

Disarmament and Decision Theory

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Summary

Attitudes to disarmament depend crucially on how people rate in their minds (a) the 'cost' of nuclear war, (b) the 'cost' of a conventional war if nuclear weapons are outlawed, (c) the cost of defence in peace time, and (d) the probability that nuclear war might break out. The decision matrix for any individual considering a range of policy options is either consistent, in which case one policy is uniformly preferable to another, or it is crossed, in which case the problem of weighing up imponderables is unresolved. Each side in the public debate tries to uncross the decision matrix to make their favoured policy appear consistent.

1. Elements of the disarmament debate

(a) The perceived 'cost' of nuclear war

- infinity: Extinction of all higher forms of life. 'A republic of ants and grass' (Jonathan Schell).
- - - : Collapse of civilisation, war zone uninhabitable for decades, long-term effects on humans, animals, crops, ozone layer etc.
- - : Few survivors in belligerent countries, many deaths in neutral countries, new power groups emerging, revenge-seeking politics, economic chaos.
- : Mortality less than pessimists predict, thanks to official foresight in planning and civilian co-operation. Survivors emerge to rebuild, giving a boost to the economy. Democracy restored in the East. New World Peace authority guarantees non-recurrence of nuclear war.
- 0 : Peace rapidly restored after a 'demonstration' attack or exchange of attacks. A new era of guaranteed deterrence.
- ++ : A successful 'first strike' eliminates the enemy with minimal damage to the victors. The magnanimous victor helps the loser recover under conditions of political or military impotence.

(b) The perceived cost of a conventional war if nuclear weapons are banned

- - - : Warsaw pact superiority in tank-power would lead to the inevitable fall of Western Europe to Soviet domination. The end of freedom and democracy. Slavery or forced labour.
- - : A long and bloody conflict using all modern weaponry barring nuclear weapons (biological, chemical, radiological, defoliants, fragmentation shells, robot devices), with both sides locked in a war of attrition. Stalemate and armistice.
- : A hollow victory by one side, leading to passive civilian resistance, non-cooperation, frustrating the war aims of the aggressor.

(c) The cost of defence in peace time

- - : Distortion of national and world economies for non-useful industrial production. Waste of energy and scarce metal resources. Military spending out of proportion to any real threat. Effect on other public spending (health, education, housing, overseas aid). Gives least employment for given level of public spending. Encourages secrecy, paranoia and suspicion, divisive within society.
- 0 : Defence regrettable, but nuclear forces at least cheaper than equivalent non-nuclear level.
- + : Cost necessary in a warlike world. Armaments industry provides direct and indirect support to many industries (motors, computing, shipbuilding, aviation, electronics, construction etc.). Exports highly profitable. Disarmament would increase unemployment, bankruptcies, balance of payments deficit etc.
- ++ : High defence spending brings peace of mind, strengthens our bargaining power at the conference table, shows that we will not be bullied.

(d) The probability of nuclear war

Linked to disarmament: If one side (usually the East, but by them the West) is assumed to be prepared to attack as soon as the balance of force is in their favour, then 'one-sided' disarmament is held to increase the probability of nuclear war (or a conventional attack to which the response has to be

nuclear). Evidence of Eastern intentions is of three kinds: verbal (the reported open or secret intention of Russia to dominate the world, or at least to encourage the spread of communism therein), historical (Stalinism, Afghanistan, Vietnam, Poland, Hungary, Cuba, Angola etc.) and military (estimates of tanks, missiles, submarines and soldiers, and high proportional military spending). Reciprocally, the East has its own interpretation of Western intentions to rid the world of communism, its historical experiences since 1812 and the contemporary Western support for right-wing dictatorships, and Western military spending and reluctance to negotiate an arms reduction.

A simple argument that depends on the foregoing assumptions, is that the non-occurrence of war in the last 36 or so years proves the effectiveness of deterrence.

Linked to rearmament: If one believes that both sides basically wish to avoid war, but because of the fearful consequences of being unready if war breaks out, are determined to strike first if it becomes seemingly unstoppable, then attack becomes the only form of defence. The more armaments deployed, the more places that have to be attacked to prevent the counter-attack. Hence the attraction of nuclear-free zones, however self-interested they may seem globally ('fight your war elsewhere!').

Linked to proliferation and escalation: The fear is that a little dispute may grow into a big one, as small powers call for help from the bigger powers. Irrational leaders may acquire nuclear weapons and threaten to use them. Terrorists may even obtain access to nuclear weapons, or infiltrate bases. Or a great power may make a move not intended to invoke full nuclear sanctions, but provoking over-reaction by the other side (eg. a larger scale Falklands-type dispute, requiring quick decisions by governments inflamed by indignant press and populace).

Linked to automation, technical complexity and communication failure: Many possible 'accidental factors' have been discussed (eg. by Nigel Calder in 'Nuclear Nightmares'), including misinterpreted radar signals, computer errors, misguided missiles, sinking of submarines, erratic local commanders, unreliable servicemen under the influence of drugs, boredom, alcohol or pique or fantasy.

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Failure of 'apology' messages to get through in case of accidental release of armed missiles.

2. Elements of decision theory

Decision theory evaluates policies in situations of uncertainty. The simplest examples (eg. whether to take a raincoat on an excursion) regard the outcome (whether it will rain or not) as unaffected by the policy. The disarmament debate is much more complicated, because the probabilities of each outcome (peace or war) are thought to be influenced by the policies (disarmament or deterrence or threat).

A decision matrix is a table of relative costs for each combination of policy and outcome. Often it is impossible to give realistic values to the costs: they may involve a mixture of cash costs, human benefit and suffering, environmental or aesthetic costs, short term gains and long term losses, benefits to some and losses to others. Even so it may be possible to rank the costs in some order, and be able to select the best policy.

Evaluation of a decision matrix depends on the estimated probabilities assigned to each outcome, given each policy. The risk of the policy, in cases where accurate relative costing is possible, is the sum of the products (probability x cost). This can be illustrated by a matrix of risks rather than costs. A decision matrix may then either be consistent in favouring one policy rather than another, whatever the outcome, or crossed in which case there is a conflict of judgement. Most theoretical discussion deals with crossed matrices: these are the interesting cases to debate, and in a business or everyday context one may talk of minimising the maximum risk, or the average risk, or of conducting a mixed strategy using one policy for part of the time and the other policy for the rest of the time.

3. Application of decision theory to disarmament

Given the perception of risks and costs outlined, there appear to be three consistent stances: nuclear disarmament, deterrence and aggressive rearmament. In between are crossed matrices, leaving people bewildered by the enormity of the risks attached to all policies, and liable to be swayed by the most recently reinforced cell of the matrix. Politicians do not like crossed matrices: they prefer to present a policy as being clear-cut, and to emphasise its strengths and dismiss its weaknesses. In trying to convert people to their way of thinking they concentrate on 'uncrossing' the matrices, emphasising particular features. Total conversion from one consistent position to another is less easy: several positions must be reversed simultaneously.

3.1 Nuclear disarmament

The policy options are disarmament (unilateral or multilateral: it is the end, not the means that is important), maintaining deterrence (multilateral rearmament), or maintaining superiority (unilateral rearmament). The outcomes are peace, conventional war or nuclear war.

If the cost of nuclear war is very large, or infinite, then whatever the probability of war, the risk is almost infinite, unless the probability is exactly zero. To achieve a consistent matrix that favours disarmament in all circumstances, nuclear disarmament campaigners also discuss the possibility of conventional war. Therefore, in arguing against official government policy, the CND position looks like this:

<u>Policy</u>	<u>Nuclear war</u>	<u>Conventional war</u>	<u>Peace</u>
Disarmament	Less probable less destructive - -	Possible but but survivable -	Frees resources, good for the economy + +
Deterrence	More probable, and totally destruct- ive - - - -	Possible, but likely to go nuclear - -	Wasteful and evil - -

This matrix is undisturbed by detailed arguments about particular difficulties (over verification, trust, behaviour of one side or the other, effects on particular industries). Arguments about whether to tackle the problem gradually (one system at a time, one country at a time) or instantly (at a marvellous peace conference where all the conditions of the 1978 UN Special Session on Disarmament are implemented), are less important than the details that reinforce the risk values assigned above.

Therefore the arguments from nuclear disarmers concentrate on describing the effects of nuclear weapons, the futility of civil defence, and the factors affecting the probability of nuclear war, including the accidents, dangers of proliferation, and the danger of hostile speech-making rather than detente.

To counter criticisms about the values in the other columns, CND is beginning to discuss subjects such as the role of civilian resistance in a conventional war leading to occupation, the role of conventional truly defensive devices (anti-tank weapons, anti-communication systems etc.), and the need to plan for redeployment of skilled workers in the defence industries (eg. the Lucas Aerospace shop stewards report) and new directions for research and development, and aid to developing countries (in line with the Brandt reports). The government's

failure to discuss these issues, reinforced by its negative performance in the negotiating chamber, leads one to doubt the sincerity of its claim to be working for disarmament, except as a cost-cutting exercise.

3.2 Arguing for deterrence

Official government propoganda, in Britain and elsewhere, tries to discredit the peace movements by putting forward what appears to be a consistent decision matrix of the following kind:

<u>Policy</u>	<u>Nuclear war</u>	<u>Conventional war</u>	<u>Peace</u>
Disarmament	More probable, and leading to defeat with no chance to retaliate - - -	More probable, because of Russian aggressive intentions. Subjugation and slavery - -	Loss of jobs and exports -
Deterrence	Unlikely, in view of the success of the last 37 years. Survivable with proper civil defence. Retaliation possible - -	Less probable because of our resolve to retaliate with nuclear weapons -	Peace of mind and prosperity +

The matrix is consistent as it stands, but is weakened by any discussion of the effects of nuclear war, or the logical fallacy of the '37 years' argument. Therefore CND is accused of trying to frighten people, and effort is made to portray Russia as a bully, to exaggerate the importance of Afghanistan, to paint the blackest possible picture of life under occupation, and to emphasise the importance of arms manufacture and sales. The policy on civil defence is in disarray because of the widespread ridicule ascribed to 'Protect and Survive'. The impressive list of professionals attacking different aspects of official policy (through the Church, the medical profession, international lawyers, scientists etc.) are all undermining the structure of the matrix. The official reaction in such circumstances is to abandon any attempt to discuss policies but to concentrate on attacking individuals, to discover sinister links with the Left wing, to talk about disloyalty and lack of patriotism.

For CND it is essential to reinforce all parts of its arguments, because faced with a crossed decision matrix of such enormous importance, the average citizen prefers to put the matter out of his mind: any policy seems equally uninviting, so there is no point in even discussing it.

3.3 Aggressive policies

It is worth also looking at the decision matrices used by 'hawks', who may seem to be ignoring most of the facts, and are yet possibly able to influence American or Russian policy, especially in any crisis situation where there is no time to evaluate properly.

To the hawk, war is inevitable, therefore it should be waged as soon as it is likely that it will be won. To delay is to let the enemy build up its strength. There is often a simplistic element using crude analogies with minor disputes ('teach Ivan a lesson', 'Nuke Teheran or Buenos Aires'), and a softening of language to obscure the horrors ('taking out a target', 'a small exchange of tactical devices', 'confined to a theatre of operations', 'acceptable casualty levels'). The decision matrix is 3X2 rather than 2X3, as follows:

<u>Policy</u>	<u>War</u>	<u>Peace</u>
Disarmament	Invites surrender - -	Decadent and bad for business -
Deterrence	Works fine, but may not last. We don't want to be caught napping 0	Scope for profitable business: encourage shelters as well as military hardware +
Preparedness	If war is inevitable we are going to win it. We are big enough to take the punishment +	If we are serious we must improve our civil defence, and build real shelters ++

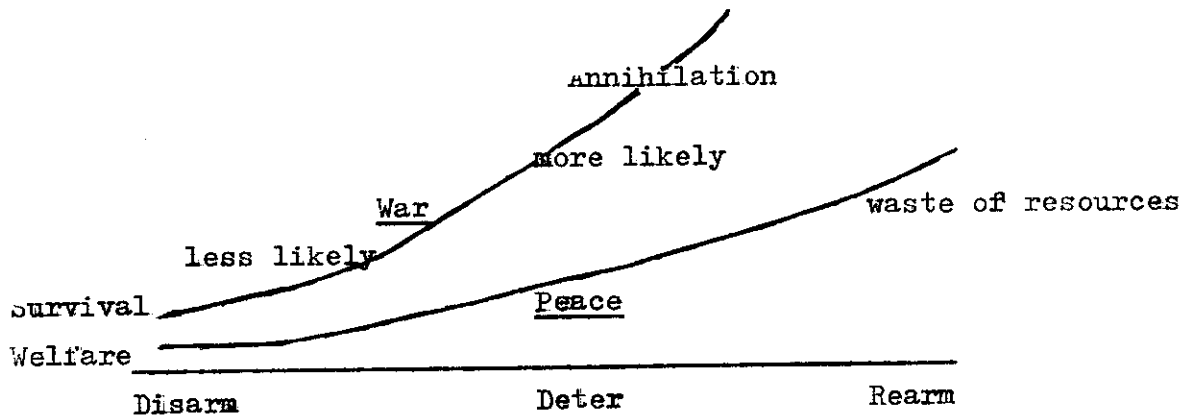
The government is anxious to distance itself from such policies, but individual politicians obviously think along these lines rather than along the middle way of the official line.

4. Conclusions

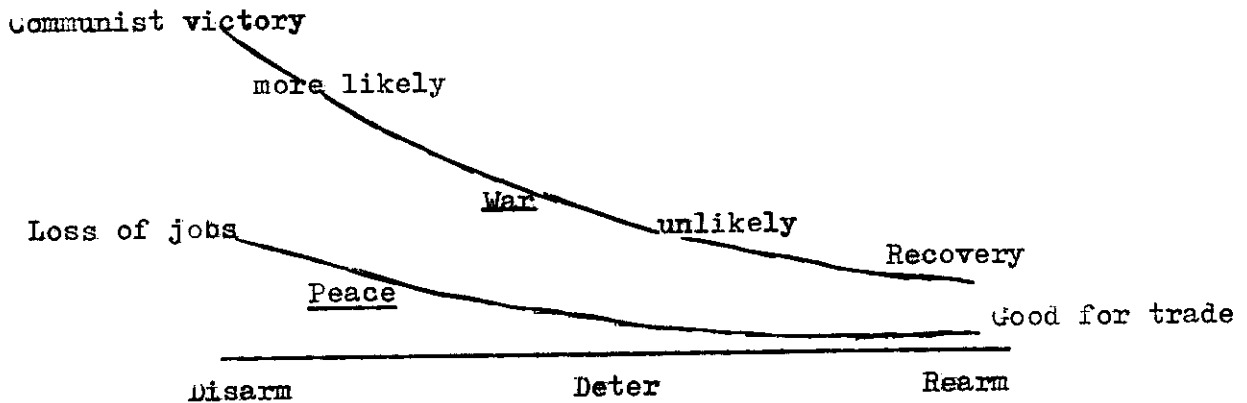
If nuclear disarmament is to come about, it is essential to refer to the decision matrix that reinforces it. Otherwise one is talking to people whose whole frame of reference is unreceptive to the idea.

Risks of different policies

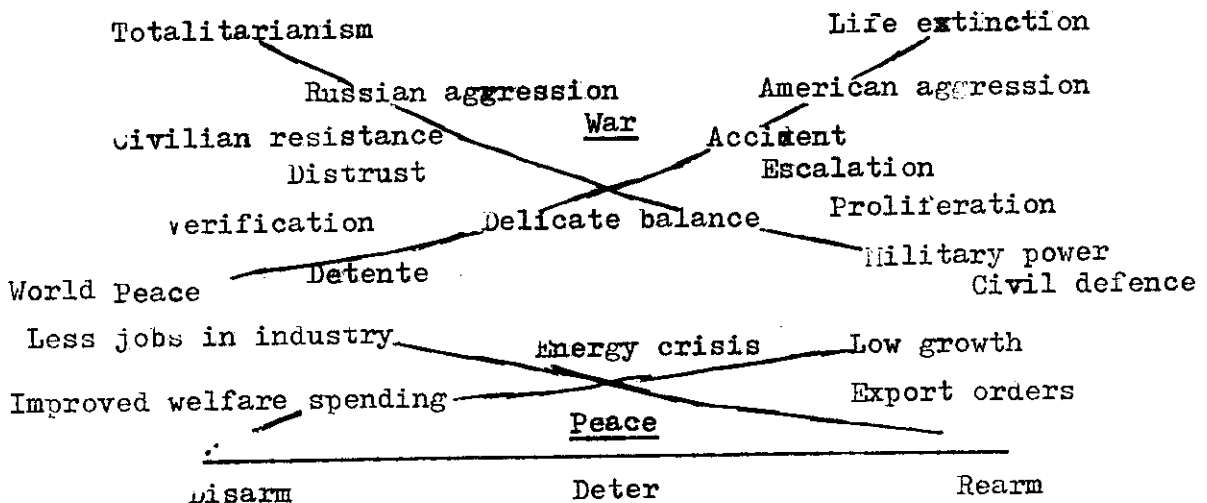
1. Convinced disarmament supporter



2. Convinced deterrence supporter

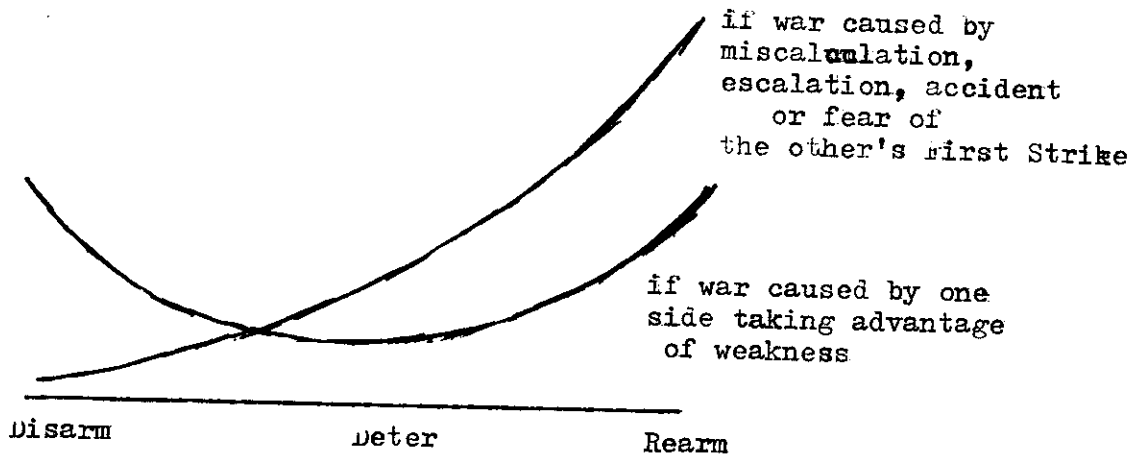


3. Confused neurotic citizen



Probability of War (no figures attached)

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Consequences of War for U.K. if it happens and we ...

Pessimists	Surrender and subservience	Radioactive desert for centuries	80% casualties, primitive conditions for survivors
	Prolonged conventional war	heavy casualties slow recovery	Retaliation after severe attack
Optimists	Not a target	Acceptable casualty levels	victory and recovery
	Disarm	Deter and give cheap advice on CD	Rearm and build shelters