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Graphical Argument Analysis: A New Approach to Understanding Arguments, Applied to a Debate about the Window of Vulnerability

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Arguments and debates about politics are activities central to a democracy. Understanding arguments according to common frames of reference is not a straightforward task but demands much critical intelligence and skill. To aid in evaluating and criticizing arguments, we present in this paper a quasi-formal analytical methodology that uses a graphical scheme synthesized from the work of Toulmin and others. Arguments are analyzed into sets of propositions structurally linked by support, attack, and "warranting" relations. This method had advantages over others, since it is well-adapted to informal reasoning and since it helps identify implicit principles of argumentation (warrants), unsupported claims, circularities in reasoning, lines of possible attack, and structural relations between sub-arguments. Anyone can use the graphical template of argument elements and relations as a guide in analyzing political (or other) arguments for a variety of critical purposes. In this paper, we apply the method to a debate about the strategic window of vulnerability, a debate chosen for its continuing political relevance and the richness of its argument structure. We present graphs and their verbal interpretations, and we hope to encourage others to use this method in their own critical research.

Introduction

Language and society are closely related because the members of society use language to perceive their world, to think and talk about it, and to reproduce and change it. An argument is different from other uses of language in that it responds

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to or anticipates an opposing point of view. Argument and debate occur when people try to gain acceptance for their interpretations of the world. In the U.S., politics requires arguments in order to make reasonable the pursuit of important goals of public policy like democracy and effective national defense. By evaluating and criticizing arguments it becomes possible to improve them as well as to develop the common perspectives needed for communication. Although free argumentation is the best way to achieve these ends, it is always an imperfect process that depends on carrying out sometimes difficult critical tasks.

In this paper we offer a basic introduction to a new, graphical method of argument analysis derived from the work of the philosopher Stephen Toulmin and others. With this method, an argument or debate is analyzed into sets of propositions structurally linked by specific kinds of relations. We believe this method will be useful to both the layperson and the academic, and we emphasize its simplicity and day-to-day utility for understanding, criticizing, and improving the arguments that shape our lives. We are not promoting it as a specialized technique for use by other specialists for presentation to a specialist audience. Rather, we hope it will be used by the broad range of people who make and are themselves affected by arguments.

We illustrate this method by applying it to an important debate between Paul Nitze and Jan Lodal about the strategic "window of vulnerability," which was published in *Foreign Affairs* in 1976.[1] We use the method to identify the main claims on both sides of the debate from the perspectives of the debaters. Not only do we think that our analysis helps in understanding the structure and content of this specific debate, but we also believe that it yields insights into several broader and recurring public policy controversies concerning strategic deployments, arms control, civil defense, and relations with the Soviet Union. However, we present this analysis as an illustration of the method, not as a decisive comment on the window of vulnerability controversy as a whole.

There are other methods for representing arguments and beliefs, but this method of graphical analysis seems best for understanding and criticizing political arguments. For instance, cognitive maps (Axelrod, 1976) are useful for revealing the beliefs about causation conveyed by a text, but such maps do not relate these beliefs to any evidence that may be provided to support or attack them, and so they cannot help in analyzing *arguments* about the nature of reality. Argument flow charts and outlines may help to organize ideas and clarify reasoning processes, but the relations they represent do not refer consistently to any particular structural properties of arguments. Propositional logic and predicate calculus (e.g., Hodges, 1977) are useful for manipulating the formal structures of arguments but cannot cope with the substantial ambiguities of language; more generally, they cannot be readily applied to arguments that do not consist of deductive links, and this includes nearly all political and other everyday arguments. Yet the method we present here bears important similarities to deductive logic, and in a sense (to be discussed later) subsumes it.

The study of informal logic has developed in response to the inadequacies of formal logic when confronted with real-life arguments. Researchers have tried to identify principles for explicating, interpreting, criticizing, and improving everyday arguments. They have moved from a focus on logical fallacies to a concern with the structural relations between elements of arguments.[2] Graphical argument analysis is an outgrowth of this research program. It allows us to identify more easily certain

[1] Nitze, 1976; response by Lodal, 1976; rebuttal by Nitze, 1976.

[2] For a review of work on informal logic, see Johnson and Blair (1980); see also Toulmin (1958), and Van Eemeren et al. (1984), which helps to put Toulmin into the context of what they call the "practical-therapeutic" orientation of recent work on argumentation. Perelman and Olbrechts-Tyteca (1969) is a seminal work on a related revival of the study of rhetoric.

kinds of explicit and implicit assumptions (or what we call "warrants") and to discuss more precisely their roles in gluing arguments together. It permits a visual and more accurate understanding of the overall structure of an argument and of the relations between sub-arguments. This is especially important in assessing the extent to which an attack by an opponent in a debate threatens the attacked argument, that is, the extent to which the effect of the attack spreads through the argument. The method also makes it easier to identify important concessions made by the parties in a debate and to find weak points in arguments, such as unsupported elements, circularities, and other errors in reasoning.

In addition to these advantages over standard methods of argument analysis, the graphical method also shares all the benefits of the other approaches: it disciplines the reader of a text to examine very closely its structure and content, to identify an argument's important features, and to establish the relations between central claims and the evidence used to support them.

We begin with a practical overview of the method that introduces four basic types of statement that are sufficient to analyze any argument. This argument "template" is illustrated with two simple examples (one from everyday experience and one from the Nitze-Lodal debate itself). We then provide more detail on our theory of argumentation, and we place graphical argument analysis in the context of current thought in philosophy of language. After a brief discussion of our reasons for choosing the Nitze-Lodal debate as the subject of a detailed analysis, we interpret this debate based on its full graph in Figure 4. We conclude with some general comments on the use and advantages of graphical argument analysis.

Overview of the Method

The method of argument analysis we propose here builds on the pioneering work of the philosopher Stephen Toulmin (1958; Toulmin et al., 1984), and it incorporates some conceptual and graphing refinements from the work of philosopher of science Nicholas Rescher (1977) and of Lawrence Birnbaum (1986), a researcher in artificial intelligence.

An *argument* is an assertion together with one or more reasons why it should be believed. Toulmin identifies several parts of an argument. The assertion which is the conclusion or thesis of an argument is called the *claim*; its acceptance by the audience is the goal of the argument. The evidence offered in support of the claim falls immediately into two categories. A *datum* is a statement intended to show why a claim should be accepted, and since it serves as direct evidence it is often factual or explanatory. A *warrant,* on the other hand, is an assertion that the datum offered is relevant to and supports the claim. Warrants are principles that make the moves or inferences from data to claims seem reasonable, and they can range from loose or indirect rules of thumb to nearly deductive licenses of these inferences. They legitimize a move from a specific statement of fact (a datum) to a thesis (a claim). However, a warrant does not necessarily force the conclusion, as it is usually possible without logical contradiction to accept the datum and warrant and still deny the claim. Thus, a warranted inference generally describes a step in informal reasoning rather than deductive logic. Warrants are usually general statements, capable of justifying more than one particular inference, and are often left implicit in the text of an argument—particularly in political arguments. Finally, *backing* is the evidence or argument offered in support of a warrant, exactly as a datum gives support to a claim (Toulmin, 1958:97–107; Toulmin et al., 1984:25–77).

The graphical approach to representing these elements, illustrated in Figure 1, is similar to that used by Birnbaum and includes some of his conceptual refinements of Toulmin. Reading this graph roughly from top to bottom shows the basic elements

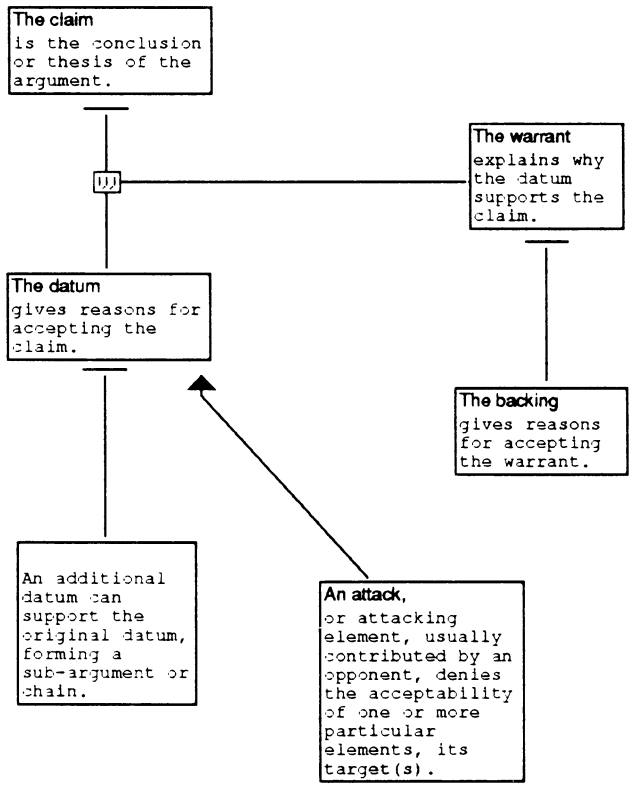

FIG. 1. Template of basic elements of argument.

connected by support and warrant relations. A *support relation* is an informal inference from datum to claim (represented by a T-shaped symbol between these elements), while a *warrant relation* is the link between a statement and the support relation that it warrants (represented by a line terminating in a "W" superimposed on the support relation). Figure 1 also shows several important new features. Argument graphs can be extended by concatenating elements and relations, in this case by adding both an element that attacks the first datum and a new datum in support of the attacked one. An *attack relation* (represented by a solid-headed arrow) connects an attacking element to its target to show that it denies or contradicts the element under attack.[3] This relation is rarely one of logical contradiction, but rather it indicates that the attack aims to call into question the believability or plausibility of the target element. A successful attack places the target element in *jeopardy* until the attack is satisfactorily answered. Jeopardy spreads from data to claims and from warrants to support relations and thus to claims (Birnbaum, 1986).[4]

[3] Although in our graphs we show each attack directed against an individual element (such as a specific claim, datum, or warrant), an attack could target a number of elements together. Of course, many different kinds or conventions of attack are subsumed under this one relation: for example, an opponent can refute, impugn, belittle, denounce, or ridicule a targeted element.

[4] We change Birnbaum's concept of jeopardy to a graded indicator rather than the all-or-nothing measure that he developed for computer simulations of political arguments.

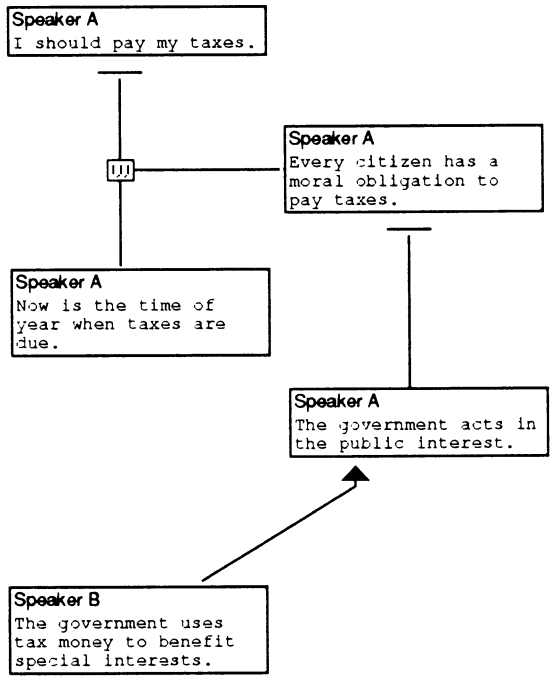

FIG. 2. Graph of a simple argument.

These relations should be clear in Figure 2, which is a graph of a very simple debate concerning an every-day issue: whether or not a person should pay taxes.[5] Each statement of this exchange is represented by a *node* in the graph, consisting of text inside a solid box. Speaker A supports the claim that he should pay taxes with a datum indicating that taxes are due. He justifies the move from datum to claim with the warrant that every citizen has a moral obligation to pay taxes, supported by the backing that the government acts in the public interest. Speaker B attacks this backing, trying to jeopardize it and, in turn, the warrant and Speaker A's main claim.

It is worth noting here that a good heuristic for identifying and adding warrants to support relations is the "if-then-because" rule, which states "if the datum, then the claim, because of the warrant." In this case if "now is the time of year when taxes are due," then "I should pay my taxes," because "every citizen has a moral obligation to pay taxes."

Figure 3 shows a small part of the debate between Nitze and Lodal. The letter-number combination given in the top right corner of each node makes it easier to locate the node in the graph. For Nitze's argument, we assigned these figures according to each node's place in the graph structure, whereas for Lodal's response, we assigned them according to the order Lodal's attacks appeared in the original text.

[5] Given the limited aims of our analysis, we define a "debate" as a set of arguments presented by two or more sides that an analyst links by attack relations. We know this bypasses a number of difficult issues. Rapoport (1961: 10–11) defines a debate as an attempt by one debater to convince or change the mind of another debater. But certainly the method we propose here is equally useful for analyzing exchanges (such as that between Nitze and Lodal) where neither debater has any hope of influencing the other, but both hope to influence a target audience of, say, citizens or policy makers. In this case, the analyst should be aware of the shared understandings that define the target audience as a belief community. We discuss this in more detail later.

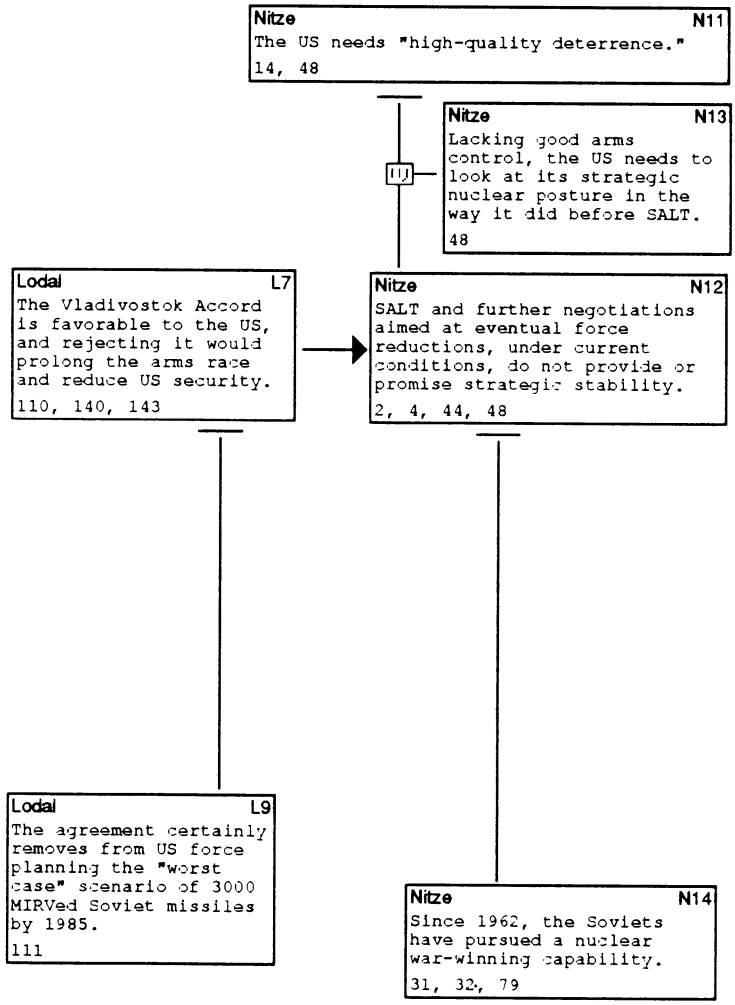

FIG. 3. Extract from Nitze-Lodal debate.

The figures given at the bottom of each node refer to the specific paragraphs in the Nitze-Lodal articles from which we have drawn the node's content. We have numbered the paragraphs consecutively from the beginning of Nitze's article (paragraphs 1 through 80), through Lodal's response (81 through 143), to the end of Nitze's rebuttal (144 through 159).

In Figure 3, Nitze supports his claim that the U.S. needs high quality deterrence (N11) with a statement criticizing SALT (N12), and justifies the inference with the warrant that, lacking good arms control, the U.S. needs to look at its strategic nuclear posture in the way it did before SALT (N13). (Nitze implies, of course, that the U.S. pursued high-quality deterrence before SALT.) Since an argument has been offered (N14) in support of Nitze's claim that SALT does not provide stability (N12), the latter element functions as both a datum for the top claim about the need for very high-quality deterrence and as the claim or conclusion of a *sub-argument.* Clearly, we can only identify an element as a claim, datum, warrant, or backing according to its

functional role in the argument structure; and since an element may have more than one role, we may usefully call it more than one thing. For example, backing serves as a datum to the claim of a warrant, many claims are also data, the support relation between backing and warrant may itself be warranted, and the same elements may play different roles in several distinct sub-arguments.

In this case, it is an interesting question whether Lodal's attack has jeopardized Nitze's claim about SALT. Rescher, in trying to provide criteria to assess positions in formal debates, introduces the concept of *plausibility*. A statement is plausible to the extent it accords with other beliefs already held as a result of experience; in Figure 3, the plausibility of the attacking and target elements must be judged relative to each other. Which is more plausible? The answer depends on the support offered for both statements and on the reader's particular complex set of beliefs. It also depends on certain features of the argument context, such as the authority of the arguer, the propriety of the arguer's conduct relative to explicit or tacit rules of debate, the purpose and practical importance of the debate, and so on. Judging the relative plausibility of the two opposed elements in Figure 3 is further complicated by the fact that they are in informal rather than direct logical contradiction and are relatively vague; many readers may find both statements relatively plausible or both rather implausible. Asking whether Nitze's claim is jeopardized is in this case equivalent to asking which of the two opposed statements is more plausible. To the extent that Nitze's claim about SALT is jeopardized, the threat to it may spread to the claim it supports about the necessity of strong deterrence (Rescher, 1976:ch 1; Rescher, 1977:23–34).

Some Theoretical Background

With the concepts discussed in the previous section, it is possible to describe our theory of argument structure. These few basic building blocks (claim, datum, warrant, and backing, as well as support, warrant, and attack relations) can be used to model any argument in any domain, including quite formal ones. Analyzing an argument in this way shows how to assess the claims being made and how to direct criticism along alternative paths. We call the relations among elements "structural" because they show how the plausibility of some elements affects the plausibility of others: the plausibility of a claim depends on the plausibility of its supporting data and warrants (and of what supports them), the structure of support, and the claim's plausibility independent of its explicit evidence. The structure of arguments, in showing how jeopardy can spread, also specifies lines of attack and what the results of successful attacks would be.

Political Arguments As Informal Arguments

Political arguments, like other everyday arguments, have characteristics that make them difficult to analyze with any method: they are loosely reasoned, incompletely explicit, and subject to additions. Graphical argument analysis, because of its focus on informal inferences and its flexibility in allowing the analyst to decide what elements to include and how to relate them, is well-suited to the study of political arguments.

First, political arguments rely heavily on loose or *presumptive* rather than deductive inferences, meaning that statements are not linked in a logically airtight way but rather that any evidence or attacks offered create at most a presumption that a conclusion can be drawn or a target statement rejected. Likewise, the support and attack relations used in graphical analysis are generally presumptive, though a de-

ductive argument can easily be modeled as a special case of informal reasoning. For example, given a syllogism of the form

Major premise: All As are Bs
Minor premise: X is an A
Conclusion: Therefore, X is B

we can draw a graph with the conclusion as the claim, the minor premise as a datum, and the major premise as the warrant licensing the move between the two. But we want to emphasize that the support and attack relations between elements in this graphical method are distinct from the relations used in deductive systems like propositional logic, where there is no more information in the conclusion than in the premises; elsewhere, Karapin has demonstrated that this method is superior to propositional logic for assessing the "validity" of arguments and the results of criticism (Karapin and Alker, 1985:3–10, 22–25).

Informal arguments generally employ presumptive inferences because much of what is important in such debate is wholly or partially implicit in the text; in other words, it resides in the *context* of the debate. Informal argumentation is loose and flexible and much is assumed by the debaters; it is imprecise but satisfactory given the normal intentions of debaters. The graphical method of argument analysis does not imply the necessity of standard logic, that is, it does not imply that one statement is an unavoidable or necessary consequence of the conjunction of others. A claim in one of our graphs almost always contains more information than the conjunction of its underlying data and warrants; this extra information is supplied by the context and shared understandings surrounding the debate. Given that this information is assumed and neither explicitly introduced nor examined by the debaters, support and attack relations are rarely analytic. In other words, the former rarely imply logical deduction while the latter rarely imply logical contradiction. Again, these relations are best described as presumptive.

Graphical argument analysis can accommodate the fact that much of importance rests in the debate's context, and it can leave unrepresented those elements that are implicit. During informal argumentation, debaters can be thought of as skipping along the surface of a deep, inferenceable reservoir of knowledge. The nodes in the graphed debate are pointers to long chains or networks of linked knowledge descending into this reservoir. When we graph a debate, we are thus noting only the highest level of this inferencing process. Although it is sometimes possible to derive elements that exist below the surface of explicit meaning in the text, such efforts are prone to error or ambiguity since normally more than one reasonable set of beliefs could underlie a given statement. Any venture into the realm of implicit elements is thus somewhat risky, but the degree of risk can often be balanced successfully against the analyst's goals. (We discuss 'implicitness" more fully later using examples from the Nitze-Lodal debate.)

Clearly, even the process of creating an argument graph, as distinct from the subsequent task of interpreting such a graph, requires many small and large judgements that cannot be reduced to precise calculations and that give the method the flexibility needed to analyze everyday arguments. The analyst is faced with a wealth of possibilities and limited resources. Any fairly lengthy or complex argument has more material than can be profitably included in a graph; elements must be selected and connections specified. In order to make such judgements, the analyst must have in mind a critical or theoretical purpose—for example, to assess the central claims of a debate.

There is a second reason this method is well suited to the analysis of political arguments: as attacks are made or anticipated, informal reasoning normally involves the addition and integration of new elements into an existing argument. And in

joining new elements to an existing graph, the analyst tries to mirror the often extemporaneous reasoning of the person making the original argument. The method of analysis we propose here allows the flexible addition of such new elements.

Theories of Meaning

An argument is nothing more than its meaning, and the theory of meaning we adopt will affect what we believe can be done with graphical argument analysis. For example, can we assume that two experienced analysts, when examining the same argument, will produce the same graph? Moreover, can we assume that an analyst will assign the same meaning to a term or statement used by two different participants in a debate?

There is great disagreement among philosophers of language over the nature of meaning. Roughly, some contend that the meaning of a term or sentence is the set of things or the state of affairs it is true of. According to this traditional view, sometimes called "objectivist semantics," words and sentences derive their meaning from their capacity to correspond to things in the "real" world. But other philosophers assert that the meaning of a term or sentence is derived, at least in part, from the network of other terms or sentences in which it is embedded; meaning is a function of the relations the term has with neighboring terms in the network. This perspective is often called the "network" or "holistic" theory of meaning.[6]

If the objectivist view is correct, analysts should work to uncover the "true" and "accurate" meaning residing in a text; if they are sufficiently trained, independent analysts will uncover the same meaning, that is, they will come up with the same understanding of the text. A text can be treated as neutral, observer-independent data, and types of arguments can be compared and quantified from text to text, from writer to writer, and even from culture to culture.

But if the network theory of meaning is correct, which we believe it is, the situation is much more complicated. A text does not derive its meaning by reflecting or mirroring the supposedly "objective" external reality it refers to. The meaning of a text for a given reader is the product of the interaction of the writer's and the reader's networks of meaning, and these networks are in turn largely derived from the writer's and reader's respective belief communities. Over time, a belief community arrives, by a rough consensus, at a certain set of conventional associations between terms—its network of meaning. This is the community's shared understanding of the world, its reality. And just as countless networks of meaning are possible, so are countless realities. Philosopher Hilary Putnam (1981:52) writes:

> Signs do not intrinsically correspond to objects, independently of how those signs are employed and by whom. But a sign that is actually employed in a particular way by a particular community of users can correspond to particular objects *within the conceptual scheme of those users*. "Objects" do not exist independently of conceptual schemes. We cut up the world into objects when we introduce one or another scheme of description.

The meaning of a text for any given reader is a social product of the writer's community, the reader's community, and the writer and reader themselves. The meaning of a text is not something immanent in the text, sitting there waiting to be tapped or discovered; meaning changes from writer to writer, and from reader to reader. Textual analysis, including the method we present here, is necessarily an *interpretive* exercise.

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[6] For an elaboration of these issues see Churchland (1986), Devitt and Sterelny (1987), Lakoff (1987), and Martin (1987).

Thus we are not proposing that graphical argument analysis is a "scientific," "objective," and unerringly replicable method of distilling the essence (in the form of "data") from an argument or debate. It seems unlikely that any such method is possible. Neither are we modeling the cognitive process of argumentation or developing a sophisticated method for the quantitative, logical, or computational interpretation of arguments. Our aim, rather, is to provide a method that will improve the *practical* criticism, understanding, and use of arguments in our political lives. This method is not supposed to substitute for the close reading of a text; rather, it should make such a reading more effective.[7]

But can we ever hope for any comparability across graphs or consistency among coders? When done well, graphing is both an *iterative* and a *discursive* process. It is iterative in that the analyst moves back and forth between the text and the graph, reinterpreting it, creating and deleting elements, refining and shifting the links between them. It is discursive in that analysts should work together so they can compare, defend, and criticize their respective judgements. Given this approach, if two groups of analysts are guided by the same purpose and have the same background of understandings (the same networks of meaning), we believe they will produce similar graphs from the same text.[8]

Why the Nitze-Lodal Debate?

Before we introduce and interpret a graph of the Nitze-Lodal debate, we should make clear our reasons for choosing this particular debate to illustrate the method. Controversies surrounding American strategic force posture and deployments are often notable both for the bitterness of the exchanges and the importance of the resulting policy decisions. There are few areas of political discourse charged with such deep ideological contention or holding such significance for the well-being of U.S. and global society. The debates here are complex and often unresolved, and they invariably touch on the deepest of assumptions about human nature.

The debate we have chosen has done much to shape the domain of strategic discussion during the past thirteen years. It took place in 1976 in the January, April, and July issues of *Foreign Affairs* between two figures prominent in the formation of U.S. strategic policy. Undoubtedly, each hoped not to convince the other but to influence the journal's core readership of policy makers, academics, and other opinion leaders.[9]

Paul Nitze was a member of the U.S. SALT delegation from 1969 to 1974, Deputy Secretary of Defense from 1967 to 1969, and Secretary of the Navy from 1963 to 1967. Since World War II he has been a preeminent architect of U.S. strategic policy. With a stoutly conservative perspective on strategic affairs and the nature of the

[7] Graphical argument analysis may be useful as a complement to a general strategy of *discourse analysis,* in which language and symbol systems are examined as forms of power that constitute, legitimize, and delegitimize the objects of knowledge within a particular community. This view of lanaguage is closely tied to the network theory of meaning, which originates in the work of Wittgenstein and Quine. See Klein (1987) for an excellent summary. As a specific example of this approach applied to national security policy, Sylvan and Alker (1988) use a formal methodology adapted from the work of Harris (1952) to analyze an instance of decision making during the Vietnam era.

[8] Additionally, as we mentioned earlier, when graphing a debate with a target audience, analysts should be aware of the shared understandings defining that audience as a belief community. The debaters may be appealing to several belief communities at the same time and may intend their comments to mean different things to different communities.

[9] These readers of Foreign Affairs who appear to have been targeted by Nitze and Lodal can be thought of as a quite distinct belief community, because most of them probably share certain understandings about the legitimate terms, concepts, and dimensions of discourse concerning American security and national interest.

Soviet Union, Nitze was instrumental in reviving the Committee on the Present Danger shortly after the publication of his *Foreign Affairs* article. At this time he was also strongly opposed to President Carter's nomination of Paul Warnke as the Director of the Arms Control and Disarmament Agency and as chief SALT negotiator. His opponent in the debate, Jan Lodal, had been Director of Program Analysis in the National Security Council from 1973 to 1975 and Director of the NATO and General Purpose Force Analysis Division in the Office of the U.S. Secretary of Defense from 1969 to 1970.

The debate between Nitze and Lodal lends itself well to graphical argument analysis. Its structure is rich, with numerous sub-arguments and explicit warrants; Lodal's attacks strike many different parts of Nitze's original argument, and Nitze responds with specific counter-attacks. In addition, certain weaknesses in the arguments of both debaters are clearly revealed in the graph. More substantively, we believe that the graphed debate explicitly reveals a pattern of exchange that is characteristic of liberal-conservative confrontations on strategic issues: Lodal spends practically his entire rebuttal launching technical attacks against his opponent without attacking the warrant about the deep nature of the Soviet Union, a warrant that is a keystone of Nitze's argument.

Finally, although the vulnerability of the U.S. land-based strategic force had been discussed at great length within policy, academic, and technical circles, Nitze's article gave the issue its first wide public exposure.[10] Nitze outlined a potential dilemma: the United States could lose practically its entire counterforce capability in a Soviet first strike and be faced with either surrender or the suicidal option of responding against Soviet cities. The threat of this dilemma became the focus of strategic discussion for much of the next decade, and it was in many ways the rationale for expanding the U.S. counterforce capability. Although in 1983 the Presidental Commission chaired by Brent Scowcroft declared that the "window of vulnerability" was less of a concern than had been claimed within conservative circles, the issue is far from dead. As it becomes apparent that it is technically infeasible to attain effective population defense through the Strategic Defense Initiative, conservatives are retreating to the claim that SDI is necessary to protect military assets, in particular the U.S. land-based counterforce capability.

We must state clearly that we do not intend the following analysis to be a commentary on the entire window of vulnerability controversy, but only on this specific debate as published in *Foreign Affairs,* limited though it may be. Again, we hope this method will improve the practial criticism, understanding, and use of arguments. We believe analysts will find it useful both for summarizing entire controversies that extend over time and for analyzing specific and limited debates, such as we undertake here. Clearly, the full window of vulnerability controversy is both broader and deeper than revealed by Nitze and Lodal in this one exchange; in fact, we can assume both debaters could bring far more evidence to bear than they provide in their articles. Our analysis should not be taken to imply we believe the controversy closed or bounded by this debate. As noted, this graphing method allows for easy additions and changes as new arguments, evidence, and debaters arise.

An Interpretation of an Argument Graph on the Nitze-Lodal Debate

In the introduction, we claimed that the method of graphical argument analysis is, in a number of ways, both similar to and better than more commonly used approaches

[10] As an indication of this article's influence, the *Social Sciences Citation Index* lists sixty-two journal citations from the time of its publication through 1985, with the rate of citations continuing at an average of four a year after 1981. Lodal's response, by contrast, has received a total of sixteen citations, with none after 1982.

to understanding arguments. In terms of similarities, we noted that the method helps discipline the analytical process. In terms of advantages, we suggested that the method adapts well to informal reasoning and helps the analyst identify explicit and implicit warrants, understand an argument's structure, locate important concessions, and see weaknesses in reasoning. The following interpretation of the Nitze-Lodal debate exploits these capabilities of the method.

We begin this interpretation by "walking through" an argument graph of the Nitze-Lodal debate (Figure 4), explaining in some detail the structures of the arguments presented by Nitze and Lodal, and focusing in particular on Nitze's important warrant about the deep nature of the Soviet Union. We then discuss the possible degrees of implicitness of elements, the contextual plausibility of attacks, and the importance of concessions made by both debaters. In concluding the section, we identify some of the limits of this method by discussing several things that the graph does not tell its reader.

Nitze's Argument

According to our analysis, Nitze's argument appears to have four distinct components. First, reading roughly from the top of the graph downward, we find Nitze's highest claim that to redress the strategic imbalance the U.S. should undertake a number of programs, such as the deployment of mobile ICBMs (N1). This claim is supported by data that together make up the second main component (N2 through N10): Soviet deployments have threatened U.S. deterrence capability; a greatly increased U.S. civil defense effort, improved ICBM accuracy, and mobile ICBMs would compensate for Soviet advantages; and these U.S. programs would be both possible within the Vladivostok Accord and relatively cheap.[11] The dotted line around the first three data of this component indicates they are jointly necessary to support the highest claim; therefore we have linked the three using the "&" symbol. We call this a *conjunction*.[12]

The third component is the warrant in the upper left-hand corner of the graph, in which Nitze claims that the U.S. needs high-quality deterrence (N11). This crucial warrant licenses the move between the factual data of the second component and the prescriptions of the first component. Roughly speaking, this warrant is a value statement that allows Nitze to move from the "is" of his data to the normative "ought" of his prescription.

In the fourth component (N12 through N23), Nitze develops his backing for this warrant. At the top of this "warrant-establishing argument" is a claim that arms control negotiations, as currently pursued, do not provide or promise strategic stability (N12). He supports this claim with a direct technical criticism of the Vladivostok Accord (N15) and a claim that the Soviets are pursuing a nuclear war-winning capability (N14). This latter proposition is in turn supported by a rather detailed sub-argument about Soviet strategic deployments and political behavior (N16 through N23). Central to this sub-argument is a warrant concerning the fundamental character of the Soviet Union (N20). We contend that understanding the nature and role of this warrant is essential to understanding Nitze's whole argument. It states in part that the Soviet Union is untrustworthy, expansionist, and deeply hostile to the West. Nitze uses it to explain his inference from a variety of evidence on Soviet strategic

[11] The Vladivostok Accord was signed by President Ford in December 1974 and, at the time Nitze wrote, was thought likely to be the basis for the SALT II agreement then under negotiation.

[12] Here we are referring to a concept of informal, not logical, conjunction. This informal conjunction does not entail any conclusion but indicates that the warrant requires all the data together in order to provide effective support for the claim.

programs and negotiating tactics (N16 through N19) to his claim that the Soviets are pursuing a nuclear war-winning capability (N14).

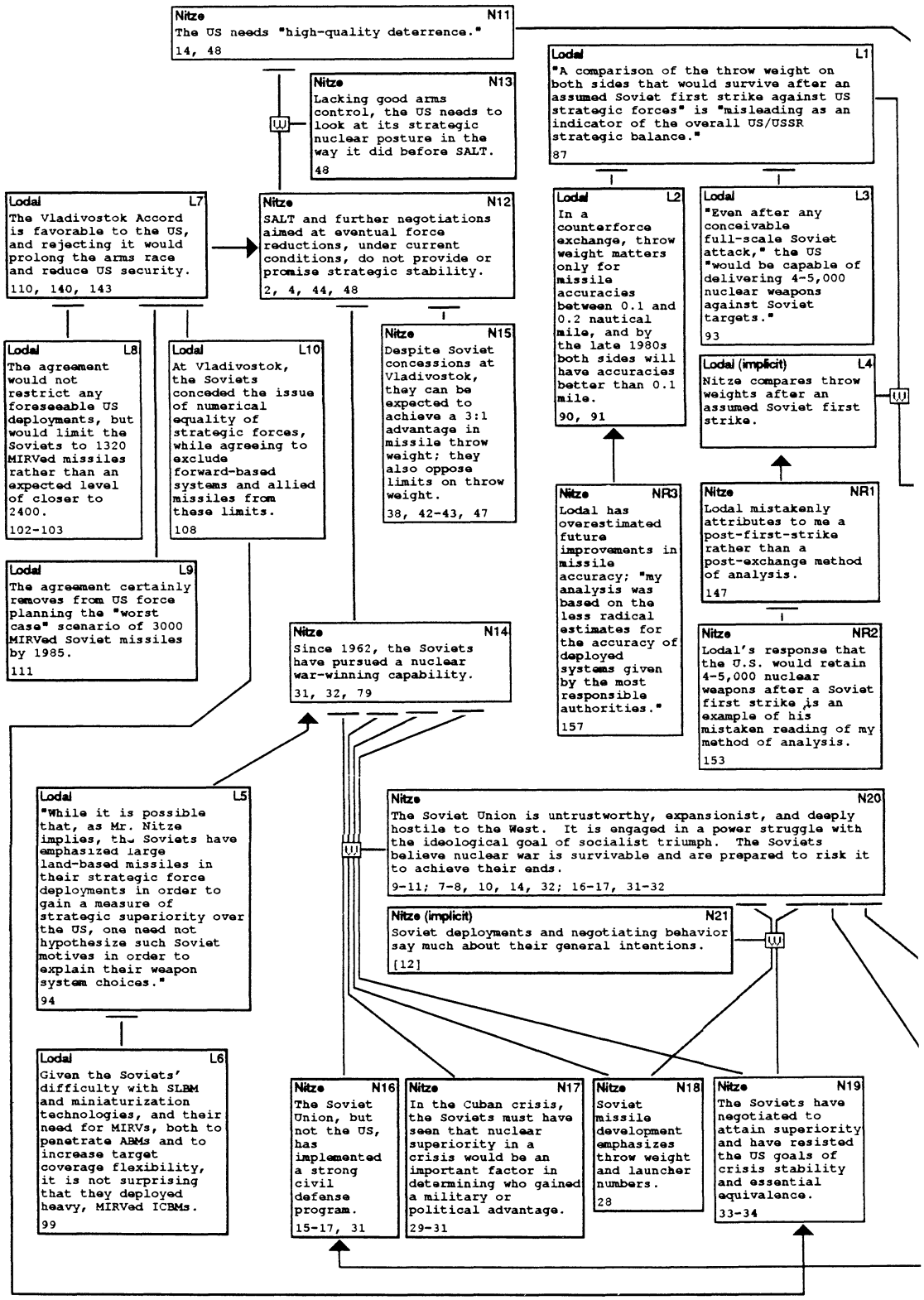
We find here an excellent example of the usefulness of this method of argument analysis. Once laid out in graphical form, it appears that Nitze's argument is partially circular at this level: two nodes (N18 and N19) are used as both data for the claim (N14) and backing for the warrant (N20). While it is true that Nitze provides independent support for both the claim and the warrant, the fact that he cannot completely separate data and backing reveals a weakness in his position; he appears to have trouble marshalling sufficient evidence to support both the claim and the warrant of this sub-argument. Nitze's warrant about the basic nature of the Soviet Union seems to serve as a self-evident truth for him, so he may believe it unnecessary to invest a large amount of energy backing it with precise and completely independent evidence. (Or he may have defended this warrant at greater length in other writings and thus felt less compelled to do so here.) This warrant is one of the features that make this debate notable, for it is unusually clear in revealing an ideological premise that is fundamental to the conservative foreign policy perspective yet normally only implicit in it. Taking away this warrant would greatly weaken Nitze's argument.

Lodal's Response and Nitze's Rebuttal

In his response Lodal launches five main attacks, which are not, for the most part, linked together into one coherent argument. Counter-arguments are often "opportunistic." In other words, a person responding to a previous argument, rather than developing a full alternative argument with well articulated relations between its elements, instead often exploits all serious weaknesses apparent in the opponent's position by employing a series of relatively discrete counter-attacks. The graphical method of argument analysis shows clearly the opportunistic nature of Lodal's critique.

In his first attack, Lodal questions the usefulness of throw weight as a measure of strategic capability (L1), trying to jeopardize a vital warrant in Nitze's argument (N6) that allows the latter to claim that the U.S. deterrent is threatened (N2). Lodal then moves on to attack somewhat obliquely Nitze's claim that the Soviets are pursuing a nuclear war-winning capability; he asserts that more benign interpretations of the Soviet strategic buildup are possible (L5 against N14). With his third principal attack, Lodal suggests that the Vladivostok Accord is favorable to the U.S. (L7), and by doing so tries to undermine more directly the plausibility of Nitze's claim that current arms control negotiations do not further strategic stability (N12). This claim had already been indirectly targeted by Lodal's previous attack (L5) on one of its supports (N14). Fourth, Lodal challenges part of Nitze's highest claim (N1): given the cost and technical difficulties of deploying a mobile ICBM system (L12), and given that the Soviets have technical and political advantages with such systems (L15), "serious consideration should be given to banning such systems in a SALT II treaty" (L11). This is the only point in his article where Lodal actually presents an alternative prescription supported by substantial data. Finally, in his fifth attack, Lodal questions the effectiveness of the Soviet civil defense program and, in turn, questions whether any extensive U.S. program could really protect U.S. society (L16 and L17).

In his rebuttal, Nitze does not respond to all of Lodal's attacks. He concentrates in particular on the latter's claim that throw weight is not a good indicator of strategic capability (L1 through L4), and he asserts that Lodal has misread his method of calculating the strategic consequences of a counterforce attack (NR1 and NR2). He points out that, in his original comparisons, he used the throw weights available to both sides after a counterforce exchange in which the Soviet Union launches a first strike and the United States responds in kind. Lodal, however, has mistakenly inter-


Nitze N11
The US needs "high-quality deterrence."
14, 48
Nitze N13
Lacking good arms control, the US needs to look at its strategic nuclear posture in the way it did before SALT.
48
Lodal L1
"A comparison of the throw weight on both sides that would survive after an assumed Soviet first strike against US strategic forces" is "misleading as an indicator of the overall US/USSR strategic balance."
87
Lodal L7
The Vladivostok Accord is favorable to the US, and rejecting it would prolong the arms race and reduce US security.
110, 140, 143
Nitze N12
SALT and further negotiations aimed at eventual force reductions, under current conditions, do not provide or promise strategic stability.
2, 4, 44, 48
Lodal L2
In a counterforce exchange, throw weight matters only for missile accuracies between 0.1 and 0.2 nautical mile, and by the late 1980s both sides will have accuracies better than 0.1 mile.
90, 91
Lodal L3
"Even after any conceivable full-scale Soviet attack," the US "would be capable of delivering 4-5,000 nuclear weapons against Soviet targets."
93
Lodal (implicit) L4
Nitze compares throw weights after an assumed Soviet first strike.
Lodal L8
The agreement would not restrict any foreseeable US deployments, but would limit the Soviets to 1320 MIRVed missiles rather than an expected level of closer to 2400.
102-103
Lodal L10
At Vladivostok, the Soviets conceded the issue of numerical equality of strategic forces, while agreeing to exclude forward-based systems and allied missiles from these limits.
108
Nitze N15
Despite Soviet concessions at Vladivostok, they can be expected to achieve a 3:1 advantage in missile throw weight; they also oppose limits on throw weight.
38, 42-43, 47
Nitze NR3
Lodal has overestimated future improvements in missile accuracy; "my analysis was based on the less radical estimates for the accuracy of deployed systems given by the most responsible authorities."
157
Nitze NR1
Lodal mistakenly attributes to me a post-first-strike rather than a post-exchange method of analysis.
147
Nitze NR2
Lodal's response that the U.S. would retain 4-5,000 nuclear weapons after a Soviet first strike is an example of his mistaken reading of my method of analysis.
153
Lodal L9
The agreement certainly removes from US force planning the "worst case" scenario of 3000 MIRVed Soviet missiles by 1985.
111
Nitze N14
Since 1962, the Soviets have pursued a nuclear war-winning capability.
31, 32, 79
Lodal L5
"While it is possible that, as Mr. Nitze implies, the Soviets have emphasized large land-based missiles in their strategic force deployments in order to gain a measure of strategic superiority over the US, one need not hypothesize such Soviet motives in order to explain their weapon system choices."
94
Nitze N20
The Soviet Union is untrustworthy, expansionist, and deeply hostile to the West. It is engaged in a power struggle with the ideological goal of socialist triumph. The Soviets believe nuclear war is survivable and are prepared to risk it to achieve their ends.
9-11; 7-8, 10, 14, 32; 16-17, 31-32
Nitze (implicit) N21
Soviet deployments and negotiating behavior say much about their general intentions.
[12]
Lodal L6
Given the Soviets' difficulty with SLBM and miniaturization technologies, and their need for MIRVs, both to penetrate ABMs and to increase target coverage flexibility, it is not surprising that they deployed heavy, MIRVed ICBMs.
99
Nitze N16
The Soviet Union, but not the US, has implemented a strong civil defense program.
15-17, 31
Nitze N17
In the Cuban crisis, the Soviets must have seen that nuclear superiority in a crisis would be an important factor in determining who gained a military or political advantage.
29-31
Nitze N18
Soviet missile development emphasizes throw weight and launcher numbers.
28
Nitze N19
The Soviets have negotiated to attain superiority and have resisted the US goals of crisis stability and essential equivalence.
33-34

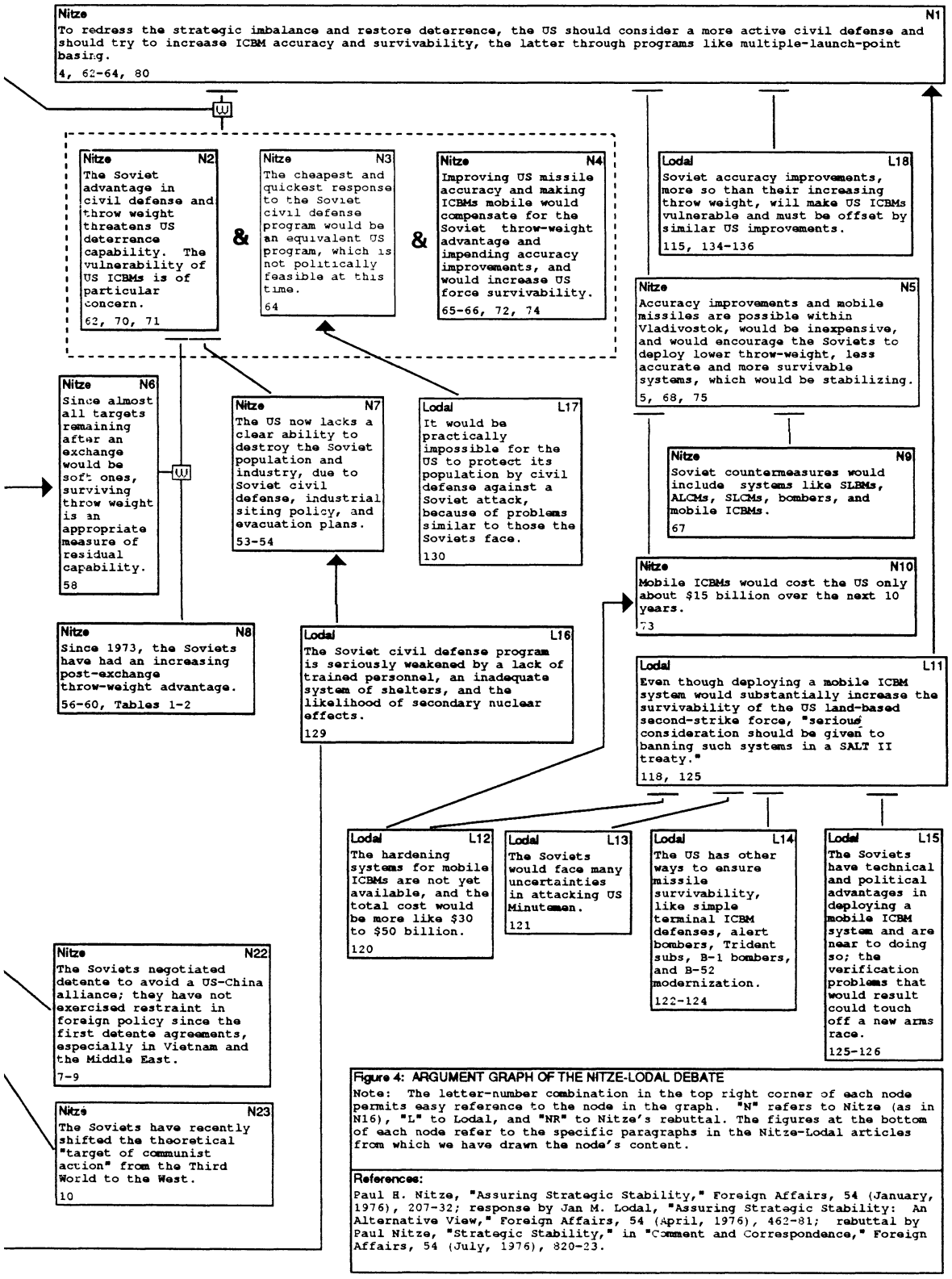


Figure 4: ARGUMENT GRAPH OF THE NITZE-LODAL DEBATE

Note: The letter-number combination in the top right corner of each node permits easy reference to the node in the graph. "N" refers to Nitze (as in N16), "L" to Lodal, and "NR" to Nitze's rebuttal. The figures at the bottom of each node refer to the specific paragraphs in the Nitze-Lodal articles from which we have drawn the node's content.

References:

Paul H. Nitze, "Assuring Strategic Stability," Foreign Affairs, 54 (January, 1976), 207-32; response by Jan M. Lodal, "Assuring Strategic Stability: An Alternative View," Foreign Affairs, 54 (April, 1976), 462-81; rebuttal by Paul Nitze, "Strategic Stability," in "Comment and Correspondence," Foreign Affairs, 54 (July, 1976), 820-23.

preted Nitze's analysis as based solely on a Soviet first strike without a U.S. response (L1 and L4). With these counter-arguments, it appears that Nitze has blunted Lodal's attack in this part of the graph: the warrant originally attacked by Lodal (N6) is now much less in jeopardy, for Nitze appears to be correct in his assessment of Lodal's error.

It should be clear that this "walk-through" of the arguments presented by Nitze and Lodal was greatly aided by our graphic representation. In particular, as noted before, the general structure of the debate is apparent. We see, for example, that Nitze's argument has four main components and that he spends much of his time establishing two warrants: one about the fundamental nature of the Soviet Union and another about the U.S. need for high-quality deterrence. It is clear from the graph, though it might not be so clear with other methods of analysis, that these warrants are linchpins in his argument. A successful attack against either one (something that, admittedly, might be very difficult) would seriously jeopardize Nitze's whole argument.

Implicitness

When graphing an argument, it is important to consider how implicit or explicit are its elements. We believe that it is useful to think of four levels of implicitness, three of which can be represented in a graph. The first level is that of *fully explicit* elements; most of the elements in our graph fall into this category, allowing us to quote from or paraphrase a small number of paragraphs. Nitze's claim that the Soviet Union is pursuing a nuclear war-winning capability (N14) is fully explicit. The second level consists of *mostly explicit* elements, and Nitze's warrant on the fundamental nature of the Soviet Union is a good example (N20). It is not fully explicit because, as is evident from the paragraph citations, it surfaces only in small comments at a number of places in the article; yet, upon careful reading, there can be little disagreement about its existence.[13] The third level might be called *mostly implicit.* The warrant that legitimizes the move between the Soviet throw-weight buildup and the warrant about the deep nature of the Soviet Union is a good example (N21). Although we have provided a paragraph citation for this warrant, it is derived from a subtler interpretation

[13] Paraphrasing an argument is often essential when making a graph, and some readers might question how accurately we have done this in our graph. We provide paragraph citations, so our interpretations can be checked. The N20 warrant is fairly subtle and is spread through much of Nitze's argument, so our paraphrasing here in particular might be criticized. For example, one referee suggested we had unreasonably attributed to Nitze the claim that the "Soviets believe nuclear war is survivable and are prepared to risk it to achieve their ends" (the last sentence in N20). As an example of our paraphrasing, it is worth showing how we arrived at this sentence.

We draw the first clause of this paraphrase from paragraphs 16 and 17, where Nitze says: "[As] the Soviet nuclear capability grew, the Soviet leaders still declined to depict nuclear war as unthinkable or the end of civilization. On the contrary, they directed, and still direct, a massive and meticulously planned civil defense effort . . . The thinking [this effort] represents appears to permeate the Soviet leadership . . . The Soviets may well overestimate the effectiveness of their civil defense program, but what is plain is that they have made, for twenty years or more, an approach to the problem of nuclear war that does assume, to a degree incomprehensible to Americans (or other Westerners), that nuclear war could happen, and that the Soviet Union could survive . . . In essence, Americans think in terms of deterring nuclear war almost exclusively. The Soviet leaders think much more of what might happen in such a war."

The second half of the sentence comes from paragraphs 31 and 32, where Nitze says: "Believing that evacuation, civil defense and recuperation measures can minimize the amount of damage sustained in a war, [the Soviets] conclude that they should be prepared if necessary to accept the unavoidable casualties . . . Again, this is not to say that Soviet leaders would desire to initiate a nuclear war even if they had a war-winning capability. They would, however, consider themselves duty bound by Soviet doctrine to exploit fully that strategic advantage through political or limited military means."

While the Soviets might not "desire to initiate a nuclear war," Nitze clearly thinks they are prepared to risk it under certain circumstances, especially since damage can be minimized.

of this paragraph than would be gained from a literal reading; it is sub-textual but relatively clear. Finally, the fourth level is *fully implicit.* We have represented none of these elements in this graph because to do so could involve speculative imputations and inferences. Warrants were not provided by the debaters for many of their support and attack relations; the debaters probably perceived these warrants as not important enough to require explicit statement.

For example, we can impute a warrant for the support relation in Nitze's argument between his datum that the Soviets are pursuing a nuclear war-winning capability (N14) and his claim that SALT and arms control negotiations do not promise strategic stability (N12). Such a warrant might read as follows. "If, while the U.S. is pursuing a policy of conciliation and negotiation with a potential opponent, that opponent does something that endangers the U.S., then the policy of conciliation is not hindering the opponent and does not ensure U.S. security." This warrant licenses the move between datum and claim but, as it is not very controversial, it need not be stated explicitly.[14] However, as noted before, we must be wary here. In most cases, a variety of very different warrants could be used to justify the move between any given datum and claim,[15] and imputing one specific warrant could involve so much subjective interpretation by the analyst as to greatly distort the intended meaning of the argument.

We should make one further comment about imputing implicit elements when preparing a graph: the analyst must be careful not to impose more coherence or rational structure on the argument than is justified by the original text. The elements of many arguments are contradictory or not properly tied together, yet there may be a temptation with graphical argument analysis to give authors the "benefit of the doubt" and see order in their arguments when little or none actually exists. To avoid this problem, support, attack, and warranting relations should be explicitly defensible through reference to the original text, whenever possible.

Plausibility and Concessions

As we have noted before, the plausibility of an attacking argument relative to its target depends on many contextual factors beyond the explicit support offered for each argument by the debaters. These factors include the relative authority of the debaters and the appropriateness of the attack in the light of tacit rules of argumentation. Plausibility also clearly depends on the beliefs and understandings of the reader. Examples are readily available in the Nitze-Lodal debate.

We have graphed two attacks by Nitze (NR1 and NR3) in his rebuttal to Lodal's argument that throw weight is not a meaningful measure of strategic capability (L1 through L4). As noted, Nitze's claim that Lodal has misread his method of analysis seems to be accurate, according to a direct reading of both articles (paragraphs 87, 93, 147, 153). This is a case where the plausibility of the attack is relatively independent of the authority of the debaters or the beliefs held by the reader. Lodal has made a clear factual error, and Nitze criticizes him for it.

The situation is not so clear with the attack launched by Nitze against one of Lodal's supports for his claim (NR3 attacking L2). Lodal provides the datum that

[14] A superficial reading of N12, N14, and the proposed warrant might suggest there is a strictly deductive relationship between them; that is, given the warrant and N14, N12 is a necessary consequence. Actually, the reader must make numerous further assumptions to arrive at N12, including that arms control negotiations since 1962 represent a policy of U.S. conciliation towards the Soviets and that the Soviet *pursuit* of a nuclear war-winning capability endangers the U.S. Therefore the relationship between N12 and N14, even when the fully implicit warrant is included, is only presumptive.

[15] For example, N12 and N14 do not necessitate the proposed warrant. A moment's thought will show that it is possible to license this support relation with implicit warrants quite different from the proposed one.

throw weight is only important for a narrow range of accuracies (between 0.1 and 0.2 nautical mile); since accuracies will soon be better than 0.1 nautical mile, he contends, throw weight will soon be an irrelevant factor (L2). Nitze responds that Lodal's estimate of dramatically improving accuracies is unfounded. He supports this assertion with an appeal to classified sources: "My analysis was based on the less radical estimates for the accuracy of deployed systems given by the most responsible authorities" (NR3). Whether this attack is plausible for the reader will depend on a number of subjective factors. For example, those who believe that people with high security classifications usually know what they are talking about (and that such secrecy prevents the disclosure of genuinely accurate information) will probably interpret Nitze's attack as plausible. On the other hand, a reader with a more jaundiced view of the military, of the need for secrecy, and of the privileged knowledge of authorities will likely regard the attack as weak or even pompous.

When interpreting an argument graph, it is useful to note some of the concessions made by one debater to the other. A good example can be found in Lodal's commentary on the prescriptions suggested by Nitze. Although Lodal directly attacks the claim made by Nitze that the U.S. should deploy mobile ICBMs, he concedes that Soviet accuracy has increased and that the U.S. should respond with similar improvements in the accuracy of its strategic weapons (L18). In the graph, this concession is noted as a datum provided by Lodal supporting Nitze's highest claim.

Limitations of the Graph

While Figure 4 can directly show readers much about the Nitze-Lodal debate, the graph is limited in what it can communicate. In at least five places, the graph does not fully explain the disagreement between the debaters and can at best help the reader to ask better questions about how the debate should be interpreted. Carefully studying these problematic elements and relations (along with the relevant sections of text) can lead the analyst not only to an appreciation of the difficulty of resolving text into argument structures but also to a fresh and deeper understanding of the debaters' positions and the upshot of the clash between them. How well the graph explains the argument "on its own" depends mostly on how explicit, clear, and forthright the debate participants have been; identifying which parts of the graph are troubling is therefore revealing.

Lodal's position on the importance of the Soviet throw weight advantage is somewhat ambiguous, since he implicitly endorses a version of Nitze's view (paragraph 115) after strongly criticizing it (paragraphs 87–93). His attack seems comprehensive: throw weight is a misleading indicator of the strategic balance because accuracy is more important (87), accuracy improvements will soon make throw weight irrelevant (91), the absolute size of the surviving U.S. forces would be large (93), and it is difficult to ascribe throw weight equivalents to bombers (92). After such a careful repudiation of throw weight, it is surprising to hear Lodal concede that the Soviet advantage in this misleading indicator has increased the threat to U.S. Minutemen: "No one can deny that Soviet capabilities are increasing and that Minuteman is becoming vulnerable, albeit *more* because of improvements in accuracy than because of increases in throw weight" (115, emphasis added here). In part Lodal simply misreads Nitze's analysis (87, 93), as shown in Nitze's rebuttal on the graph (NR1 and NR2), not fully understanding that it is a post-exchange analysis which purports to have taken accuracy into account. However, Lodal is also limited by the "black box" nature of Nitze's analysis of the throw weight balance. Nitze never gives the reader enough information to judge matters such as what U.S. accuracy assumptions his analysis uses, how his model would perform under slightly different assumptions, or what the surviving levels of U.S. forces would be in absolute numbers; and in a

footnote he says that security considerations prevent publication of these assumptions (paragraphs 55–61, 157, 59—note 17).

Nitze's position on deterrence is actually more involved than that shown in the graph (N11), and Lodal disagrees with it to some extent; Nitze implies that a high level of deterrence is necessary in a world where detente is not working, and Lodal finds that Nitze has exaggerated the need (paragraph 119). After developing a sixteen-page argument about the dangers of Soviet intentions and the unacceptability of the Vladivostok Accord, Nitze says that "a fundamental aim of nuclear strategy and the military posture to back it up must be deterrence; the failure to deter would be of enormous cost to the U.S. and to the world" (48). He clearly is arguing for a high level of deterrence, high enough to counter the threat posed by the Soviet throw weight advantage and the uncertainties caused by their expansionist aims. When he says the U.S. needs to think in pre-SALT terms, he is referring to the levels of deterrence the U.S. pursued when it enjoyed nuclear superiority up to the early 1960s. Given Lodal's softened attack on the importance of throw weight, it is reasonable to infer that he would agree the U.S. needs a high level of deterrence, higher than it has (that is, had in 1976), but not as high as Nitze thinks necessary.

Both debaters' positions on the Vladivostok Accord are ambiguous, and it is hard to say if they disagree on whether it provides a sound foundation for a treaty, on its implications, both, or neither (paragraphs 2, 4, 44, 110, 140, 143). Nitze seems to be trying to accomplish three conflicting objectives in his argument about the matter: to oppose Vladivostok as currently formulated (4), to influence the then-uncompleted agreement and hold out the promise of his possible endorsement (4, 83—note 2), and to be seen as an advocate of arms control in general—though after the strategic balance has shifted toward the U.S. (4). He wants to indicate some ambivalence (though mostly opposition) to the Accord, but also to say that as a route to stability it is a dead end. Lodal is clearly on the record as favoring the Accord, but he raises many doubts about it on the way to his partial acceptance of Nitze's claim that there is an increasing Soviet threat. Besides citing the advantages shown in the graph, Lodal also complains in passing about several issues: he implies that the U.S. would have had a chance to do better if it had pushed for throw weight limits rather than the militarily meaningless criterion of numerical equality (108–109, 104–105), and he regrets that Vladivostok achieved little in the way of arms reductions or increases in force survivability (138). In short, Lodal favors the Accord but partly agrees with Nitze's conclusion that the U.S. must take some action to increase its ICBM survivability.

In addition to saying that the evidence about Soviet strategic behavior is inconclusive regarding Soviet intentions, Lodal implies that his interpretation—that they acted rationally to achieve legitimate security goals under technological constraints—is more reasonable than Nitze's (paragraphs 94–100). Lodal builds his case by describing the history of Soviet MIRV and heavy missle deployments, describing each step as a rational response to the Soviets' perceived defensive needs and constraints. This is intended to leave the reader with the impression that the Soviets probably acted more from these motivations than from an ideological urge for expansion, so when Lodal concludes that the evidence does not permit drawing any conclusions about Soviet intentions, it seems he has pulled his punch. Partly he may be signaling that he does not think that arguments about Soviet intentions should play a large part in strategic discussions.

The Nitze-Lodal Debate As A Characteristic Liberal-Conservative Exchange

Lodal does not directly attack Nitze's crucial warrant about the general intentions and nature of the Soviet Union, preferring to focus his critique on Nitze's more

limited claim that the Soviets have pursued a nuclear war-winning capability (L5 and L6 on the graph). However, he seems to make an implicit counter-claim that the Soviets are reasonable and justified in their strategic actions and world view. He offers many pieces of evidence to undermine Nitze's view of the Soviets. Generally, he asks the reader to see the history of U.S.–Soviet relations from the point of view of an insecure Soviet leadership, a leadership that had a military need for MIRVs to counter the threat of potential U.S. ABMs (paragraphs 95 and 99), that views U.S. foreign policy with as much suspicion as the U.S. views Soviet foreign policy (84), that had to make major concessions at Vladivostok (108), and that is willing to ban mobile ICBMs even though it has a lead in this technology (125). In short, he describes the actions of a country that fears an arms race, is willing to compromise but ready to act strongly to defend itself, and views the world not so differently from the U.S. But Lodal's point here is fully implicit, whereas Nitze is mostly explicit in his contrary claim about the inimical nature of the Soviet Union (N20 on the graph).

As we noted before, this seems to be a characteristic pattern in debates between conservatives and liberals on strategic issues. Conservatives tend to base their arguments on explicit assessments of the Soviet Union's intentions and nature. They represent this potential opponent as duplicitous, expansionist, hostile to the West, ideologically motivated, and willing to risk nuclear war. For their part, liberals usually rely on legal, technical, and quantitative counter-arguments against conservative claims about the Soviet threat, but they generally do not offer an explicit counter-assessment of the nature and intentions of the Soviet Union. One might entertain many hypotheses as to why this is so.[16] One might also consider it important to examine earlier and more recent debates to see if, under certain circumstances, this pattern might change. What seems clear, however, is that a crucial warrant of conservative argument is often exempted from direct attack.[17]

Conclusions

In conclusion, we offer some general caveats and comments on graphical argument analysis. We think that the graph in Figure 4 is a defensible representation of the debate between Nitze and Lodal. This does not mean that it is the only such graph that can reasonably be drawn; an analyst with a different critical purpose, for example to fully criticize the debaters' ambiguous positions on SALT, could produce a different yet equally reasonable graph. Since the analyst's purpose affects many aspects of graph construction (such as the connections made between elements, the extraction of relatively implicit elements, and the selection of areas to graph in detail), not only can graphs be best created if this purpose is clearly understood, but they can be defended only with reference to it.

[16] One possible hypothesis is that the U.S. Cold War experience helped forge a collective identity that depends on seeing the Soviet Union as the antithesis of U.S. society and a grave threat to it. In such a psychological and political environment, anyone who appears conciliatory toward the Soviet Union is vulnerable to charges of being unwilling to defend America. Another hypothesis is that both liberals and conservatives tend to share an even deeper warrant about the *anarchy* of the international system. This deeper warrant may encourage worst-case analysis of the adversary; by accepting it, liberals may thus concede much of Nitze's claim in N20 and put themselves at a decisive disadvantage in debate.

[17] Graphical argument analysis might be very useful in charting the course of changes in the deep warrants or assumptions that have underpinned our political discourse over the decades. In particular, it might help us identify the shifting nodes of consensus and contention in public debate. Often, elements of public argument that have been more or less regularly exempted from direct attack come to be subject to attack, and previously attacked elements come to be privileged by virtue of being left unattacked. Such a shift in the boundaries and deep assumptions of debate seems to be occurring in the current discussion (prompted by Gorbachev's reforms) about the nature of the Soviet Union; Nitze's claim in N20 no longer appears quite so unchallengeable.

Furthermore, even if an analyst fully accepts *our* purpose, which is to assess the main claims in this debate, our graph is not the last word. Anyone who disagrees with how it portrays the arguments is encouraged to refine the graph and offer new interpretations. We aim to promote the iterative process of graph writing, criticism, re-formulation, and re-interpretation. In the case of this debate, we simply hope to have provided a good starting point. At the same time, we are not saying that *any* graph is defensible; some graphs can be effectively criticized as inaccurate, misleading, or otherwise inadequate, and some critical purposes may not be worth the effort of applying this method.

Given that an analyst accepts our purpose and is in general agreement with our graph, the interpretation we have offered in the previous section is only one possible way to assess this graph. The amount and type of interpretation that can be carried out using Figure 4 depends on one's own experience, perspective, and knowledge. Our interpretation represents only a fraction of what could be done with the graph. It is aimed at a general audience to illustrate the method and accommodate those who are more interested in the broader implications of the arguments than in the technical issues.

Anyone making argument graphs can vary the scope and extent of detail as necessary. There are at least four general categories of scope and detail, of which we have used the third here: graphs that condense an area of literature, quite brief graphs of individual books or articles, more extensive graphs of the same, and very detailed analyses including all the statements made in an argument or exchange. The first two of these require far less time and draw more on the resources of the analyst (as opposed to what is supplied by the text) than the last two, and they can be used quite informally—for example during face-to-face arguments. Choosing the appropriate level of analysis depends on how the graphs and interpretations are to be used and on time constraints.

To sum up, we have noted many of the advantages of graphical argument analysis. For example, despite the loose and informal nature of the arguments made by Nitze and Lodal, the method helped us see the structure of their exchange. We identified the four main components of Nitze's argument, the relations between them, the precise targets of Lodal's attacks, and the possible effects of these attacks. We were also able to identify Nitze's key warrants, such as his assumption about the fundamental nature of the Soviet Union, and we could easily see how these warrants hold his argument together. Furthermore, we were able to pinpoint weaknesses in reasoning—for example, Nitze's use of the same evidence as both data and backing. And finally, the method helped us highlight a characteristic pattern of exchange between liberals and conservatives in their debates about strategic issues.

Graphical argument analysis can be applied in a wide variety of domains, including the natural and social sciences, politics, and law. Such analysis helps us understand, criticize, and improve the arguments that permeate our lives.

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