

Cognitive Impediments to a Statistical Consideration of War's Consequences.

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## Impediments to a Statistical Morality of War.

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Within any party to an international conflict there are always arguments for, and against, the use of military force, whether this be starting or continuing a war or just demonstrating resolve. These arguments are ethical arguments, although the arguments pro and con tend to refer to different families of ethical principles. Some of these arguments are utilitarian. Utilitarian arguments against war measure its harms and conclude all would be better off without it. Utilitarian justifications for war extend the decision process of military command -- comparing the gains and losses of possible courses of military action and picking the one with the best prospects -- to the choice between military and non-military options. Many of these utilitarian arguments are statistical -- they present not only counts and measures, but also estimates or predictions of counts and measures. While no decision about going to war is made solely on these grounds, utilitarian and statistical arguments play enough of a role that they should be well made; and when well made they merit being well heeded.

The ethical quality of a modern democracy's foreign policy depends in part on the quality of the arguments its citizens regularly bring to bear on its foreign policy decisions. My purpose in this essay is to examine several features of the unthinking everyday use of utilitarian arguments about war. Most of these are forms of selective inattention to costs, involving habits of thought whose automatic use means that opportunities for effective argument are lost. In addition to pointing to ways to make statistical arguments more complete and balanced and hence more true, I will also discuss possible approaches for making true statistical arguments more psychologically effective and ways to make them be heard at the right place and time, by leaders when making decisions.

Harms to particular innocents are strongly motivating and make convincing arguments. World War I was triggered by the assassination of an individual, Austrian Archduke Franz Ferdinand. Specific incidents figured heavily in debate about the Vietnam War. Of these the My Lai massacre is notable.

On March 16, 1968, during the campaign to eliminate Viet Cong influence in Quang Ngai Province in northern South Vietnam, a brigade-sized task force of the U.S. Army's Americal Division, ordered to conduct a search and destroy operation, entered the village of My Lai and killed 175 to 400 unarmed Vietnamese men, women, and children (Peers Report, in Goldstein, Marshall, and Schwartz, 1976, p 46). When this became public in November, 1969, and later when the responsible officers from LT Calley and Capt. Medina up to Generals Young and Koster were let off with little punishment, it provided strong arguments against continuing the war. The story of the massacre of civilians in My Lai had features that made it an effective argument: particular victims in a particular place and time; death dealt by hand, face to face; intentional brutality against unarmed innocents; and even the war's harm to the perpetrators -- "I gave them a good boy, and they made him a murderer" (Hersh, 1970, p 181). This and other incidents, along with U.S. losses, provided compelling antiwar arguments for many citizens. The effect was evident to Congress and the government, and contributed to a reluctance to pursue the war.

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When the consequences of a decision whether to use military force are in the future, there is no particular information available for making the consequences vivid. And when the scope of the decision is immense, even if it were known which individuals have been or will be affected, no one could state all the costs and gains. Even if some hero could do so no one could tolerate listening to them. In these circumstances people attempting to address the consequences fully must use statistical and numerical descriptions of costs: counts of the dead, the injured, the families destroyed; counts of our soldiers, their soldiers, and noncombatants killed; measures of psychological suffering; measures of lost goods and supplies, of destroyed capital and crippled industry, and of the common debt; projections of environmental effects and societal effects of veterans' psychological instability; estimates of that damage which has not been formally counted, and predictions of the costs to come.

But how effective can dull statistical arguments be? The extent and direction of World War I were anticipated by no one. Modern predictions warn of dreadful costs of nuclear war. Yet we may be condemned to charge blindly into conflicts whose consequences could have been anticipated, and indeed were anticipated, but had no influence on the decision because they could only be stated as statistical estimates.

Measures of gains and losses in utilitarian (and non-utilitarian) military ethics frameworks.

The attraction of considering consequences of military policies is broadly felt. It is most characteristic of the utilitarian approach, but it also figures in several schools of political and military ethics. The requirement to attend to the effects of one's actions provides a motivation for a statistical approach to the consequences of war.

In a strictly utilitarian theory the sole moral criterion, against which outcomes of acts are to be measured, is what the people involved hold to be good or bad (Narveson, 1967). Modern utilitarian theories do not specify precise rules for combining measured goods or bads, such as "maximize the sum of happiness" or "the greatest good for the greatest number". Rather, they suggest principles whose application requires subjective judgment, such as that more good is better, or that "loss of life and damage to property must not be out of proportion to the military advantage to be gained" (U.S. Army, 1956; cited by Brandt, 1974).

A strict utilitarian approach to war evaluates only what actually happens to people. Most political discourse on war is not strictly utilitarian. George Kennan views this as a problem to be overcome, saying about the period prior to World War II that "the most serious fault of our past policy formulation [lies]... in something I might call the legalistic-moralistic approach to international problems" (quoted by Nye, 1985, p vii). Indeed, current debate on the ethics of war (and other human activities) is between a utilitarian approach (e.g., Hare, 1974; Brandt, 1974; Fotion and Elfstrom, 1986) and an approach consisting of rules for behavior that are based on rights (e.g., Rawls, 1973; Nagel, 1974; O'Brien, 1981). Nye (1985) adopts the practical approach of combining these, saying that military action needs to satisfy three sorts of criterion: good ends, good means, and good consequences. Etzioni (1988) observes that societies organize their general dealings using a

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normative/affective mode of thinking (including rules), and they restrict utilitarian analyses (which he calls "logical/rational") to particular subsets of the domain. This is true in military thinking as well, where cost-effectiveness analysis is restricted to particular decisions (see Hitch, 1965; Baral, 1977). Hare (1974; see Fotion and Elfstrom, 1986) proposes this relation should be turned on its head, with a utilitarian perspective as the broad foundation for rules that are formulated to help people deal with those situations that are frequently encountered.

All of these approaches have use for counts (or more sophisticated measures) of harms. For the utilitarian such as Hare, and for Nye's approach in which analysis of consequences is an essential component, a full utilitarian analysis of costs and benefits is required. Counts of harms are also pertinent for the strict rights/rules approach, when interpreted as counts of violated rights. Counts of benefits are less relevant here because this approach views it as illegitimate for all to sacrifice one party's rights for the good of all.

For the most part, these approaches do not specify how benefits and harms are to be measured, combined, and compared. For example, Hare (1981) would have us gather information about preferences of all concerned, and then come to a judgment not by averaging them, but by forming "a new one based on the collected preferences of the parties" (Fotion and Elfstrom, p 19). This fact, that the utilitarian analysis or the count of violated rights is made by subjective judgments (or by whatever techniques occur to someone), leaves the application of a statistical morality to war vulnerable to the cognitive limitations of the person who formulates the arguments, as well as to the limitations of the audience -- the citizens who must approve, support, or be swayed by the moral arguments.

I will next review some of the kinds of reasoning mistakes people make in considering utilitarian arguments pertinent to the decision to go to war. The point is not to induce despair; it is better to use these heuristic utilitarian arguments than not to use them, particularly in public discussions where critics have a chance to correct the errors. And attention to the types of errors people make, on the part of citizens as well as specialists, should make the outcome even more hopeful.

### Counts of the dead.

A general utilitarian principle for deciding whether to take a military action has been proposed by Brandt: "A military action (e.g., a bombing raid) is permissible only if the utility... of victory to all concerned, multiplied by the increase in its probability if the action is executed..., is greater than the possible disutility of the action to both sides multiplied by its probability" (1974, p 37). Note that this principle requires that the interests of "all concerned" be considered. Other utilitarians also endorse this principle (Fotion and Elfstrom, 1986).

The difficulty, however, is that there are many types of costs and gains, some quite difficult to predict and measure. In response, attention to consequences must involve simplifications. One of the most convenient simplifications is to count only the people who will be killed. Counting is the easiest form of measurement, and lost lives are socially noted and recorded. Hence when

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referring to the results of past wars to predict the effects of future possible wars, deaths are easier to count than injuries, non-bodily suffering, infringed rights, changed families, diminished standards of living, or the cost of future veterans' benefits.

Inevitably in these debates those wanting a war will not dwell on the costs, and those wanting no war will count them generously. In the Vietnam war the counts of deaths were exaggerated by both sides -- where the army exaggerated the number of enemy combatants it had killed to show its efficacy, the opponents of the war overestimated the number of innocents killed (Lewy, 1978). In analyzing the kinds of simplification used in counting deaths to influence the decision to go to war, we may identify three distinct stances that lead to motivated error or bias: nationalist, neutralist, and internationalist.

**Nationalist: counts of our casualties.** A nationalist perspective focusses its limited attention on the costs to its own side. Thus, a nationalist argument against U.S. military intervention in Central America calls attention to the fact that U.S. soldiers can be expected to die. The Vietnam Memorial in Washington, D.C., is a brilliant example of a display of our casualties that conveys more than just a summary statistic (the count): it shows the temporal structure of the losses (denser in the middle years) and it associates a name with each death. The Museum of the Defense of Leningrad commemorates the 632,000 to 1,500,000 who died in the Nazi siege of that city in the winter of 1941/1942 (Salisbury, 1969, p 514). Its emphasis is on the vivid and the individual. It displays memorabilia: photographs, letters, personal materials (Salisbury, 1969, p 572), and consequently its effect is more strongly nationalist than the Vietnam Memorial with its abstract count of deaths, though both memorials are nationalist.

The military command and control perspective is a special type of nationalist perspective. It counts not only our own casualties (soldiers and equipment) but also those of the enemy (U.S. Army, 1983). It regards our casualties as bad and the enemy's as good, from the perspective of control of the battlefield. While this makes sense in the context of winning the battle, the utilitarian philosophers take pains to establish that pleasure taken from the enemy's suffering is not legitimate to consider in the utilitarian calculation of whether to go to war (Fotion and Elfstrom, 1986, p 13).

In another variant of the nationalist perspective that we might call the anti-nationalist perspective, someone angry at one's own country for engaging in a given war expresses pleasure at losses to one's own soldiers and regret at losses to the other side's soldiers. This occurs particularly with wars that are perceived as illegitimate -- undeclared wars such as the Vietnam war or wars in which one's country is thought to be on the wrong side (as in the U.S. involvement in El Salvador in the 1980s).

**Neutralist: counts of civilian casualties.** A second class of argument using counts of the dead focusses not on combatants but on civilians. As an antiwar argument, this approach sidesteps the focal issues that motivated the war and points to the side effects as a reason to stop -- "You two stop fighting because you are hurting others". The civilian deaths in Vietnam were used in this way in criticisms of the war. For example, in a symbolic demonstration during the Princeton University graduation ceremony in 1972, a different

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senior stood up from the seats every two minutes, keeping pace with the calculated rate of death or injury of Vietnamese civilians. Pro-war arguments describe the deaths that our military action is preventing, as with the massacre of Christians anticipated if the Viet Cong were to conquer South Vietnam (Chomsky and Herman, 1979, pp 79-84).

The right of civilians not to be harmed in war is compelling, but this does not mean that neutralist arguments are always successful. Consider these responses by U.S. citizens following the revelations of the My Lai killings: "49% of 600 persons interviewed [in Minneapolis] believed that the reports of mass murder at My Lai 4 were false" (Hersh, 1970, p 153). "Senator Allen Ellender, Louisiana Democrat, told a television interviewer that the Vietnamese who had been slain 'got just what they deserved'" (Hersh, 1970, p 155).

The harm to civilians can also be counted for nationalist reasons. Retired Admiral Stansfield Turner, in a televised McNeil Lehrer News Hour discussion (PBS, August 2, 1989) of the military options available to the U.S. for preventing the murder of hostages in Lebanon, pointed out the likely possibility that innocent people would be harmed by bombings or shellings, no matter how carefully targeted. It was not the deaths per se that he expected to carry force in this argument, but the revenge motives that these deaths would inspire in Lebanese hearts.

**Internationalist: counts of all casualties.** A balanced, complete, or objective utilitarian assessment of a decision to go to war would anticipate the deaths of people on all sides -- soldiers and civilians, ours and theirs. It is, of course, difficult to ignore the fact that in international politics, we are dealing with individuals organized into different states (Nye, 1985). After the fact, though, internationalist analyses (which may be distinguished from the victor's pseudo-objective self justifications) are possible, such as: "It was important for everyone in the world that the Nazi policies of genocide, torture, and greedy aggression be halted... The citizens of Nazi Germany, many of whom were perfectly innocent and who nonetheless suffered a great deal, simply had their interests overruled by the combined welfare of humanity" (Fotion and Elfstrom, 1986, p 23). Ideally this perspective also informs the actions of third parties in supporting or disapproving the contesting countries' preparations for war.

Finally, it is legitimate for parties within the contending states to take the internationalist perspective, i.e., to attend to the other side's losses. Often expressing concern for the other side's civilians in an antiwar argument brands one as "soft", so people resort to the argument that harming the other side's civilians harms us, as in Admiral Turner's statement. "What goes around comes around", and if you kill some of theirs don't forget to include in your calculations that they will kill some of yours. Although this argument is better than most, because it at least considers the other side's deaths, it in effect undercounts the impact the other side's deaths would have in the full utilitarian argument. That is, both the harm to the other side's civilians and the resulting harm to ours should be considered, and this argument counts only the latter. This is not to say that an enemy civilian should be given the same weight as one of our civilians, or that an enemy combatant is as worthy as one of our combatants, but the harm to the enemy per se should be on the table.

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There are two other ways that counts or measures figure in the decision to go to war -- two distinct types of escalation. Past harms are counted to justify retaliation (an escalation cycle described by Pruitt and Rubin, 1986). And in arms races the other side's military capabilities are counted to provide motivation for increasing one's own (e.g., the pre-World War I arms race and the Cold War nuclear arms race, White, 1984; the Cold War conventional arms race, Cockburn, 1983).

Forgotten deaths. Decisions to go to war are made by civil authorities, who receive both civilian and military advice. It is natural for the military to count its own past losses and estimate its future losses. Equally important should be an estimate of civilian losses, which are tragic in themselves (in the neutralist and internationalist perspectives), and which can have a great effect on a nation's future interests, for example, in terms of future antagonisms, lost economic markets, interrupted international cooperation, and the loss of scientific infrastructure (in the nationalist perspective).

Civilian opinion leaders should think in terms of these possible consequences of war. But even the simple death counts are distant, difficult for them to call to mind. For example, Daniel Koshland, editor of Science, recently claimed (arguing for using statistical morality to motivate action against drunk driving) that "motor vehicle accidents ... kill more people each year than were killed during all of the Vietnam War". While about 56,000 American soldiers died in that war between 1962 and 1975, also killed were 220,000 South Vietnamese and 5,000 allied soldiers; an estimated 666,000 Viet Cong and North Vietnamese soldiers; and 287,000 South Vietnamese and 65,000 North Vietnamese civilians, as well as countless Cambodian civilians (Lewy, 1978, pp 442-443). The total -- more than 1,300,000 deaths -- is the equivalent of about 25 years of U.S. motor vehicle fatalities. One would hope that an important civilian opinion leader, whose judgments are likely to be heeded in a crisis, could remember, to within an order of magnitude, how many "people" were killed in the Vietnamese war.

Similarly, although the exhibits at the Disabled American Veterans' Vietnam Veterans' Memorial in Angel Fire, New Mexico, present detailed breakdowns of the American casualties (by state, sex, etc.), tell us the population of Vietnam, and decry war, the numbers of non-combatants and non-Americans killed or wounded are not given. Perhaps remembering those numbers is not the proper role of a U.S. veterans' memorial -- but whose role would it be?

The Science editor's mistake and the DAV Memorial's omission suggest that the costs of wars, particularly those costs that only the neutralist and internationalist perspectives attend to, will be undercounted during a nation's deliberations about whether to go to war. Were it not for the silent black wall in the park near the Capitol and the White House, the count of deaths of our own soldiers might also be difficult to remember.

### Measures of consequences other than deaths.

Given that deaths are undercounted, it should be no surprise that the consideration of other consequences of war is also deficient. For example, Perrett (1989) reminds us of an overlooked cost -- our current federal deficit includes interest on money borrowed to pay for past wars and the discharge of obligations to veterans incurred then. These costs had little impact on the

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original decisions to go to war, and their connection to those decisions is seldom noted, so the analogous costs will probably have little effect on future decisions whether to go to war.

### Measurement, comparison, and combination of consequences.

To consider consequences other than deaths, mental operations beyond counting are needed. First we must *recognize* the scope of the problem -- what is at risk? We must attend to the good as well as the bad, to the distant as well as the near future, and to the uncertain as well as the certain. Appreciating the scope of the problem depends on knowledge about how the available actions will produce the consequences. Further, to appreciate the magnitude of the outcomes we must *measure* the pertinent consequences in the appropriate terms -- for example, dollars of economic gain or damage, sophisticated measures of lost life (Zeckhauser, 1975), pain- or quality-adjusted life for those injured or crippled (Chapman et al, 1985; Mehrez and Gafni, 1989; Torrance, 1976), and of concurrent psychosocial trauma (Martin-Baro, 1989), some assessment of destroyed art and architectural treasures, measures of environmental impacts (Harwell and Hutchinson, 1985; Pittock, Ackerman, Crutzen, MacCracken, Shapiro, and Turco, 1986; Westing, 1984) and of future maimings due to unexploded ordnance (Westing, 1985). Beyond measurement, we must *compare* the different consequences to *combine* them into overall assessments of the utilities of waging war and not. While the measurement of consequences may be considered simply a technical issue, the comparison and combination of consequences can not; they are value issues of the most fundamental sort.

As an example of the types of comparison needed, consider the tradeoffs between enemy and civilian dead that should be considered before a particular military action. Nagel presents a situation in which "one bombs, burns, or strafes a village containing a hundred people, twenty of whom one believes to be guerrillas, so that by killing most of them one will be statistically likely to kill most of the guerrillas" (1974, p 11). He judges this calculation to be reprehensible. It is not simply that 4 civilians for 1 enemy combatant is excessive; for that ratio's being excessive implies that some other ratio, say 1 civilian to 4 enemies or 1 to 40, is not excessive. Nagel contends that no such calculated tradeoff is acceptable, and that the very posing of the question shows the bankruptcy of utilitarian considerations.

But the specificity of the utilitarian question is exactly its virtue -- for naming specific numerical guidelines for such tradeoffs forces political and military leaders to speak directly of the consequences of their policies. A state that has the courage to engage in war should have the courage to make explicit the acceptable tradeoffs of civilian and enemy lives; not to do so is irresponsible. Not defining unacceptable levels of civilian casualties is in fact the crime of which the superior officers in the My Lai massacre courts martial were found guilty (Goldstein, Marshall, and Schwartz, 1976). The statistical language clarifies the policy; it is the situation and the actions the situation requires that are repugnant (Walzer, 1974). The utilitarian analysis makes it possible to discuss a nation's values in a way that can be referred to when preparing a military action, and in a way that gives a specific meaning to the guidance mentioned above, that "loss of life and damage to property must not be out of proportion to the military advantage to be gained" (U.S. Army, 1956; cited by Brandt, 1974).



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The need for value judgments and causal predictions. Comparisons and combinations of any types of measured consequence require value judgments: What consequences are worth considering? How should tradeoffs be made among them? How much weight should be placed on one type of cost versus another, such as lives lost versus money spent? What should be the tradeoff between costs and gains? How much risk should we take? How should we compare present losses to future gains? Leaders making these value judgments for their nation are presumably acting in the interests of its people; hence, they must infer the people's evaluations of the consequences.

Inference of the connections between the actions and the consequences requires a different type of relation to the public than inference of the public's evaluations requires. In effect the leader must use different processes to discover the facts (the consequences) and the values (the nation's evaluation of the consequences) (Hammond and Adelman, 1976). For the facts, the leader should not simply seek out the typical citizen's beliefs, but rather should use the best, most accurate beliefs. For the values, democracy's ideals suggest that the values of the most typical, the majority, and the totality of citizens should be measured, although these are not necessarily the same. Further, Douglass (1985) points to governmental institutions' duty to represent higher, longer term, and supra-individual values. Yet no matter how the leader's responsibility to the citizens' values is defined, inferences about cause and effect and about the people's values are required.

**Cognitive errors.** The need for these inferences about the consequences of military actions and about the people's evaluation of these consequences means that the consideration of the multiple consequences of war is vulnerable to several types of error of human cognition (see Arkes and Hammond, 1986, and Kahneman, Slovic, and Tversky, 1982), in addition to the simple forgetting and failure to anticipate that I discussed above in connection with the counts of the dead. The type of error will depend on whether the leader is considering consequences implicitly (using holistic, global judgment) or explicitly (through logical analysis).

The evaluations implicit in holistic assessments of the consequences of going to war can involve two types of intuitive process: the unconscious averaging of information (Hammond, Hamm, Grassia, and Pearson, 1987) and the unconscious recognition of the pertinence of informal moral rules (Hare, 1981; Seanor and Fotion, 1988). These holistic assessments are vulnerable to errors of habit, prejudice, and forgetting, and the errors are compounded by the fact that the basis for the judgment is not publicly accessible.

Explicit predictions of consequences involve statements of the causal connections between military actions and their potential consequences. These statements can be partial (as in estimates of the monetary costs of security assistance for a Third World government) or full (as in a model that lists all important dimensions of the consequences).

Similarly, explicit value judgments involve the production of general statements of the values; these general value statements can be either partial (as in a policy for the acceptable rate of civilian deaths per enemy combatant killed, or a limit on the number of soldiers to put at risk or the amount of money to spend, as with U.S. aid to El Salvador in the 1980's) or full (as in a model stating the tradeoffs among the various consequences).

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When leaders use implicit procedures to predict consequences or to infer their constituents' values, one can only agree or disagree with them. It is useful if they make the causal assumptions or the value judgments explicit, but a leader takes a risk in doing so, because this gives people the opportunity to criticize the process that produced the decision. To make these explicit judgments safer, leaders frequently seek advice from experts who themselves use either explicit or implicit procedures to infer the causal relations or the public's values. The accuracy of such experts' intuitions have been debated (Dawes, Faust, and Meehl, 1989; Dreyfus and Dreyfus, 1986). The success of predictions of the outcomes of political and military processes is a matter of political and military science (see Allen, 1987; Eidlin, 1988; Dupuy, 1985). I want here to focus on the procedures people use to explicitly infer people's evaluations of consequences.

**Discovery of people's values.** There are five types of procedure for explicitly inferring people's values (Hamm, Clark, and Bursztajn, 1984). The first is to infer values from statements (as in opinion polls) or behavior (including voting and market behavior) (ACISAM, 1988; Rokeach, 1973; Schuman and Scott, 1987). The second is to have people make choices or judgments about a collection of possible outcomes, described in terms of their consequences, and to fit models to the judgments so that one can predict their future judgments (methods described in Hammond, Stewart, Brehmer, and Steinmann, 1975; example in Hamm, Miller, and Ling, 1989). The third procedure is to have people make judgments of particular actions and explain why they are made, in terms of the impacts they have on their various consequences (Appelbaum and Hamm, 1982). The fourth is to ask people to judge the relative importance of the various dimensions of the consequences (Edwards and Newman, 1982; Reilly and Doherty, 1989), and use these judgments as parameters in a model. And the last procedure is to allow people to construct the full model themselves (Hammond, Hamm, Grassia, and Pearson, 1987; MacGregor, Lichtenstein, and Slovic, 1988). Any of these methods can produce useful information. However, the fourth and fifth methods require more sophistication from the person whose values are being measured, while the second and third methods require more effort from the person in the form of judgments of many possible outcomes (Hamm, Clark, and Bursztajn, 1984).

All these value judgment techniques are subject to cognitive errors. Because the first type of technique, inference from behavior in order to make explicit people's judgments, is most commonly used, I will give an example of an error when it was applied to war. In calculating the losses the Soviets might be willing to accept in a nuclear war, Herbert Kahn pointed out that "15 to 30 million Soviet citizens were killed in World War II;<sup>1</sup> in addition the Soviet Union lost about one-third of its wealth.... I believe that even the average Soviet citizen (not to mention the government), if presented with a choice, would have been willing to accept the cost of World War II in order to achieve the position they have since won, as an alternative to Nazi domination" (Kahn, 1962, p 54). Kahn acknowledged that "this was not the result of calculation, and that no alternatives were ever really offered to the Soviets" (p 54), but considered it an accurate basis for projecting the Soviet response in a conflict with the West.

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1. The Soviets increased their official count from 20 to 26 million in February, 1990.

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Although it may be necessary to estimate an inaccessible opponent's evaluation of the consequences of going to war by referring to their past behavior, one need not limit oneself to the same process for one's own country. One might prefer asking people their preferences in a poll. But because it is not wise to reveal one's hand by eliciting preferences for the exact military action one is considering, there will always be a need to extrapolate from polls to the actions being considered.

The possibility of error in these extrapolations concerning the people's tradeoffs between the gains and losses of possible war suggests that a political leader should not delegate these inferences to experts who produce the tradeoffs through technical procedures. Rather, the leader should understand the measures of the values, and participate in the seemingly technical decisions, such as the choice of a risk posture and a temporal discount rate, because of the major effects these decisions may have on the value conclusions. Although individual citizens can communicate these aspects of their values, using explicit procedures such as those outlined above, and these can be input to the leader's decision making, still it is necessary for the leader to synthesize these into a general value statement to guide the nation's choice of military actions. The topics of risk attitude and intertemporal tradeoffs, reviewed next, illustrate the kind of value judgment that citizens need to communicate to their leaders and that leaders need to infer about their citizens, so that the consequences of war can be evaluated.

**Risk attitude.** It is usually not known what the consequences of a military action will be, nor what the outcomes would be if the action were not taken. Any of the options could lead to good or to bad; and just as we must choose how much to weight different parties' outcomes or different types of consequence, we must also decide how much attention to give the likely and the unlikely possibilities.

The relative weight placed on the likely outcomes versus the rare outcomes is called a risk attitude or risk posture, and it can be expressed in terms of a curve over losses and gains (Figure 1; see Raiffa, 1968; Miyamoto and Eraker, 1989). The horizontal axis represents actual gains or losses, and the vertical axis represents subjective evaluation of those changes. What do we know about the risk attitudes of citizens and their leaders? Consider an argument presented by Graham Allison: in a real superpower confrontation neither side's leader "will be overly impressed by differences between the death of one million and one hundred million of his own citizens" when deciding whether to take or not to take a risk (Allison, 1971; quoted by Allen, 1987, p 226). That is, it is the loss of the first million that they are trying to avoid. Suppose Allison meant that the 100 million deaths are 10 times as bad as the first million deaths. Curve A for losses in Figure 1 represents this bowed utility curve. Going from no losses to 1 million losses (moving to the left on the horizontal axis, from the upper right corner) is about one tenth as bad a move (as large a downward movement on the vertical axis) as going from no losses to 100 million losses.

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Insert Figure 1 about here.  
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Kahn believed that leaders' utility curves for deaths would have the same general shape, though not as bowed as Allison's curve: "Most decision makers would not choose a course of action certain to result in 1,000 deaths over a course which might in one chance in ten result in 10,000 deaths. Most decision makers would greatly prefer to kill no one, and are therefore likely to prefer the possibility of a greater number of deaths over the certainty of a lesser number" (Kahn, 1962, footnote on p 108). Both Kahn and Allison assert that leaders are in effect risk-seeking over losses of lives. That is, to avoid the first loss they are willing to risk large losses. They seem to be hoping for miracles, trying to get away with losing nothing. This is consistent with findings in other domains (money: Kahneman and Tversky, 1979; flood losses: Kunreuther et al, 1978), though the pattern here is more extreme.

Kahn further suggested that people's attitudes toward gambles for lives would be different from their attitudes toward gambles for money. Consider Table 1. The decision maker would prefer A to B to C to D if the choices were presented with money, but if "lives are at stake rather than dollars, and if the decision maker is going to have to acknowledge responsibility for any deaths which result from his choice (and the operation of chance), then his preferences are likely to be reversed." That is, the tendency on the part of those who wish not to lose anything, to seek risk when there is the possibility of loss, is more extreme when lives are at stake than when money is.

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Insert Table 1 about here.  
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These assertions about leaders' risk attitudes are not proven, but their implications if true are important enough that we should be studying ways to get leaders and citizens talking about the risk posture the citizens wish to have used when leaders are making decisions on their behalf (see for example Plous, 1989).

**Temporal discounting.** In crises leaders are said to focus on combatting immediate threats, without considering long-term consequences (Frank, 1979). This is of course a shortcoming. But besides venting of fear and anxiety, how should long term effects be addressed?

In calculating the value of public works, such as dams and highways, it is customary to discount the gains and costs of the future when compared to the present. The justification for this is that, for example, \$614 put in the bank at 5% interest will be worth \$1000 in 10 years; inversely, when considering a loss of \$1000 ten years hence one should treat it as a loss of only \$614 today. And one should pay no more than \$614 today to cause a gain worth \$1000 to be delivered in 10 years.<sup>2</sup>

Should the nonmonetary consequences of war be similarly discounted? Both the harms and the benefits of war are distributed through time. There are immediate deaths and permanent crippling; immediate war expenses and delayed veterans' benefit expenses and interest on war bonds. Lives may be saved now,

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2. The calculations are complicated by inflation and by the uncertainties of predictions of future interest rates.

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and the liberated will (it is anticipated) have many years of postwar peace and prosperity that they would not have had otherwise -- witness Western Europe after World War II. A political decision maker could choose a single discount rate and apply it to all the dimensions of war's consequences. But the argument has been made that if we discount future costs, as for example in setting pollution rules or policy governing the use of non-renewable resources, we will sacrifice our descendants' quality of life for our own present convenience. Perhaps the starkest example of a decision that hinges on the choice of discount rate is the problem of the radioactive wastes from nuclear power plants, where the benefit of some electricity today is exchanged for possible dangers to life over a 100,000 year time stream (Amory Lovins, personal communication, 1988; Zeckhauser, 1975).

The decision to go to war may similarly hinge on the choice of discount rate. Although war's costs and benefits are both distributed over time, for the most part wars are considered to be sacrifices of immediate costs for long term benefits. If we discount future costs and gains in our utilitarian calculations, then the future gains pale in comparison with the present costs.<sup>3</sup> Only the first few years of the promised Thousand Year Reich would have had any impact on the Germans' decision to support Hitler's war.

How should we decide what discount rate to use? One possibility is to observe people's behavior. If we assume that people act consistently with their true discount rate for future values (possibly a risky assumption; see Loewenstein and Thaler, 1989), we can refer to their choices to discover their discount rate for their own lives. For example, the interest rates people (in the aggregate) choose in financial markets could be applied to other consequences (e.g., future health outcomes; Fuchs and Zeckhauser, 1987).

More directly pertinent to war, perhaps, people's job choices may reveal their temporal discount rates with respect to the risk of life. Viscusi and Moore (1989) studied data on job risks and wages to estimate workers' implicit discount rate with respect to future life years. They found that college educated workers discounted future life years at a 5.5% annual rate, while those with no college discounted them at a 15% rate. Viscusi and Moore averaged these figures, weighting according to the proportion of citizens with college education, to arrive at a population discount rate of around 11%.

These different discount rates for different classes raise an intriguing possibility: Since the costs and gains of military actions are distributed differently over the college-educated and working class populations -- i.e., the costs in lives and injuries are born to a greater extent by the working class, while the economic gains are realized to a greater extent by the educated and the wealthy -- should the future costs be discounted at the working class rates while the future gains are discounted at the college educated rates?

This is an example of a general problem facing every leader: how to represent diverse interests with a single policy. Measurement of different individuals' behavior and attitudes about consequences will surely produce a variety of risk attitudes, discount rates, and tradeoffs between various costs and gains.

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3. Ironically the low discount rate that would support arguments for the use of military power in foreign policy would undermine arguments for nuclear power, though these tend to be favored by the same people.

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Hence the political leader's actions will seem sensible to some and malevolent or perverse to others.

The utilitarian ideal would have the leader use a coherent set of evaluations, and apply them to situations without error. This would provide clarity for both the leader and critics. Explicit temporal discount rates would be available for guidance when decision making authority is delegated. These principles would allow for disagreement at a more fundamental level than disagreement about actions, which is where discussions currently focus (Hammond and Adelman, 1976).

Ainslie (1982) has discussed the impact that the discounting of future consequences has on rational behavior. He observed that the adoption of strict policies concerning current actions enables individuals to act in their best long term interests, that is, to maintain a low temporal discount rate. The leader's problem is similar (Douglass, 1985, p 91) -- to choose and enforce policies that benefit everyone in the long run, though each individual might not choose to act in accord with those policies. Chomsky has attributed such a long-term perspective to U.S. foreign policy calculations: "...the U.S. achieved its major objectives in Indochina: it is a mistake to describe the Vietnam war simply as a U.S. "defeat" as is commonly done... the devastation of Indochina by U.S. violence guarantees that it will not be a model for anyone for a long time to come..." (Chomsky, 1985, p 70). If the leader's task is thus conceived as acting on different values from the citizens', Visconti and Moore's (1989) or Kahn's (1962) extrapolations from individuals' behavior in one realm to the collective's universal discount rates or risk attitudes would be irrelevant. On the other hand, knowing the individuals' values could help the leader manage their reactions to decisions based on lower temporal discount rates.

Unfortunately it is not known whether leaders have a consistent temporal discounting function, though it is suspected that their horizon is pretty short. The ideology of representative democracy tells us that we select leaders whose values we like; but politicians' use of opinion polling for guidance in producing their "own" positions suggests those values are not a stable feature of the leaders' characters. Leaders may consistently use a particular temporal discount function in their decision making -- possibly that of the average citizen, or the risk-seeking or conservative citizen, or a particular constituency. Or leaders may adopt a perspective appropriate to the country as a whole: a longer term perspective than individuals act on, as described by Douglass (1985) and Chomsky (1985), or an "establishment" perspective, in the positive sense of Thurow (1985). Finally, leaders may be inconsistent, acting and thinking with a variety of temporal discount rates, dependent on whom they are listening to, on their audience, or on how the issue is framed. No matter which of these is the case, it would be useful for citizens and leaders to have more formal measures of the temporal discount rates of their own and each others' preferences, to use as a basis for discussions, debates, and decisions about whether to go to war.

**Intertemporal variation in the precision of predictions.** In addition to the judgmental issue of the intertemporal tradeoffs, an additional problem is the prediction of future consequences of the choice to go to war. The uncertainties of prediction increase with time. The farther in the future a predicted gain or loss, the less certain the prediction and the broader the

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range of possible outcomes. Soon the predicted longterm consequences of going to war will be statistically indistinguishable -- not significantly different -- from the consequences of not going to war. This in combination with the discounting of future consequences leads most people to focus more on the present harm than on the future gain, and leads Fotion and Elfstrom (1986) to conclude that the only good reason to go to war is to forestall immediately threatened deaths.

## Psychology of Judging Consequences.

I have argued for utilitarian consideration of the consequences of military actions, especially statistical estimation in the face of uncertainty. And I have given anecdotal evidence that some citizens, soldiers, and leaders ignore important dimensions of the consequences, and don't have consistent risk postures or temporal discount rates. This suggests that the consequences of military action may not be evaluated well, even when someone tries to consider them.

For a nation regularly to hold up its proposed military actions to a utilitarian evaluation, leaders and citizens must measure and compare uncertain costs and gains. Whether and how they can make these judgments depends on their general ability to do these sorts of mental operation, as well as on the social constraints on the type of discourse. Therefore I review here what we know about people's ability to use statistical and decision theoretic concepts in thinking about the consequences of their military actions. With this foundation, I will suggest modes of communication and decision making that facilitate the incorporation of utilitarian considerations in the decision whether to go to war.

Memory problems. Memory is a basic human capability. It is tempting to attribute inadequate consideration of war's consequences to the failure of memory. A popular lament, "If only the dead could speak", assumes that those who may die next time have forgotten about those who died last time; else they wouldn't offer to risk their lives to support a new war. More pertinent to the initiation of military action, "Those who cannot remember the past are condemned to repeat it". The sentiment is that if only the individuals involved in national foreign policy decision making remembered the full effects of past wars and recognized their relevance to current decisions, unnecessary and tragic conflicts could be avoided.

But improving individuals' memories, and computerizing the history of the effects of previous wars (e.g., Cioffi-Revilla, 1989) would not solve this "memory" problem. Rather, the forgetting of the past and the failure to predict the future have common roots in how people construct the decision whether to go to war.

Information on selected consequences of past wars (especially death, destruction, and changes in government) has been well preserved. Most individuals present at critical decisions have been exposed to such information (despite political pressures which keep such information out of the public school curriculum), and could recall or estimate the gains or losses of past conflicts if asked. The issue is whether they are asked -- is such information deemed important in the decision context? If it were, the gaps in individuals' memories could easily be filled. But extrapolating all

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pertinent dimensions of future consequences from past experience is not given high priority in the analysis of military options. This is not just because people who are ignorant of the past (or forget or misinterpret it) have key roles in the decision scene; a more important cause is that the established decision making procedure does not provide for use of the past, or of any other sources of information, to make an accurate estimate of all the consequences of military action.

Improving memory to improve the consideration of war's consequences would focus on making the information available and familiar -- tasks for historians, educators, and the creators of popular culture. Some of war's consequences are not knowable at the time the actions are taken, particularly when new technologies are involved. For example, the effects on forest ecosystems of the defoliant herbicides used in the Vietnam War, as well as their effects on the health of peasants and U.S. soldiers, were not known until later (Rollston, 1989). The health effects of radiation exposure from the Hiroshima and Nagasaki bombs are still being reanalyzed (Marshall, 1990). Other consequences are known by specialists but not generally available, and need to be brought into a unified perspective and publicized so that decision makers will be aware of them.

**Errors in statistical and decision-theoretic reasoning.** Rather than stressing the fallibility of human memory, we might emphasize the complexity of the task of predicting and evaluating the outcomes of military action. The consequences of war are inadequately considered during decision making because the intellectual task is huge and the people on the scene are not trained for it and lack the time and resources to do it right. I reviewed above the many dimensions of the consequences, the uncertainty of the predictions about what good and bad will happen, and the difficulty of quantifying people's preferences for these outcomes. Coordinating all these factors is a difficult, time consuming, and controversial technical problem, even for those trained in it. Therefore it should not be surprising that the actual decision makers do not fully evaluate the consequences. Errors and omissions seem inevitable.

How may we limit the errors? Generally, to evaluate consequences people need to have a clear organizing perspective. This includes well developed and accurate beliefs (the knowledge of the causal connections between actions and outcomes) and values (the framework in which to evaluate the outcomes). And they need to be able to apply this perspective to the current situation, measuring the causal connections and values as appropriate. Decision makers will evaluate consequences better if training, practice, and communication all use terms that make explicit the connections between actions and outcomes, and the value of the outcomes. There is also need for technical support in the analysis. Following are some specific techniques that may be of some help.

**Vividness.** Remembering, analyzing, and communicating with accurate statistical descriptions of the likely consequences can be difficult. It is hard to pay attention to dry statistics and easy to forget them (Slovic, Fischhoff, and Lichtenstein, 1982). Individual cases are more interesting and more available to memory, although by their nature they do not express the whole truth.

We frequently have a vivid image of a particular provocation, but little image of the effects of our response. This is true with respect to the incidents which were used to justify the December 1989 U.S. invasion of Panama -- an



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American serviceman killed and a Navy Commander's wife sexually threatened (Gordon, 1989), in contrast with the resulting 200 to 400 civilians killed when the U.S. subsequently invaded (Associated Press, 1990). At the time of the invasion, the provocations were vivid and the civilian deaths could only be anticipated. In Lebanon in October 1983, 241 U.S. Marines were killed in a single terrorist bombing attack (Petit, 1986). Later attacks prompted the shelling of numerous unphotographed villages thought to harbor people from the attacking organizations (Friedman, 1983; Hijazi, 1983; Cowell, 1983). The images of the dead in the shelled villages were seldom held up in comparison with the dead Marines, and therefore in the memory of most U.S. citizens only U.S. deaths resulted from the U.S. peacekeeping presence.

Repetition of the same examples weakens their effect. Witness the diminishing impact on Congress of the steady stream of reports of victims of El Salvador's death squads, as lobbyists attempted to stop military aid to the El Salvador government during 1988 and 1989 (Zielinski, 1989). It was not until the novelty of the murder of six prominent Jesuit educators in the week of November 17, 1989, that Congress again paid much attention to this sort of negative effect of military aid.

In using vivid images to represent the consequences of military action, there is a need to make the images be consistent with the statistical reality. One way to approach this is to present vivid images of the consequences of a proposed military action in the same ratio as the anticipated outcomes. Thus, if it could be predicted that ten times as many civilians as soldiers will die, then ten times as many vivid images of civilian deaths as soldier deaths should be presented. Alternatively, images of different consequences might be presented not only in a frequency proportional to the predicted effect on them, but also weighted according to the relative importance of the type of consequence. Thus, if our own soldiers are considered five times as important as enemy civilians, but 10 times as many enemy civilians are expected to die, then images of enemy civilian deaths should be considered twice as often as images of our own soldiers' deaths.

The same principle of proportionality could be applied after an event, to provide accurate memories for later deliberations. Thus accurate understanding of what happened when the Marines were sent to Lebanon in 1983 would include images of the dead in the villages as well as in the bombed barracks.

Consideration of consequences for decision making requires an accurate estimate of potential gains and losses. This requirement conflicts with the role of communication for mustering support for a decision already made, which is to emphasize the advantages of the chosen action. While such persuasion is legitimate, there is a severe danger to the quality of decision making, particularly its full consideration of consequences, when the leaders who make the decisions must also persuade the nation to support them. Convincing communication requires the absence of doubt, the forgetting of disadvantages and negative consequences (see Montgomery, 1989). The official line can come to dominate thinking for decisions as well as for persuasion.

**Communication of representative cases rather than statistical summaries.** It has recently been proposed that clustering techniques be used on data to produce vivid representative patterns, rather than dry statistical summaries (Brunner, 1983; 1986). For example, instead of giving summary statistics such

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as "400 civilians died, 600 houses were destroyed, and the economy lost 30 million dollars", one might describe the most common patterns that occurred in the data: e.g., "For 40% of the population of the city, the direct effect was economic losses in the range of \$400 to \$1200 (2 to 6 weeks' work); 20% lost one or more relatives; 10% had their homes partially or completely damaged; and 5% had more than one of these harms". This form of presentation can improve understanding, recall, and utilization of statistical information (Brunner, Fitch, Grassia, Kathlene, and Hammond, 1987). While this may not be feasible for projections of future consequences, it might be useful for making people vividly aware of the consequences of past military actions.

**Heuristics.** Faced with the complicated inferences required for anticipation and evaluation of consequences, people frequently use heuristic strategies of judgment (Kahneman, Slovic, and Tversky, 1982; Hogarth, 1980). For example, they may judge the likelihood of outcomes according to the ease with which similar outcomes are remembered or imagined. They may project the number of soldiers lost by remembering the losses from a similar, though smaller, operation and adjusting upwards. These strategies for remembering, measuring, and comparing consequences are within the mental capabilities of most of us, and they may produce answers that are approximately correct. However, heuristic strategies are not based on a full analysis, and in particular situations they may produce wildly wrong answers.

If full analysis is impossible, use of heuristic strategies to anticipate and evaluate consequences may be necessary. To minimize error here, people must not only know good heuristics but also know when to use them. Researchers can discover and compare heuristics for a particular situation. People could be trained (ahead of time) to use heuristics that are robust (likely to be close to optimal, in a variety of situations) or conservative (likely to support safe actions). Heuristic "rules of thumb" that have proven useful over the years are used in training in the military (see paragraphs 949-953 of Moss, 1917; McDonough, 1988) and in medicine (Bursztajn and Hamm, 1979). Identification of good heuristics could also be based on analysis of the situation, such as Axelrod and Dion's (1988) simulation analysis of negotiation strategies. People could also be trained to become conscious of the heuristics they already use, and to recognize their potential weaknesses, so they may select strategies appropriate to the situation (Beyth-Marom, Dekel, Gombo, and Shaked, 1985). Such an approach is similar to the "conscious gambling" advocated for medicine by Bursztajn, Feinbloom, Hamm, and Brodsky (1981/1990).

**Cognition in social conflicts.** Military actions take place in the context of conflicts between countries or classes of people. Some special features of conflicts influence our thinking about the consequences of actions, in ways that have been extensively analyzed by others. For example, White (1984) reviewed a number of "motivated" errors in people's thinking about the initiation and maintenance of international conflict, including the effects of fear, anger, and macho pride; overconfidence; selective attention to costs and harms; the belief that the enemy is bad and we good; and the belief that the enemy secretly likes us. In addition, there are unmotivated, i.e., purely cognitive, errors, such as the belief that others share one's view of a situation. Escalation of international conflicts can be based on cognitive factors such as the failure to recognize the irrelevance of sunk costs, and

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mutual discounting of the other sides' losses (see Staw and Ross, 1989; Pruitt and Rubin, 1986).

To guard against these errors, people could be educated about their nature, keep alert for them, and contradict them when made by associates, opinion leaders, or government spokespersons.

### Leaders' decision making.

The previous section reviewed how anyone might think about the consequences of war. But decisions concerning war are made by selected people in special conditions; this constrains the consideration of war's consequences.

The most obvious of these conditions is the secrecy and isolation of the decision making group. Although information must flow in and commands flow out, the decision process is insulated from the inspection of interested parties who might want to suggest that the consequences be attended in a different manner.<sup>4</sup> This means that it is difficult for us to discover, until the release of official records after 25 years or the publication of self-serving memoirs after 10, what actually goes on there. It also means that we can not realistically hope to directly influence the thinking of the decision makers. Therefore I will review a number of possible indirect approaches to improving the manner in which political decision making on whether to go to war takes account of the consequences.

An obvious consequence of this isolation is that those in the inner circle are influenced, during the critical hours, primarily by each other. And their ideas of how each other will judge them can modify their thinking. Janis (1962) described, as "groupthink", a number of mechanisms of this mutual influence, and Stoner (1968) discovered people's tendency to make riskier choices when in groups for which risk-taking is a shared value. Montgomery (1989) suggested that the decision making process is often a "search for good arguments", and that cognitive representations in which one alternative can be seen as dominating over others are a favored form of good argument. The group process may exaggerate individuals' tendency to downplay the disadvantages and negative consequences of a favored alternative.

**Influence from the general societal discourse.** Those with roles in the exclusive decision making process spend much of their time participating in the general societal discourse: watching the news, reading the papers, justifying what they do and receiving advice, talking with lobbyists who have prepared arguments to convince them. Therefore if the general public considers the consequences of war, then those who make the decisions will hear the ideas.

In recent years our leaders are rumored to have been obsessed with what is said about them in the media. Press judgments of leaders' military decisions in terms of their consequences might then be an especially powerful technique for influencing decision making. For example, following the December 1989 U.S. invasion of Panama, there were numerous discussions of the costs in the media

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4. An exception was the Arab/Israeli war of 1967, in which the open command center was crowded with all sorts of volunteer onlookers. The resulting chaos offers a vivid lesson in why most such councils are kept exclusive (Van Creveld, 1985).

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(for example, Associated Press, 1990; Freedberg, 1990; Kinsley, 1989; Trainor, 1989). The adoption by the press of the principle of proportionality, discussed above, and its use in describing the outcomes of government decisions could also affect leaders' thinking. Lobbyists interested in whether we go to war could make the consequences clear and explicit through statistical predictions accompanied by vivid images.

**Threats from those affected.** Another way in which anticipated consequences may affect decision makers is through threats from those who will be affected: "If you do not take our interests into account, we will punish you". A problem is that those interests with the more clout can command more attention to the consequences that affect them. For example, in reporting on the December 1989 invasion of Panama, the human-rights group Americas Watch suggested that "an inordinate number of Panamanian civilians were killed in an effort to keep down U.S. casualties and thus forestall domestic criticism of the invasion" (Zeman, 1990; see also Martinez, 1990). It is not clear how to modify this feature of politics in the pluralist tradition so that there would be pressure on decision makers to attend to the consequences to the weak.

**Ideology.** It is not simply that some consequences of war are forgotten, or that some heuristics of reasoning lead to incomplete consideration of consequences. Dominant theories of government treat some consequences as relevant and others as irrelevant. Changing these distinctions may require a change in ideology, rather than just a reminder to consider the forgotten dimensions. An example is the human rights ideology of the Carter presidency, in which weight in political decision making (including military support decisions) was given to civil rights outcomes for individual citizens of other countries. Ideological change can happen both within a ruling party and with the ascension of a new party.

**Training.** One way to make the decision makers more likely to attend fully to the consequences of military action is to teach them how to do it when they are training for their positions. In addition to college, apprenticeship, and job experience, one method for training leaders and staff for political and military decision making is the war game (Bloomfield, 1974; Allen, 1987). In a typical game, teams of people (each assigned a particular government role) will be presented with an unfolding crisis and will be required to formulate responses. Professionals in the "Control Team" invent the situation, prepare and present the information about the crisis, and evaluate the players' responses.

War games give current and future leaders the opportunity to learn high stakes decision making. They provide an opportunity to inform participants about the consequences of military actions. Is this done? Do the reports and feedback coming from the Control Team detail the full consequences in the way I have been advocating?

It is hard to know, because most high level wargames are secret. A few special wargames have been made public, most notably "The Crisis Game", broadcast by ABC in 1983 (Allen, 1987), in which people who had actually played top roles in U.S. decision making (including Hodding Carter, Clark Clifford, General Edward C. Meyer, Edmund Muskie, and James Schlesinger) managed the U.S. response to a hypothetical Soviet incursion into Iran. Allen (1987) observed that in the 4 hour telecast (edited down from the 18 hours it took to play the

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game) "there were occasional flares of temper, but... there was no indication of human concern over the potential deaths of millions of people" (pp 245-246). Consideration of longterm effects on the economy, agriculture, etc., would be even less likely. I assume this is typical of the content of war game deliberations, and is due both to the time pressure of the game and the lack of information provided by the Control Team.

To help leaders consider consequences in their secret decision making, the academics and professional consultants who design such war games should make additional information available to the participants and refer to it in their evaluations: information about the costs to a broad segment of participants, on a large range of dimensions, over a long time span, of the proposed military actions.

**Selection.** The people on the scene in the critical decisions, both leaders and staff, are there because they have been selected. In part they are selected because of the way they think. An individual's way of thinking about military actions is likely to be quite stable over time. For example, in the 1989 McNeil-Lehrer discussion of possible responses to the taking of hostages in Lebanon, cited above, former Secretary of the Navy John Lehman argued, against Admiral Turner, for quick military action against the takers of the hostages. Allen (1987, pp 279-280) told of a televised 1981 hostage/war game in which Lehman also played, where he argued the same position, complaining at one point "this pursuing the negotiating road is slowly closing off our military options" (pp 279-280). Can we hope to change such rigid thinking? Consciousness raising and psychotherapy are not things to be imposed on other individuals. Rather, we need to select people for those positions of decision making responsibility who have a propensity to consider the consequences.

Staff like Lehman are selected by leaders; but the leaders themselves are elected. Therefore it would be useful in campaigns to ask candidates to state how they would evaluate the outcomes of military decisions, and judge them on the quality of their consideration of consequences.

**Legal requirements.** It would be possible to pass laws requiring that actions be preceded by, accompanied by, or at least followed by a justification in terms of a full analysis of consequences. This would be similar to the environmental impact statements imposed by the 1969 National Environmental Policy Act (Freedman, 1987); to the attempts to modify the 1960 Delaney Clause, which requires that the Food and Drug Administration ban carcinogenic additives in food, so that it weighs risks against benefits (Sun, 1985); and to the requirement in several laws providing military aid to El Salvador in the 1980's that progress on human rights be certified before the money can be released (e.g., see Toner, 1989).

Laws could require that the mechanisms for producing and disseminating information in support of high level decision making, e.g., State Department and CIA analyses, should measure and compare consequences. The inclusion of consequence information in war games is another legislatable option.

Finally, legislation could require the availability of vivid information about consequences at the time and place of decision making about war. A first step might be a principle of proportionality of images to consequences. An extreme step is offered by Roger Fisher, who proposed a way to make the consequences

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of the decision to use nuclear weapons less distant for the President: the suggestion "that the President's nuclear-release coding device, which always accompanies him, be placed in a capsule and surgically implanted next to the heart of a volunteer war starter who would also carry a knife. When the President decided to launch missiles, the war starter would hand him the knife and the President would first ...have to kill...." (Fisher quoted by Boffey, 1982, p C1; see also Allen, 1987, pp 247-248). Surely there are many other techniques for making vivid consequences available when pertinent.

### Conclusion.

I have argued that citizens and leaders should pay more attention to the consequences of war. For those who favor a particular military action, consequentialist arguments allow the benefit to be compared to the costs and harms, so that the overall usefulness of the military action may be seen (see Fotion and Elfstrom, 1986, p 109). For those who oppose war, arguments that weigh consequences can reach decision makers "where they think" more effectively than absolutist arguments such as "it is wrong to kill people, therefore no military action is acceptable". Speaking in the same framework allows each side to be heard by the other, though it raises the risk that in particular cases proponents or opponents of the use of military force might be defeated *in their own terms*. This is a risk worth taking.

I have also shown that citizens and leaders find it difficult to anticipate and weigh war's consequences. Despite the centuries of experience we have with war and its aftermath, people do not generally think clearly about how to value its consequences, for the concepts are complex and laden with value judgments. Everyday discourse about war does not naturally use quantitative measurements and tradeoffs when discussing consequences; and our minds can grasp only the simplest multidimensional outcome models. Therefore people have a variety of difficulties with arguments about consequences, from fear of their complexity, to failure of memory, to inadequate heuristics for inference and evaluation, to disdain of statistics. Leaders' and citizens' thinking depend on each other, and so I have proposed ways to make each more likely to consider war's potential consequences. The proposals include using more vivid representations, adopting a standard for press and government communication that outcome images be presented proportionally to honestly anticipated outcomes, incorporating a thorough estimate of consequences in leaders' decision training exercises, and passing laws requiring justification in terms of consequences.

If indeed it should come to pass that analysis of the consequences of war should be part of the decision making process, it will open up additional practical problems which may become the grist of the mill of everyday politics. Arguments would probably be constructed to influence people's beliefs about the connections of actions to outcomes, and their tradeoffs among the various dimensions of the consequences. Polling techniques would be developed for slanting people's value expressions one way or another. There would be arguments about the appropriate methods for analysis of the consequences of military action. How should the value of life be measured, or the future costs be discounted? Quibbling about the method could be an anti-war obstructionist technique, like the use of death penalty appeals to forestall executions, or a way to avoid holding up the use of military force to any consequentialist standard. There would be strategic manipulation of

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polls to prove that the public would consider a military action justified, or not. Whether the nation's values are expressed by a technical procedure (such as a survey eliciting evaluations of described possible futures) or a subjective judgment by a leader, there are ways of studying the process, anticipating it, and manipulating it. But the use of any reasonable techniques would improve the decision making compared to its current quality, and lessen the probability of either unnecessary war, or failure to take a military action that should be taken. We need to be studying the measurement of consequences, proposing procedures and exposing the ways that they can be manipulated, in a way that encourages people to use them carefully rather than discourages people from trying them because of minor inconsistencies.

**A final difficulty: citizens' distrust of cost-benefit analysis.** Although these ideas have an obvious appeal, there is a very important source of resistance to conducting discourse in terms consistent with an honest and adequate utilitarian analysis. People disapprove of cost/benefit reasoning concerning their harms, and leaders and politicians are very sensitive to this. For example, in a recent *Doonesbury* comic (Trudeau, 1990), an aggressive reporter tries to get the President to state exactly how many lives it was worth losing to depose Noriega in the Panama invasion. The reporter traps the President into a concrete statement (2000 lives), and then teases him by testing its boundaries ("Sir? How about 2,001?"). This reflects popular stereotypes about political/military decision making, but there is little to indicate that the actual decision to invade Panama was based on a measured tradeoff between estimated lives in various categories, let alone on an analysis that attempted to cover all dimensions of consequences.

Nonetheless, the comic captures a widespread dislike of cost benefit analysis as applied to lives and war. This form of analysis has been prominently used in the Department of Defense, which especially starting when Robert McNamara was Secretary of Defense has applied standards of cost-efficacy to procurement and weapons development decisions (see Hitch and McKean, 1963; Hitch, 1965; McNamara, 1968). On the one hand, this has produced resentment from military officers whose favored weapons systems were scrapped and communities whose shipyards, for example, were judged inefficient and terminated (Baral, 1977). Yet there is also a popular perception that cost-benefit analysis, a limited form of a utilitarian consequentialist analysis, guided defense thinking at the time of the Vietnam war, indeed was responsible for it, and permeates it to this day.

This perception is largely mistaken. Inspection of the Pentagon Papers (New York Times staff, 1971) suggests that the decisions of that war were not based on the sort of analysis of the consequences that has been sketched above. Although presidential assistant McGeorge Bundy recommended the 1965 bombing of North Vietnam to President Johnson, saying "measured against the costs of defeat in Vietnam, this program seems cheap. And even if it fails to turn the tide -- as it may -- the value of the efforts seems to us to exceed its cost" (p xvi), the cost-benefit language is more a rhetorical device, a way of authoritatively saying "I recommend it", than a reflection of the decision process.

Similarly, when McNamara recommended adopting a "search and destroy" approach in a July 20, 1965, memo to Johnson, he said "the overall evaluation is that the course of action recommended ... stands a good chance of achieving an acceptable outcome within a reasonable time in Vietnam" (p 467). But he

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defined "acceptable outcome", not in terms of measures of the basic dimensions of the consequences, but rather in terms of changes in the immediate situation. He listed nine features, including that the Viet Cong stop terror and sabotage incidents, the U.S. stop bombing North Vietnam, and U.S. combat forces withdraw (p 468). There was no attempt to measure the utility of these consequences nor to estimate tradeoffs among them.

Indeed, Murdock (1974) concluded from retrospective interviews with participants and study of contemporary documents that "the substantive impact of systems analysis upon policy output is not to be found in the influence that actual systems studies had, but rather in the general orientation that McNamara and the systems analysts brought to defense decision-making -- that is, looking at defense problems as involving the marginal comparison of alternatives in terms of costs and benefits" (pp 86-87). Murdock further noted that "almost every respondent regretted the lack of influence that OSA [*the Office of Systems Analysis*] had had" in the Vietnam War (p 87).

Despite the fact that the Vietnam war was not a creation of cost-benefit analysis, contempt for cost-benefit analysis on the part of government and industry has become widespread (see also Chapter 6 of Schroyer, 1973). Another example is the discovery that Ford based its decision to manufacture the Pinto automobile with a gas tank vulnerable to rear end collisions in part on a cost-benefit analysis. This analysis showed that the value of the lives that could be saved by an \$11 fix on each car (estimated as 180 burn deaths at \$200,000 each, 180 serious burn injuries at \$67,000 each, and 2100 burned vehicles at \$700 each, or \$49.5 million) did not equal the cost of the fix (11 million cars and 1.5 million light trucks, at \$11 each, or \$137 million; Dowie, 1977; Cullen, Maakestad, and Cavender, 1984). Dowie (1977) in decrying this decision explicitly related Ford's calculations to the calculations made in McNamara's Defense Department.

As I argued above discussing a similar complaint by Nagel, what should be offensive about such tradeoffs is not that someone has dared place a monetary value on life (see Brody, 1976), but that the calculation does not reflect the public's values (the value of life is too low) and the analysis is inaccurate and incomplete (burns are in fact more common than deaths; the costs of ambulance and fire department service (not born by Ford) are not considered; Cullen, Maakestad, and Cavender, 1984). The errors and omissions are side effects of the fact that a decision is being made "about our lives which only we should be making for ourselves" (Regna, 1989, p 27). Rather than reject this form of analysis, it would be more useful to get the public's inputs on the dimensions of consequences to be included in the analysis and the tradeoffs among the different dimensions (Wartenberg, 1989).

Though one can argue that the public is unreasonable in its dislike of the use of measures of the costs and benefits of government actions, including going to war, the reactions are real nonetheless and political leaders are well aware of them. As a consequence, they have a strong motive, based not only on their own inability to measure and combine measures (as outlined above) but also on their realistic fear of people's disapproval, to avoid making these tradeoffs explicit. Until there is a change in public attitude, the politician who says "this is the action we take, this is the analysis it is based on, and these are the tradeoffs, risk attitudes, and temporal discount rates we used in the analysis", will be criticized. As a result, though leaders of course



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will act and their actions will have effects that could be described in terms of the cost-benefit tradeoffs implicit in their behavior, they will not make those tradeoffs explicitly.

In order for leaders to be willing to risk thinking in cost benefit terms and showing the basis of their deliberations to the public, they are going to have to believe that the public is not going to punish them for it. In order for the people to accept their leaders' consideration of measured consequences, they will need to accept that their government is not a benevolent parent; that it is constrained by economic and resource limitations; and that it has the power and indeed the duty to harm some people for the greater good. These changes depend on people who see the value of this form of discourse, the statistical analysis of consequences, defending it when it is attacked.

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Table 1. Some Awkward Choices (from Kahn, 1962, p 108)

| Policy | Probability of Loss | Amount of Loss      | Expected Loss | Probability of no loss |
|--------|---------------------|---------------------|---------------|------------------------|
| A      | 1.0                 | \$3,000             | \$3,000       | 0.0                    |
| B      | .1                  | \$3,000,000         | \$30,000      | .9                     |
| C      | .01                 | \$3,000,000,000     | \$300,000     | .99                    |
| D      | .001                | \$3,000,000,000,000 | \$3,000,000   | .999                   |

Figure 1. Impact of lives lost in war.

