined borders. But this monopoly is always threatened by coups, subversion, and disorders.[31] Modern developments in transportation and communication have tended to favor increased centralization on both military and productive grounds. Militarily, were it not for the railroad the South would surely have won its independence in the American Civil War. But then, perhaps, the productive advantages of a larger trade area would have led to ultimate reunification at some later date after the demise of slavery. To cite only one other development, in recent years cheap handguns have made the exercise of force within nations more 'democratic', so to speak, with largely unwelcome consequences.

I will close with some remarks on the implications of the conflict option for the very fabric of human nature. The possible evolutionary function of hatred, anger, and xenophobia has already been mentioned. On the physical side, the human species exhibits considerable sexual dimorphism: on average, males are bigger and stronger than females. This is

not because big men are more productive -- everyone knows that women have always done most of the work. No, big and strong males have evolved in order to fight other big and strong males. And, returning to the psychological side, male bonding (Tiger [1969]) is, at least plausibly, a response to increasing returns to group size in combat. And finally, the hypertrophy of the human brain has been, though not without controversy, attributed to the advantages of cleverness and guile in combat, politics, and social intrigue.

* * *

The Greek philosopher Heraclitus is supposed to have said: "War is the father of all things." A more accurate statement, which surprisingly enough is also more politically correct, would be: "War is the father of all things, and peace is the mother." Or, to make Edmund Burke's amends for his previously quoted harsh thought about economists, I can cite him here in a more palatable vein:

> **...every human benefit and enjoyment, every virtue, and every prudent act, is founded on compromise and barter.**[32]

Thus, in recognizing the role of conflict we must not go overboard in the other direction. All aspects of human life are responses not to conflict alone, but to the interaction of the <u>two</u> great life-strategy options: on the one hand production and exchange, on the other hand appropriation and defense against appropriation. Economics has done a good job in dealing with the way of Ronald Coase; what we need now is an equally subtle and structured analysis of the <u>dark side</u>: the way of Niccolo Machiavelli.

ENDNOTES

1. This is a slightly expanded version of the Presidential Address delivered at the annual meeting of the Western Economic Association on June 22, 1993 under the title Cooperation, Conflict, and All That.

2. Quoted in James [1984], p. 63.

3. Frank, Gilovich, and Regan [1993].

4. See The Economist, May 29, 1993, p. 71.

5. Smith [1937 (1776)], p. 14. See the excellent discussion of Smith's views on this topic in Coase [1976].

6. Hayek [1979], Epilogue.

7. Marshall [1920].

8. I hasten to add that Marshall's personal concerns went beyond this straightjacket definition. From many asides in the Principles and elsewhere, we know that his interests extended to questions like non-pecuniary motivations and the molding of human character. But, evidently, he regarded such matters as outside the scope of scientific economics.

9. Quoted in James [1984], p. 160.

10. Quoted in Bartlett [1968], p. 686.

11. Quoted in Bartlett [1968], p. 687.

12. An excellent discussion appears in Ardrey [1966], Ch. 8.

13. Quoted by Gilbert [1941], p. 15.

14. A side note to my good friends and honored colleagues in other disciplines. How do I reconcile these comments with the undoubted fine work, in conflict analysis and other areas, being produced by anthropologists, political scientists, psychologists, and so forth? The answer is simple. When these researchers do good work, they're doing economics!

15. See Cooter, Marks, and Mnookin [1982].

16. Without violating Clausewitz's meaning, I have conflated here two separate quotations:

> **For political aims are the end and war is the means...**

and:

> **The decision by arms is for all operations in war, great and small, what cash settlement is in trade.**

See Rothfels [1941], pp. 104,105.

17. Smith, The Wealth of Nations [1937 (1776)], p. 659.

18. Quoted in Tripp [1970], p. 668.

19. Darwin, The Descent of Man, p. 500.

20. Darwin, The Descent of Man, p. 483.

21. Quoted in Tripp [1970], p. 682.

22. For differing views on this history see Batchelder and Freudenberger [1983], Parker [1988], and Anderson [1992].

23. Hirshleifer [1989].

24. See the discussion in Rothfels [1941], p. 103.

25. Commentators and publicists often deplore the low voter turnout in American elections. For the reasons given above, this should be taken as a sign of a healthy polity.

26. Recent changes in tort law allowing punitive or exemplary penalties beyond actual damages incurred have evidently tended to increase the prevalence and intensity of litigation struggles. As a secondary implication, as the stakes grow larger we would expect to see the stronger or richer side winning a larger fraction of the contests.

27. See Thompson and Faith [1981].

28. For an analysis of the 3-person Prisoners' Dilemma see Stephens [1992].

29. See Conybeare, Murdoch, and Sandler [1993].

30. See Friedman [1977], Wittman [1991].

31. Usher [1989] provides an interesting economic analysis.

32. Quoted in James [[1984], p. 86.

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