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The concept of essential equivalence is traced from its beginnings in the Soviet approach to nuclear parity and continuing strategic buildup of the late 1960s, through the official, 1970s US statements describing essential equivalence as a major US objective. Essential equivalence is defined as approximate equality in the strategic nuclear capabilities of the United States and the Soviet Union, an approximate equality that

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requires more and better US weaponry than is required for deterrence alone. Essential equivalence is sought because Soviet and third-party perceptions of US strength are believed to be based on it, and these perceptions are considered important for political-diplomatic reasons. The report briefly discusses ways of measuring equivalence and raises questions as to the value of equivalence as a policy goal. Fully annotated bibliography.

ANALYTIC RESEARCH ON

STRATEGIC, TACTICAL AND DOCTRINAL

MILITARY CONCEPTS

DRAFT REPORT

The Concept of Equivalence of Strategic Forces

A paper prepared for the Defense Nuclear Agency
under Contract No. DNA 79-C-0285, October 1980.

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D R A F T

THE CONCEPT OF EQUIVALENCE OF STRATEGIC FORCES

INTRODUCTION: TERMINOLOGY

Before one can begin to write about equivalence as a strategic concept, some matters of terminology must be cleared up. Basically, equivalence contrasts with equality, and Webster's Dictionary of Synonyms makes the distinction between them nicely: "Things are equivalent when they amount to the same thing. . . . Things are equal when there is no difference in number, amount, magnitude, value, or the like." (Emphasis added.)*

The distinction may be pinned down with an example. If one wishes to give two men equal amounts of vitamin C, one may accomplish this task by handing each of them a tablet containing 200 milligrams of that vitamin. If this is not possible for some reason, one can give them equivalent amounts of vitamin C by giving the first man a tablet containing 100 milligrams of vitamin C, plus three large oranges, while giving the second man four small oranges, a handful of strawberries, and a small slice of cantaloupe.

This homely example not only illustrates the distinction between equality and equivalence, but also makes clear one important aspect of equivalence. While it is relatively easy to be sure that one has given two persons equal things, it is very difficult to be sure that one has given them truly equivalent things. Such questions arise as "How large is

*Springfield, Mass.: G. & E. Merriam, 1951.

a large orange?" "Do fresher fruits have more vitamins?" "Are synthesized vitamins as readily absorbed as those occurring in nature?" It becomes clear that in practice precise equivalence does not exist, that all equivalence is approximate.

The analogies to strategic forces are obvious. This paper does not focus on the problem of measuring strategic forces for the purpose of judging whether or not those of the United States and the USSR are equivalent. It focuses rather on the concept of equivalence. However, the complexity of assessing equivalence must at least be mentioned. The following interacting factors, and more, must be considered: number of launchers, number of warheads, warhead yield, warhead accuracy, system reliability, and penetration capability. Such questions arise as, "How much superior accuracy balances a strong superiority in yield of warheads? Is equivalent megatonnage (EMT = $Y^2/3$, if Y = yield) a satisfactory measure of gross effectiveness? Must superior civil defense and air defense capabilities be counted as subtracting from the effectiveness of the opponent's offensive force? The point of mentioning these questions here is to show that equivalence in strategic forces can never be exact, that it must always be approximate, or rough, or essential. Therefore, in this paper, the commonly used expressions essential equivalence and rough equivalence will be considered synonymous with equivalence and with each other.

Parity is another term with a similar meaning. Unlike equivalence, parity has a long history of use in international discourse on armaments, having been brought to that field from legal terminology. Parity, for example, was the term used for the 5:5 relationship in capital ships and

aircraft carriers established between Britain and the United States, and the 1.67:1.67 relationship established between France and Italy, under the Washington Naval Treaty of 1922. Equivalence is a US term, relatively recently introduced to discourse on strategic matters. However, the two terms are basically synonymous, both referring to things that are not equal but that "amount to the same thing" in the terse phrase of Webster's Synonyms dictionary. In this paper, equivalence and parity will be used as synonymous. Rough parity will also be considered synonymous with parity, just as rough equivalence is considered synonymous with equivalence.

HISTORY OF THE CONCEPT OF EQUIVALENCE

The concept of equivalence appeared on the US strategic scene only in the late 1960s. Earlier, when the United States had, first, a monopoly and, later, a commanding lead in nuclear weapons and delivery systems, equivalence was not an issue. During the period of the hypothetical but nonexistent missile gap (approximately 1958-61), there was anxiety about maintaining or regaining US superiority, but no question of settling for equivalence. (J. Foster 1978:25)

In the mid-1960s, when it became clear to informed members of the defense establishment that the Soviets were engaging in a massive and rapid buildup of strategic weaponry, the issue was still not equivalence. By that time the concept of stable deterrence based on possession by both sides of invulnerable retaliatory forces had become firmly established as conventional wisdom and official policy. Closely related to this concept was the idea that arms control and weapons acquisition were not conflicting goals but rather complementary parts of one coherent defense policy, whose binding

force was the concept of stability.* From this point of view, the Soviet buildup was not a serious threat, since any strategic forces beyond those needed for a secure retaliatory force that could do unacceptable damage to the opponent's cities and industries were considered surplus forces. As James Foster has pointed out, Secretary of Defense Robert McNamara appears to have believed as early as 1963 that the rapidity of the Soviet buildup was an argument for the United States to spend less, not more, than it otherwise would have spent on strategic weaponry. Since it would be extremely expensive, and probably not possible, to be able to destroy the entire Soviet missile force, it seemed reasonable not to try to achieve that capability, but rather to rely on deterrence by the threat of a retaliatory attack on Soviet cities and industry.**

It should be noted, in view of the discussion that has followed the 1980 announcement of PD 59 and its emphasis on selected Soviet military targets, that a massive US retaliatory strike against all Soviet targets, including cities, was only one McNamara option in 1963, and it was to be a retaliation in kind for a comparable Soviet attack. McNamara also set forth a second US option, to be followed if the Soviet attack had not been massive: retaliation against "bomber bases, missile sites, and other military installations" to reduce the power of any follow-on attack, while keeping in reserve the capability of striking the Soviet urban and industrial complex. (US Department of Defense 1963:30) What McNamara did relinquish at that

*See entries for Schelling and Halperin 1961 and G. Snyder 1960 in bibliography for accompanying paper on stability.
**Foster 1978:25, citing William W. Kaufmann, The McNamara Strategy (New York: Harper and Row, 1964), pp. 282-85.

time was the capability for a disarming counterforce first strike.

At about the same time, in a November 1963 address, McNamara stressed the importance of the damage-limiting capability of US forces, that is, the ability to destroy some Soviet missiles before they could be launched, and ascribed it to US numerical superiority. To stress the value of this numerical superiority and consequent damage-limiting capability, he pointed out that the smaller Soviet forces could not realistically aspire to damage-limiting capability, and said that this was one reason he would not trade the US strategic posture for the Soviet posture at any time in the coming decade. (McNamara 1963;112) Clearly, at that time, numerical superiority was considered significant, even if a disarming counterforce strike was no longer practically achievable. The concept of equivalence did not come up.

By the end of his tenure as Defense Secretary, with the massive Soviet buildup continuing and Soviet missile sites rapidly being hardened, McNamara had also relinquished the hope of limiting damage to the United States if a Soviet attack should be made. The one US strategic aim became the deterrence of attack through the ability to destroy the would-be attacker "as a 20th Century nation" and the "unwavering will to use these forces in retaliation to a nuclear attack upon ourselves or our allies." McNamara also devoted attention in his 1968 annual report to the question of <u>sufficiency</u>, of how much destruction would be necessary for the Soviet Union to be destroyed as a 20th Century nation, as a measure of how large the US retaliatory force should be and what characteristics it should have. The question of <u>equivalence</u> with the Soviet Union in quantity and characteristics of weapons was still not raised. (US Department of Defense 1968:47)

Even when the assured destruction policy was at its briefly held zenith in official Defense Department policy, analysts within the broader defense community were searching for options other than all-out retaliation. With the coming of a new administration in 1969, this effort was greatly enlarged, leading to Secretary Schlesinger's presentation of the selective nuclear targeting policy in 1974. At the same time, increased attention was paid to the question of "who's ahead" in quantity and quality of nuclear forces, not only in the Defense Department but by many members of Congress. The 1972 Jackson amendment -- to the legislation approving the SALT I interim agreement -- wrote equivalence into law. This amendment required that the United States maintain levels of intercontinental strategic forces not inferior to those of the Soviet Union, as a condition for Senate approval of the SALT I interim agreement.*

The term equivalence is not mentioned in Secretary Laird's final report in 1973, but the idea is there:

> We have strategic sufficiency at the strategic nuclear level because Congress agreed with us that the American people may perhaps be willing to accept strategic nuclear parity, but would never accept inferiority. (US Department of Defense 1973:5; emphasis added)

It may be noted that Secretary Laird also used the term sufficiency, and in a slightly different way from Secretary McNamara. McNamara was concerned about the amount of potential destruction that would be necessary to deter the Soviet Union, and, by implication, about the amount of US force that would be necessary to achieve that destruction. Laird appeared

*PL 92-448, signed by the President as amended, September 30, 1972.

to be associating sufficiency with parity -- in contrast to inferiority -- with the Soviet Union.

Also in 1973, the new Defense Secretary, Elliot Richardson, listed three principles of foreign policy in his annual Defense Report: partnership with friendly nations, sufficiency of military strength, and willingness to negotiate. Of these, the only military item was the one calling for sufficiency, which presumably in this case meant simply whatever forces might be necessary to carry out US military aims. Equivalence was not mentioned. (US Department of Defense 1973b)

In his FY 1975 Defense Report, Secretary Schlesinger mentioned equivalence, and indeed essential equivalence, as a fact, but did not set it forth as an aim:

> The issue that faces us no longer is (if it ever was) how to avoid initiatives that might continue or accelerate the strategic competition, but how -- in a situation of essential equivalence -- to interpret and respond to a wide range of potential Soviet initiatives. (US Department of Defense 1974:26)

However, Schlesinger did express aims that are close to equivalence. He called for a "more equitable and stable arrangement" in which

> both sides maintain survivable second-strike reserves, in which there is symmetry in the ability of each side to threaten the other, and in which there is a perceived equality between the offensive forces of both sides. (p. 44)

Lehman and Hughes (1977:1046) have described this as Schlesinger's public announcement of a policy of equivalence and have described the three criteria quoted above as criteria for equivalence. However, survivable second-strike reserves are the basic requirement for mutual deterrence and have always been so regarded, and symmetry in the ability of each side to threaten the other, although subject to various interpretations, appears

also to be a bulwark of mutual deterrence and crisis stability, not necessarily requiring equivalence of forces. It is the last criterion, "perceived equality between the offensive forces," that seems to describe what came to be called essential equivalence.

In this same FY 1975 Defense Report, Schlesinger listed six features of the defense program proposed for the next five years. Along with assured destruction and flexible targeting was listed the following:

> an offensive capability of such size and composition that all will perceive it as in overall balance with the strategic forces of any potential opponent. (US Department of Defense 1974:45)

Again, although the term equivalence is not used, here is a call for a force that appears to be the equivalent in size and composition of that of the opponent. Here is mentioned an aspect of military strength that is valued for the perceptions it produces. It is apparently something in addition to the forces earlier deemed necessary for deterrence, since these are listed separately as forces for assured destruction, flexible targeting option capabilities, and survivable second-strike reserves. The idea is that US strategic striking forces should not appear inferior to those of an opponent. This idea was to become an important aspect of equivalence.

In the Fiscal Year 1976 Defense Report, Schlesinger spoke explicitly of equivalence and specifically of essential equivalence. The element of perceptions was again present, and specifically perceptions of non-superpower nations. However, the essential equivalence he spoke of differed from the concept as it was most often understood later in that it did not seem to refer to numerical equivalence, but rather to qualitative matters. Schlesinger did not speak of aggregate force size or composition. (Foster 1978:27):

> Credible nuclear deterrence depends on the satisfaction of four major requirements. First, we must maintain an essential equivalence [emphasis added] with the Soviet Union in the basic factors that determine force effectiveness. Because of uncertainty about the future and the shape that the strategic competition could take, we cannot allow major asymmetries to develop in throw-weight, accuracy, yield-to-weight ratios, reliability, and other such factors that contribute to the effectiveness of strategic weapons and to the perceptions of the non-superpower nations. At the same time our forces should promote nuclear weapons and by deterring and avoiding increased nuclear deployments by other powers. (US Department of Defense 1975:I-13)

Two of the other three requirements were for assured destruction capability and flexible targeting capability. The fourth was for

> range and magnitude of capabilities such that everyone -- friend, foe, and domestic audiences alike -- will perceive that we are the equal of our strongest competitors [emphasis added]. We should not take the chance that in this most hazardous of areas, misperceptions could lead to miscalculation, confrontation, and crisis. (US Department of Defense 1975:I-14)

With its focus on equality and perception, this fourth "major requirement" is perhaps closer to what essential equivalence later came to mean than is Schlesinger's first requirement, which is explicitly designated essential equivalence.

Meanwhile, in Congress, the Senate remained committed to equivalence of intercontinental strategic forces. On May 5, 1976, the Senate reaffirmed the Jackson amendment with passage of the Allen-Byrd amendment, which repeated that equivalence is the only acceptable US-Soviet strategic force ratio, and the only basis for a permanent SALT agreement. (Lehman and Hughes 1977:1046) Also, in 1976, in the Presidential campaign of that year, candidate Jimmy Carter spoke of favoring "rough equivalence" of strategic forces. (Lehman and Hughes 1977:1046)

In the Joint Chiefs of Staff military posture statement for FY 1978, submitted in 1977, equivalence was again discussed. In the introduction to the document, the authors stated that "rough equivalence" had come into being as a result of the massive growth in Soviet strategic nuclear capability, and then spoke of the importance of maintaining this "rough strategic equivalence." (US Joint Chiefs of Staff 1977:1)

In the body of the statement, the concept of essential equivalence appeared as central to "US Nuclear Strategy." The paragraph immediately following that heading reads:

> The basic military goal of the United States is to deter armed conflict. In support of this goal, our nuclear strategy is to maintain nuclear stability through a clearly perceived essential equivalence in strategic nuclear forces. By this equivalence, we expect to deter the use, or the threat of use, of nuclear forces against the United States, our deployed forces, our allies, and other nations considered essential to our security. We seek to create a situation where the Soviet Union will not gain an advantage from the initiation of strategic nuclear warfare. (US Joint Chiefs of Staff 1977:6)

This passage makes it clear that essential equivalence means essential equivalence in aggregate strategic forces, and also reiterates the idea that the equivalence must be perceived as equal. However, despite the prominence given to essential equivalence, the report does little to clarify its role. It would appear from the paragraph quoted that stability is the chief foundation of deterrence, and equivalence the chief foundation of stability, which would logically make equivalence of prime importance to deterrence. Indeed, the paragraph clearly states, "By this equivalence, we expect to deter the use . . . of nuclear forces" [emphasis added].

Actually, the massive literature on deterrence and the many official references to it make it clear that equivalence of forces has generally

not been considered a requirement for deterrence. Deterrence has, from the period just after World War II, been considered to depend on possession of an invulnerable retaliatory force, one that can survive a strike against it and still deliver unacceptable damage to the attacker. Mutual deterrence is believed to exist when both sides have such invulnerable forces. Equality or equivalence in the size of the forces has not been considered, and is not logically, essential to deterrence. Stability is a more complicated concept than deterrence, one on which there is less agreement. However, in a strategic nuclear context, it usually means a low probability of strategic nuclear war, and, specifically, a low probability that is achieved by the existence of highly invulnerable retaliatory forces on both sides and vulnerable societies (serving as targets for the opposing retaliatory forces) on both sides.* Equivalence is far from the basic requirement for stability, so understood. Certainly equivalence of forces alone could not achieve a situation in which the Soviet Union could not "gain an advantage from the initiation of strategic nuclear warfare," as the last sentence of the quoted passage suggests, unless hardening, dispersal, and concealment of the retaliatory force are counted when the strength of forces is added up.

There is, however, an inevitable intuitive association between the size and effectiveness of one's forces and one's ability to deter attack. It seems certain that the Soviet military leadership views deterrence in this light. Soviet attitudes, and some relevant US analysis, are discussed

*See the author's papers on deterrence and stability, prepared for the Defense Nuclear Agency under the current contract.

below, pp. [18-24]. In any case, it appears likely that the authors of the FY 1978 Posture Statement did not mean to make their claims for essential equivalence as sweeping as they actually did.

Secretary of Defense Harold Brown, in April 1977, a few months after taking office, spoke about essential equivalence in an address at the University of Rochester. Brown listed deterrence, stability, and equivalence as three major objectives sought by the United States in its strategic planning. This listing indicates that Brown saw equivalence as an objective separate from deterrence and stability and roughly equal to them. James Foster, in analyzing Brown's statement said that the three objectives were listed as coequal and inferred that, since deterrence and stability are sufficient to fulfill the military task of strategic weapons, equivalence must be intended for international political purposes, to influence perceptions of the strategic balance. (Foster 1978) Brown did indeed mention the "significant political advantages" the Soviets might acquire if the two superpowers or other nations perceived "an unequal strategic balance." However, it is not entirely clear that Brown intended the three objectives to be equal and separate. They seem, rather, closely intertwined in his address.

Brown stated that the United States has "foregone the quest for a first-strike superiority over the Soviet Union" in the interest of stability, noting that stability requires a secure Soviet deterrent as well as a secure US deterrent. This is good, orthodox stability theory,* and the United States had indeed renounced efforts to maintain a first-strike

*See the author's paper on stability, prepared for the Defense Nuclear Agency under this contract.

capability, both for reasons of stability theory and because of the great fiscal difficulty of maintaining such a capability in the face of the massive Soviet buildup.

Secretary Brown went on to say that while we have relinquished superiority we will accept nothing less than equivalence. This is an unexceptionable statement, but it implies that it is superiority in numbers that produces a first-strike force, whereas a first-strike force requires a force much larger in numbers, and possessing several other characteristics that enable it to disarm the opponent's strategic forces. The choice is not really between a first-strike force and a not-less-than-equivalent force, as it seems to be here.

Further, on the subject of deterrence, the Secretary's address stated that US forces will "continue to provide a deterrence that . . . produces perceived equivalence," so that equivalence here seems to depend upon deterrence, rather than vice versa, as in the FY 1978 posture statement.

To analyze the Secretary's entire discussion of equivalence would be an unnecessarily intricate exercise. Suffice it to say that, in this address, the three concepts of deterrence, stability, and equivalence seem closely interdependent in ways that are not very clearly defined.

What seems clear is that not much importance should be given to the fact that in the posture statement deterrence appears to depend upon stability and stability upon equivalence, while in Secretary Brown's address the three objectives are listed in a way that makes them appear, at first glance, to be considered equal and independent. To note this is not to criticize it. Official statements are not likely to be clear and logical,

since a little fuzziness provides for more freedom of interpretation and action. George Quester has recently made a strong case for President Eisenhower's effectiveness in foreign affairs, an effectiveness achieved in part by deliberately keeping policies somewhat vague.* However, it does seem important that policy makers and influential members of the defense community have some clear and shared idea as to what these concepts mean, if policy is to be based on them.

A culminating example of juggling the relationships of deterrence, stability, and equivalence may be noted. The terms of reference for the National Defense University Conference on Equivalence, Sufficiency, and the International Balance (1978) referred to equivalence as the "essence" of US strategic policy, entailing crisis stability, the balancing of US and Soviet strategic force advantages, the universal perception of equality in strategic capabilities, and the denial of nuclear forces as instruments of political leverage, coercion, or military advantage. (Foster 1978:24-25) To make essential equivalence the "essence" of US strategic policy and to subsume crisis stability and what sounds like deterrence under the heading of essential equivalence would suggest a revolution in strategic thinking if the authors of these terms of reference really meant what they said.

Secretary Brown, in his FY 1979 annual Defense Report, made the clearest presentation of essential equivalence, up to that time, that has been found. After discussing deterrence, Secretary Brown stated that nuclear capabilities

*"Was Eisenhower a Genius?." International Security 4:159-79 (fall 1979).

are not solely instruments of deterrence, but also have other functions. They are the backdrop for international politics and play a role in international diplomacy, as a threat or as an inducement to seek alliance with their possessor. Theoretically, the forces necessary for deterrence should be enough, but practically, other countries may not assess forces in this way, and may think the United States is weak if it does not possess forces essentially equivalent to those of the Soviet Union in "strategic offensive capabilities." (US Department of Defense 1978:56)

The report went on to define essential equivalence as

> a condition such that any advantages in force characteristics enjoyed by the Soviets are offset by other U.S. advantages. Although we must avoid a resort to one-for-one matching of individual indices of capability, our strategic nuclear posture must not be, and must not seem to be, inferior in performance to the capabilities of the Soviet Union.

It then listed four purposes of essential equivalence, the first of which was to keep political perceptions of strategic weaponry as high as the "military realities" and prevent an opponent from using his strategic forces to seek political advantage over the United States. The others were to contribute to stability by reducing the chances that either side would "become vulnerable to charges of a bomber or missile gap"; enhance crisis stability by reducing the incentives for either side to strike first or preempt; and make it more sure that future SALT agreements will codify equivalence and not some existing imbalance of forces. (US Department of Defense 1978:56-57)

From this treatment of essential equivalence, certain features emerge fairly clearly. Although it is not stated specifically, it seems clear that the chief reason for maintaining (or regaining) essential equivalence is

the international political role played by the ratio of US to Soviet forces. It is other countries' perceptions of relative US and Soviet strategic nuclear forces that require essential equivalence. However, the report makes it clear that what is to be achieved by the United States is not merely the semblance of equality -- the US posture "must not be, and must not seem to be, inferior [emphasis added]." The ways in which equivalence is to be measured are, probably purposely and probably wisely, left undefined, but a reasonable assumption would be that "force characteristics" includes both qualitative and quantitative factors.

The relationship between stability and equivalence is a little hard to make out. The point about crisis stability is fairly clear, but the phrase "become vulnerable to charges of a bomber or missile gap," is not. Apparently, what is referred to here is arms race stability; i.e., if essential equivalence exists and is universally recognized, there is little danger that either side will fear it suffers from a bomber or missile gap, and thus little danger that it will undertake a huge weapons acquisition program to make up the suspected gap.

A final point may be noted about this report. The references to "one side or the other" and "either side" suggest that equivalence is considered a desired condition, preferable to US superiority as well as preferable to Soviet superiority. This is not stated, and may well not be intended, but it is an inference that may logically be drawn.

The Defense Report for FY 1981 also deals at some length with essential equivalence, which is listed as the first of four "other objectives" of US strategic policy, following deterrence, the "most fundamental objective."

It is made clear that it is primarily because of the perceptions of other nations that essential equivalence is needed. The political impact of nuclear forces is pointed out, and it is stated that this impact is influenced by both static and dynamic evaluations of relative military capability. Static measures include numbers of warheads, throw weight, and equivalent megatonnage. Dynamic evaluations are not defined, but this term usually refers to assessments of how effectively the forces would carry out missions in hypothetical scenarios of crisis and conflict. Again it is stressed that the equivalence must both seem and be real. It is also made clear that equivalence exists if Soviet advantages in one measure are compensated for by US advantages in another. (US Department of Defense 1980:68-69)

SUMMARY OF ESSENTIAL EQUIVALENCE AS PRESENTED IN OFFICIAL DOCUMENTS

Although these various statements in official documents are not always clear or consistent, certain constants do emerge, making possible the following summary.

During the early 1970s, when it became clear that the Soviet strategic nuclear buildup would soon bring that nation into parity with the United States, and quite possibly to superiority over the United States, in many weapons characteristics, there was concern in the US defense community over the possibility of the United State's falling behind its chief rival in strategic capabilities. Congress in 1972, and the Department of Defense in 1975, explicitly made essential equivalence official US policy.

Essential equivalence, as the concept had evolved by 1980, is a condition in which the United States holds forces that are as strong as those

of the Soviet Union because any numerical or qualitative advantages the Soviet Union holds in some weapons are compensated for by US numerical or qualitative advantages in other weapons. Achieving essential equivalence may require the United States to acquire weapons or weapons characteristics additional to those required for deterrence. While deterrence requires only an invulnerable retaliatory force capable of doing unacceptable damage to an attacker after riding out the attacker's first strike, essential equivalence may require additional forces to bring US forces up to approximate overall equality with those of the Soviet Union. The purpose of these additional forces is primarily political, rather than military. They are required so that neither the Soviet leadership nor governments of other countries will think that the United States is weaker than the Soviet Union, and make decisions on that basis. Thus it is important that essential equivalence not only exist but be perceived as existing.

Logically, essential equivalence might also be considered desirable to help the United States effectively fight a nuclear war if deterrence should fail. However, this point has not been made in any of the official statements or reports examined.

COMMENTS ON EQUIVALENCE BY DEFENSE ANALYSTS

Relatively little seems to have been written on the concept of equivalence. While the concepts of deterrence and stability appeared first in the works of civilian analysts and then were gradually adopted by the official defense community, the equivalence concept evolved in Congress and the Defense Department in response to the shifting ratio of US to Soviet strategic nuclear forces, with little theoretical incubation.

In most of the early literature on nuclear strategic concepts, the idea of equivalent forces was mentioned only to be disparaged. Glenn Snyder, in a paper that dealt with deterrence and stability, explicitly stressed that numbers are not very important for nuclear-age forces. Stability is what is sought he said, and accuracy and vulnerability are what is important in gaining stability, not numbers. Stability varies inversely with both the accuracy and the vulnerability of intercontinental missiles. Numbers are relatively insignificant.*

Jerome Kahan, in his influential 1975 book, Security in the Nuclear Age, said that numerical equality should not be sought for its own sake, as this could appear a threat to the Soviet Union.** Elsewhere in his book, however, Kahan stated that, although numerical comparisons really have little bearing on deterrence, still, an approximately equal balance of forces between the United States and the Soviet Union is desirable. This will make future arms control agreements more attainable, since neither side would wish to codify its inferiority in an agreement. It is also important, Kahan said, because it "influences U.S.-Soviet perceptions of power and affects the credibility of America's alliance guarantees.***

Thus Kahan, writing at about the time of Secretary Schlesinger's FY 1975 and FY 1976 Defense Reports, presented a similar view of essential equivalence: it is required in order for the United States to be perceived as no less than equal in power to the Soviet Union. He also pointed out that the Soviet Union considered "political parity" with the United States,

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*"Balance of Power in the Missile Age," Journal of International Affairs, Vol. 14, No. 1 (1960), pp. 21-34.
**Washington: The Brookings Institution, p. 274.
***Ibid., p. 305.

not just the possession of a militarily adequate deterrent, to be a prerequisite for Soviet participation in strategic arms talks.*

Edward L. Rowny, a retired Army lieutenant general who served as Joint Chiefs of Staff representative to the SALT negotiations until his retirement in protest against the agreements signed in 1979, has seen stability as depending on essential equivalence and predictability, although he does not explicitly reject an invulnerable retaliatory force as the basis of stability.**

The authors of the Arms Control Impact Statements for FY 1980, although they generally see stability as a function of invulnerable retaliatory forces and vulnerable societies on both sides, recognize that "political" stability, in contrast to crisis stability, would be more likely to result from balanced (i.e., roughly equivalent) forces than from an invulnerable retaliatory force alone. They also imply that "the current large asymmetry in throw-weight" in favor of the Soviet Union is destabilizing, since they list a possible reduction of this asymmetry as a stabilizing factor. (US Congress 1979:18, 19)

The fullest and most useful analytic treatment of equivalence that has been found is that of James L. Foster, prepared for a National Security Affairs Conference of the National Defense University in 1978. The questions Foster asks at the beginning of his paper provide a good outline of what we would like to know about equivalence.

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*Ibid.

**"SALT Would Codify U.S. Strategic Inferiority," Baltimore Sun, July 25, 1979.

- Should equivalence be measured by comparing aggregate indices of strategic capabilities such as total numbers of warheads, numbers of launchers, or throw-weight?
- Should equivalence rather be measured by comparing the capabilities of particular kinds of systems, such as counterforce capabilities of land-based missile systems?
- Or should equivalence be measured by comparing capabilities, regardless of weapons systems, that is, by comparing limited-attack capabilities, counterforce capabilities, or assured destruction (urban-industrial destruction) capabilities?
- What is the purpose of equivalence? Is it desired for purely political-diplomatic reasons, or is it needed for military effectiveness?
- Should only offensive strategic capabilities be considered in measuring equivalence (as has been the case in the past), or should civil defense, air defense, and antisubmarine warfare (ASW) capabilities be considered also? And how? Must the side that is behind in offensive submarines be ahead in ASW?
- How should C^3 survivability (which is rarely included in assessments of equivalence) be taken into account?
- How do we know when we have essential equivalence, since so many matters of judgment are involved in assessing it?
- Why is essential equivalence chosen as the goal, rather than superiority? Since the United States is concerned not to fall behind, or remain behind, the Soviet Union in strategic capabilities, the United

States clearly acknowledges that superiority is attainable by the Soviet Union. Apparently the Soviet Union desires this superiority. If superiority is attainable for the Soviet Union, why is it not attainable for the United States, and if it is desired by the Soviet Union, are there perhaps benefits to be gained from it that the United States might wish for itself? "Are there no benefits that outweigh possible costs, such as the benefits of a more credible posture with respect to our European allies?" (Foster 1978:23-24)

After summarizing the history of the equivalence concept, Foster then moves to a consideration of a key aspect of equivalence -- perceptions. He asks a fundamental preliminary question: Is a perception of essential equivalence by other countries sufficient to satisfy US political objectives associated with strategic forces? It has been assumed in official statements that it is, but is it? Is equivalence seen by US allies and other important audiences as enough to maintain confidence in US commitments and in the US as a great power capable of effectively promoting its interests? Foster does not really answer this question, which is indeed not answerable but certainly worthy of serious thought. He does, however, report some undocumented but suggestive and intuitively logical data on how foreign audiences perceive the relative strength of the United States and the Soviet Union.

These data suggest that a number of other factors have more influence on foreign perceptions of the US-USSR strength ratio than do comparisons of aggregate current strategic capabilities. Extremely important are assessments of past trends and assumptions about future trends, the later being based, of course, to a large extent on the former. Also, technological breakthroughs tend to be perceived as giving more advantage than they

probably do in reality. The first item of any new weapons system that is deployed has much more impact on perceptions than the tenth or hundredth. Further, there is a tendency to discount lead times in weapons development and deployment, to assess current forces as though new systems still in the development stage were already deployed. All these factors reinforce each other and may be summarized thus: The nation that is sharply increasing its strength in relation to its rival has an advantage in third-party perceptions that is far out of proportion to its actual current comparative strength. (Foster 1978:29-30). However, it is possible to break down this pattern and create an "essential equivalence" in perceptions. Thus, if the United States should be behind the Soviet Union in current capabilities and in terms of past trends in relative capabilities, it might balance this disadvantage by being ahead in development of technologically more sophisticated systems and in more vigorous weapons acquisition programs that would project future trends favorable to the United States. On the other hand, even if essential equivalence currently existed, the situation would be intolerable for the United States if the Soviet Union had the benefit of past trends of increased capabilities, strong current weapons acquisition that forecast strong future trends, an apparent advantage in technologically sophisticated programs, and a larger number of new programs. (Foster 1978:31)

SOVIET VIEWS ON EQUIVALENCE

The recent literature on Soviet approaches to strategic concepts will not be explored in any depth here. It may be said, however, that there is a consensus that, while the Soviet leadership does not want war, it is

determined to have the capability to fight a war if it finds this necessary, and that it follows traditional military strategic concepts rather than defining deterrence and stability as US analysts do. Fritz Ermath, in what is probably the best readily available treatment of Soviet strategic thinking, says that for the Soviets stability is approximate equivalence, plus a low level of tension.* Equivalence is thus more important to stability than the existence or nonexistence of invulnerable retaliatory forces on both sides. Also, in general the Soviets do not see threats to stability, equivalence, or deterrence as coming from their side. They do not see any obligation to renounce superiority. Threats to stability would mean, to the Soviets, threats to equivalence from the US side.**

Benjamin Lambeth has written an excellent paper focussed specifically on the Soviet view of equivalence. Lambeth points out that Soviet leaders do not accept "equivalence" or "balance" in the US sense, and cannot do so, since these concepts imply "enshrinement of the status quo," a notion completely alien to Soviet ideology. As Lambeth assesses the Soviets' views, they feel equivalence is a "sine qua non beneath which [they] cannot sit still and beyond which they will accumulate as much as [they] reasonably can." (Lambeth 1978:64) They do not seem to "share the prevalent Western conviction that marginal advantages short of a splendid first-strike capability afford scant diplomatic utility in international relations." (Lambeth 1978:55)

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*"Contrasts in American and Soviet Strategic Thought," International Security, Vol. 3, No. 2, pp. 138-55.

**Jack Snyder, The Soviet Strategic Culture: Implications for Limited Nuclear Operations, Project AIR FORCE Report, Rand Corporation, Santa Monica, Calif.

MEASURING ESSENTIAL EQUIVALENCE

Since what essential equivalence is necessarily involves the problem of how it can be measured, something should be said about this subject, even though this paper is focussed on the concept of essential equivalence. The two most useful, relatively nontechnical works on measuring strategic capability that were found in the preparation of this report were a group of papers prepared in 1976 under the auspices of the Civilian Assistant to the Deputy Secretary of Defense (Cordesman 1976) and the paper by James Foster referred to above (Foster 1978). Both agree that there is no single best, or satisfactory, measure of strategic capabilities.

The two chief approaches are static, aggregate measures and dynamic measures based on analysis of hypothetical attacks on various target sets. In general, static measures are easier to understand and easier and less expensive to calculate, while dynamic measures are generally considered more precise and reliable. (Foster 1978:31) Since worldwide perceptions are an important purpose of essential equivalence, it should not be assumed that the more easily grasped static measures are inferior to the more precise dynamic measures, for purposes of judging essential equivalence.

Foster focusses his analysis of measuring techniques on methods of estimating counterforce capabilities, since he feels the dominant issues in the current strategic debate center on the question of whether the Soviet Union is acquiring an effective first-strike counterforce capability and whether the United States should substantially improve its own counterforce capabilities. He considers three static, aggregate measures of counterforce capability: the relatively new countermilitary potential (CMP), a measure of hard-target kill capability; total throw-weight; and 250 psi kills, the

number of point targets of 2500 pounds-per-square-inch hardness that can be destroyed by a given force. He finds the first a biased measure, systematically overestimating counterforce capabilities, especially those of the United States, and finds the latter two to be inappropriate measures. Accuracy, he finds, is far more important for counterforce capabilities than throw-weight, but throw-weight is nevertheless a significant hedge against uncertainties in accuracy and other parameters. (Foster 1978:34-35)

Foster also finds flaws in the various dynamic measures of counterforce capabilities; in various measures of urban-industrial damage capability; and in the relatively new Equivalent Weapons (EW) measure, which incorporates both counterforce and countervalue targets in a calculation of aggregate damage potential. He finds EW to be a seriously misleading and biased index. His final conclusion as to the best measure of strategic capabilities is that it is properly carried out dynamic assessments, which will yield, not precise points, but ranges of capabilities that must be compared with ranges of adversary capabilities. In the last analysis, it is a matter of judgment whether adequately essential equivalence exists. (Foster 1978: 49-50)

However, from the point of view of perceptions, it would still appear that static aggregate measures are the most easily grasped. To this must be added Foster's excellent points that momentum of trends, introduction of new systems, and technological breakthroughs have more impact on perceptions than does the current US-USSR ratio of aggregate measures.

CONCLUSIONS

As has been shown, the terms equivalence and essential equivalence are used, officially and unofficially, in a wide variety of ways. However, a fairly consistent core of meaning can be detected, which may be summarized as follows:

Equivalence and essential equivalence are basically synonymous. Essential equivalence, in a strategic context, is an approximate equality in the strategic nuclear capabilities of the United States and the Soviet Union. This equivalence requires more strategic weaponry, qualitatively and quantiatively, from the United States at this time than is required by the goal of deterrence. This is true because deterrence is believed to require only an invulnerable retaliatory force capable of inflicting unacceptable damage on an opponent who might plan a first-strike attack on the United States, and the Soviet Union now has, or is rapidly acquiring, forces that substantially exceed this measure.

The chief reason for the United States to seek and maintain essential equivalence is the impact any lesser US capability would presumably have on Soviet decision makers, US allies, and other countries. Therefore, it is very important that US capabilities not only be essentially equivalent to Soviet capabilities but also be perceived as essentially equivalent. There is reason to believe (although there are no hard, documented data on the subject) that perceptions are influenced more by the momentum of trends in relative capabilities, introduction of new weaponry, and technological breakthroughs than they are by the US-USSR ratio of capabilities existing at a given moment. It would also appear that capabilities expressed in

static, aggregate measures such as total throw-weight may be more easily grasped and thus have more impact on perceptions, than the more sophisticated and meaningful dynamic measures. In any case, it should be recognized that if certainty as to the existence of equivalence is sought, disappointment is sure. The best measures can provide only ranges of capabilities to be compared with ranges of adversary capabilities.

These conclusions may leave a thoughtful student of defense matters with as many questions as they answer.

First, what is the real justification for seeking equivalence? If the United States wishes to influence foreign perceptions for political-diplomatic purposes, is equivalence the goal to set? Will such a goal not always find the United States playing catch-up ball, and thus not in a perceivably strong international position? Is superiority a possible alternative goal? In this connection, it is important to understand that superiority is not synonymous with a disarming first-strike capability, although the two have often been confused. The Soviet Union clearly sees advantages in marginal superiority, short of a first-strike capability, and since the United States is striving to deny its rival that superiority, it implicitly recognizes those advantages. Secretary McNamara pointed out the same advantages at a time when the United States held them. (McNamara 1963:112) Since the United States has a stronger economic base than the Soviet Union, it is not immediately obvious that it cannot realistically strive for anything more than equivalence. Further, some analysts have questioned whether equivalence can be counted on to reassure US allies or strengthen wavering neutrals -- that is, to fulfill the stated goals of equivalence. (Foster 1978:29)

Much of the original agreement to settle for equivalence was implicitly founded on the assumption that on that basis and only on that basis would the Soviet Union agree to strategic arms limitations. It was hoped and expected that SALT would make equivalence permanent at existing or moderately elevated levels. Now that SALT II appears not likely to be accepted by the US Senate, and now that it has become clear that, with or without SALT, the Soviet Union is continuing and will continue to rapidly acquire large amounts of new weaponry, the justification for making essential equivalence a major US objective seems greatly weakened.

A final question that may be raised is that of the central role played by perception in the concept of equivalence. Is perception by other countries the best guide to weapon procurement and force structure?

Perception is an important aspect of any military posture, tactical or strategic, and certainly it has been regarded as an essential aspect of the nuclear-age concept of deterrence. In order to be effective, deterrence requires not only an invulnerable retaliatory force and the will to use it, but also the adversary's perception of that force and that will. Otherwise, the adversary will not be deterred.

With equivalence, however, there is a significant difference. In this case, there is the acquisition and deployment of forces, not primarily for what they can do or will be perceived as able to do, but for an image of size and effectiveness that is no greater and no less than an adversary's.

Those who seek equivalence of strategic forces appear to have a difficult task. They are restricted by arms control considerations from trespassing into superiority and equally firmly restricted by law and the

public will it expresses from lapsing into inferiority. They are presumably not guided by operational planning for using forces beyond those deemed necessary for deterrence, and are rather guided only by a requirement to acquire what will meet an elusive best measure of approximate equality with the Soviet Union and also be perceived by various third parties as approximately equal. Equivalence, a relatively simple concept in the abstract, appears an extraordinarily complex one in action.

BIBLIOGRAPHY

This bibliography includes works cited in the accompanying paper, together with a few others that include material on equivalence. Unlike the bibliographies for earlier papers on strategic concepts prepared by HERO, this bibliography includes a number of official Defense Department reports. These have been used because equivalence is, to an extent that deterrence, nuclear threshold, proliferation, and even stability are not, a concept that has developed out of Defense Department needs, rather than from the analysis of civilian defense thinkers.

The bibliographies on stability and balance that accompany attached papers on those subjects should also be consulted for possibly relevant works.

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BROWN, Harold
1977 "Defense Planning and Arms Control"
Remarks delivered at the University of Rochester, April 13, 1977
Department of Defense press release

[In this address, which is focused on the 1977 US strategic arms control proposals, Brown reiterates the US commitment to arms control and defense policy as complementary and mutually reinforcing. The address is of interest for its listing of deterrence, stability, and equivalence as the three "major objectives" of US "strategic planning." There are several paragraphs on equivalence. Brown uses the term rough equivalence to describe the situation existing in 1977 between the United States and the Soviet Union.]

CORDESMAN, Anthony H., ed.
1976 Measuring the Strategic Balance: Working Papers for the International Institute for Strategic Studies
Prepared for the office of the Civilian Assistant to the Deputy Secretary of Defense
Defense Documentation Center AD A031369

[Eleven papers, from various points of view, prepared to assist the IISS and the strategic studies community in general in adopting more sophisticated measures of the strategic balance. As the editor says, "they illustrate that there is no single set of valid measures, and that the student of strategic studies must explore a wide range of static and dynamic techniques." (p. iii)]

FOSTER, James L.
1978 "Essential Equivalence: What is it and How Should it be Measured?"
US National Defense University 1978:23-51

[A basic and valuable paper for understanding equivalence. Foster gives a good summary of the history of the concept of essential equivalence, tracing it from its beginnings in the post-SALT I period. Noting that under the most recent formulations of defense policy, those of Secretary Brown, equivalence is coequal with stability and deterrence as US objectives, and distinct from them, Foster concludes that the purpose of equivalence is to influence perceptions of US capabilities vis-a-vis the Soviets. Foster says that analysis of foreign perceptions has suggested that the direction and rate of change in measures of strength is more important to those perceptions than the current ratio of such measures.

Especi l weight tends to be given to technological breakthroughs. Thus "essential equivalence" in current capabilities would be meaningless from the point of view of foreign perceptions if the Soviet Union was acquiring weapons much more rapidly and also appeared to have an advantage in the development of technologically advanced systems. Real essential equivalence requires that some advantages in future trends be balanced against others, or against advantages in current strengths.

Having explored what essential equivalence is, Foster moves on to ways of measuring it. He clearly analyzes the weaknesses of all methods, both static aggregate and dynamic, of measuring strategic force capabilities. He concludes that no measure is completely satisfactory, that dynamic methods (those based on analysis of hypothetical attacks on various target sets) are most satisfactory, and that these measures cannot produce anything more exact than ranges of uncertainty of outcomes. It is these ranges that must be compared in order to judge the existence of essential equivalence. Foster provides a critique of Paul Nitze's estimating methods (see entries for Nitze in bibliography for the accompanying paper on "stability"), and also of those of Nitze's critic, Jan Lodal (see "stability" bibliography).]

HANRIEDER, Wolfram F., and Larry V. Buel
1979 Words and Arms: A Dictionary of Security and Defense Terms
Westview: Boulder, Colo.

[This is a compilation of definitions, the majority of them apparently from the JCS Dictionary of Military and Associated Terms and other similar listings by the Air Force, NATO, and the Atomic Energy Commission. Sources are not given for individual definitions, an omission that detracts from the usefulness of the book, as does the fact that there is no discussion of common alternate uses of the terms or of their historical evolution. More than half of the first 50 definitions are taken directly from the JCS Dictionary, but those relating to equivalence are not, and may be the authors' own definitions. They are as follows:

Essential Equivalence: A policy that stipulates a need for approximately equal capabilities and effectiveness but not numerical equality between the central strategic systems of the United States and the Soviet Union. Essential equivalence is a synonym for parity.

Parity: A condition in which opposing forces possess capabilities of certain kinds that are approximately equal in overall effectiveness.

Nuclear Parity: A force structure standard that demands the nuclear capabilities of opposing forces be qualitatively similar though not necessarily quantitatively identical.

The definitions for parity and nuclear parity seem to refer to what is basically the same concept, and may have been taken from two different sources without being coordinated. However, the definition of essential equivalence is clear, concise, and generally consistent with the literature. Pointing out that it is a synonym of parity is useful. It may be noted that essential equivalence, parity, and nuclear parity are defined as a policy, a condition, and a standard, respectively, although two of them are stated to be synonymous and there is no obvious reason why the third should be a different kind of entity from the others.]

LAMBETH, Benjamin S.
1978 "The Political Potential of Equivalence: The View from Moscow and Europe"
US National Defense University 1978:53-68

[A very useful, concise presentation of the Soviet view by an analyst who has done much work in this field.]

LEHMAN, Christopher M., and Peter C. Hughes
1977 "'Equivalence' and SALT II"
Orbis 20:1045-54

[In their introduction, the authors say that the US "strategic policy" for the past 25 years has been based on "the dual objective of deterrence and stability." They go on to say that a series of "strategies" have been formulated to "meet this objective" -- "massive retaliation" in the 1950s, "controlled response" in the 1960s ("although the terminology of 'assured destruction' was much in vogue" during that decade), while "in the 1970s the Nixon and Ford administrations subscribed to a policy of 'essential equivalence.'" (p. 1045) This is a hopelessly confused presentation of US strategic policy, and to say that essential equivalence was the strategy during the first six years of the 1970s for achieving deterrence and stability is such a serious distortion, even given the confusing official statements on the matter, that it is safe to call it simply wrong. However, this paper is one of very few on equivalence as such, and it provides useful background, especially on Congressional action mandating equivalence. When it deals with concepts, it must be used with caution.]

McNAMARA, Robert S.
1963 "The Spectrum of Defense"
Henry A. Kissinger, ed., Problems of National Strategy (New York: Frederick A. Praeger, 1965), pp. 108-19

[Good exposition of the Kennedy/McNamara flexible-response approach to strategic nuclear and other defense matters. Nothing on equivalence, but a brief passage (p. 112) that deals with the advantages of numerical superiority is relevant.]

NITZE, Paul H.
1976a "Assuring Strategic Stability in an Era of Detente"
Foreign Affairs 54:207-32

[In Nitze's view, essential equivalence seems to be a prerequisite for, and sign of, stability. He urges increases in the accuracy and mobility of US missiles to compensate for the great Soviet advantage in throw-weight.]

1976b "Deterring Our Deterrent"
Foreign Policy, No. 25 (winter 1976-77), pp. 195-210

[This article includes an extensive discussion of various ways of measuring relative nuclear strategic capability, and thus of equivalence. Nitze urges estimating what forces would remain to each side after a nuclear exchange, and judging the current relative strength of the two sides on this basis.]

SLOCOMBE, Walter
1971 The Political Implications of Strategic Parity
Adelphi Papers, No. 77
Institute for Strategic Studies: London

[This paper contains little on the concept of parity, but provides a useful description of strategic parity at the time Western analysts first considered it to have been achieved by the Soviet Union, and also explores the implications of parity for nuclear options, perceptions of national power, US-Soviet confrontations, and deterrence in Europe.]

US CONGRESS
1979 Fiscal Year 1980 Arms Control Impact Statements
Joint Committee Report, 96th Congress, 1st Session, March 1979
Senate Committee on Foreign Relations and House of Representatives Committee on Foreign Affairs
Prepared by the US Arms Control and Disarmament Agency

[In listing the stated military requirements for US strategic nuclear forces, the ACIS for that program makes the following statement about essential equivalence:

> US strategic forces also serve broader political objectives [in addition to deterrence of nuclear and conventional attacks on the United States and its allies] by maintaining "essential equivalence," a state [of] rough parity between the aggregate capabilities of the opposing strategic offensive forces. The maintenance of essential equivalence is intended to deny the Soviet Union any political benefits that might result if Soviet leaders, allies, or third countries perceived Soviet strategic forces to be superior, a situation in which the U.S.S.R. might see its strategic nuclear forces as usable instruments for political leverage, diplomatic coercion, or to back up more limited military aggression with conventional weapons. (p. 7)]

US DEPARTMENT OF DEFENSE

1963 Annual Defense Department Report
(Includes Fiscal Year 1964-1968 program and Fiscal Year 1964 budget)
Unpublished version. Undated.
Army Library. UA 23 .A4711 1964

[One of the more useful Defense Reports for the study of strategic concepts, providing the response of the Defense Department under McNamara to early indications of the Soviet buildup, including targeting policy. There is no mention of equivalence.]

1968 Statement of Secretary of Defense Robert S. McNamara Before the Senate Armed Service Committee on the Fiscal Year 1969-1973 Defense Program and 1969 Defense Budget
Unpublished version
Army Library. UA 23 .A4711 1969/73

[This is a valuable document providing a lucid exposition of McNamara's views on nuclear strategic matters at the time. There is no mention of equivalence.]

1973a Final Report to the Congress of Secretary of Defense Melvin R. Laird, January 8, 1973
Unpublished version
Army Library. UA 23 .A4711 1973a

[Mentions sufficiency and parity.]

1973b Annual Defense Department Report: Statement of Secretary of Defense Elliot L. Richardson before the House Armed Services Committee, April 10, 1973
Government Printing Office: Washington

[This report lists three principles of foreign policy, including sufficiency of military strength. It does not mention equivalence.]

1974 Annual Defense Department Report: Report of the Secretary of Defense, James R. Schlesinger, to the Congress on the Fiscal Year 1975 Defense Budget and the Fiscal Year 1975-1979 Defense Program, March 4, 1974
Unpublished version
Army Library. UA 23 .A4711 1975

[Essential equivalence is mentioned as a fact, not set forth as an aim, in this report, which focuses on flexible targeting options. However, without using the term equivalence, Schlesinger does call for something that sounds very much like equivalence: survivable second-strike reserves for both sides, symmetry in the ability of each side to threaten the other, and perceived equality between the offensive forces of both sides. (p. 44) This is one of the more valuable annual

Defense Reports. It includes a summary of deterrence theory, including a brief critique of assured destruction as a policy.]

1975 Annual Defense Department Report, Fiscal Year 1976 and Fiscal Year 1977: Report of Secretary of Defense James R. Schlesinger to the Congress on FY 1976 and Transition Budgets, FY 1970 Authorization Request, and FY 1976-1980 Defense Program, February 5, 1975
Government Printing Office: Washington

[This report includes the first presentation of essential equivalence, so designated. It describes essential equivalence in terms of avoiding "major asymmetries" in strategic weapons characteristics.]

1977 Annual Defense Department Report FY 1978: Report of Secretary of Defense Donald H. Rumsfeld to the Congress on the FY 1978 Budget, FY 1979 Authorization Request and FY 1978-1982 Defense Program, January 17, 1977
Government Printing Office: Washington

[This is one of the more valuable annual Defense Reports. It includes little on equivalence as such, but provides an excellent overview of US defense policy for this period.]

1978 Annual Report, Fiscal Year 1979
Harold Brown, Secretary of Defense
February 2, 1978
Government Printing Office: Washington

[This report mentions mutual strategic deterrence and essential equivalence as two distinct conditions then in effect. (p. 4) It defines essential equivalence as follows:

> a condition such that any advantages in force characteristics enjoyed by the Soviets are offset by other US advantages. (p. 56)

Pages 56-57 are devoted to essential equivalence.]

1980 Annual Report, Fiscal Year 1981: Report of Secretary of Defense Harold Brown to the Congress on the FY 1981 Budget, FY 1982 Authorization Request and FY 1981-1985 Defense Programs, January 29, 1980

[This report lists essential equivalence as the first of four "other objectives" of US strategic policy, following the "most fundamental" objective, deterrence. The report includes two pages of discussion of essential equivalence, stressing the political impact of nuclear weapons, the importance of perceptions of other countries, and the necessity for the United States's making up in some weapons capabilities any advantages the Soviet Union has in others, so that an overall equivalence is achieved and perceived (pp. 68-69)]

US JOINT CHIEFS OF STAFF

1974 Department of Defense Dictionary of Military and Associated Terms
Government Printing Office: Washington

[This is the official authority on usage of military and related terms within the Department of Defense. Many of the terms have also been approved for NATO, Inter-American Defense Board, and other international use. At each entry there is an indication as to whether the term and definition are approved for DOD use only or for specified wider use. Few definitions of strategic concepts are included. There is a definition for nuclear parity, however:

> nuclear parity -- (DOD, IADB) A condition at a given point in time when opposing forces possess nuclear offensive and defensive systems approximately equal in overall combat effectiveness.

It is interesting that defensive systems are mentioned. Although the anti-ABM SALT agreement of 1972 stipulated equality, and severe limitation, in ballistic missile defense, essential equivalence seems never to have included a consideration of aggregate nuclear defenses.]

1977 Military Posture, FY 1978: Statement to Congress by Gen. George S. Brown, USAF, Chairman, Joint Chiefs of Staff, Prepared January 20, 1977
Unpublished version
Army Library. UA 23 .A4711 1978

[This posture statement says that rough equivalence has resulted from the Soviet buildup and speaks of the importance of maintaining it. (p. 1) It implies that nuclear stability is the chief support of deterrence, and that essential equivalence is the chief support of stability. (p. 6)]

US NATIONAL DEFENSE UNIVERSITY

1978 Equivalence, Sufficiency, and the International Balance
Proceedings of the National Security Affairs Conference, July 17-19, 1978
National Defense University: Washington

[Extremely useful material on equivalence. See bibliographic entries for Foster 1978 and Lambeth 1978.]