

Graphing the grammar of motives in National Security Strategies: Cultural interpretation, automated text analysis and the drama of global politics

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Abstract

The literary theorist **Kenneth Burke (1945)** outlined a methodology for identifying the basic “grammar of motives” that operate within texts. His strategy was to identify the logical form that is used for attributing meaning to human situations. We imagine how a **variant of Burke’s method might be applied in the era of automated text analysis**, and then we explore an implementation of that variant (using a combination of natural language process, semantic parsers and statistical topic models) in analyzing a corpus of eleven U.S. “National Security Strategy” documents that were produced between 1990 and 2010. This **“automated process” for textual coding and analysis is shown to have much utility for analyzing these types of texts and to hold out the promise for being useful for other types of text corpora**, as well—thereby opening up new possibilities for the scientific study of rhetoric.

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1. Introduction

LET us suppose that I ask you: “What did the man say?” And that you answer: “He said ‘yes.’” You still do not know what the man said. You would not know unless you knew more about the situation, and about the remarks that preceded his answer.

Kenneth Burke (1941, p. 1), *The Philosophy of Literary Form*

Scholars have long been concerned with the question of how to read a text in such a way that its deeper meanings can be revealed. This has led to a long series of debates about the character of texts, the nature of meanings and the theory of interpretation (as expressed by modern intellectual movements such as hermeneutics, structuralism and semiotics). Mostly, these discussions have been focused on strategies of reading for human readers, but over the last half-century or so, this discussion has also begun to include questions about the possibility of using computers to assist in the analysis of texts. Starting around the time of the Second World War, computers began to be used for systematically counting word frequencies and for creating concordances that tracked the flow of concepts and terms across a broad array of texts. Over time, these strategies became more sophisticated, and computer assisted reading of texts began to incorporate an awareness of the syntactic relationships between words (e.g., Franzosi, 1989, 1990; Roberts, 1997; Weber, 1990) as well as more sophisticated understandings of how word mappings could be used to enhance our understanding of the deeper meanings of texts (e.g., Bearman and Stovel, 2000; Carley, 1993; Carley and Kaufer, 1993; Mohr, 1998; Moretti, 2013). But over the last decade or so, the sophistication of computer assisted analysis of texts has been increasing at a rapid pace, opening up the possibility of radically rethinking the ways that we use computers to assist in our analysis of texts. Our article represents an attempt to lay out a new strategy for computer assisted readings of textual meanings, a strategy that combines some of the newest computing technologies with a theory of textual meanings developed by the literary theorist, Kenneth Burke. We draw on Burke because he provides an elaborate and sophisticated theory of how textual meanings operate as well as what he called (Burke, 1945) a dramatist interpretive methodology for identifying the basic “grammar of motives” that humans use for attributing meaning to social situations—both of which, we believe, are well suited to the kind of systematic textual analyses that new computing technologies can provide.

We use these methods as a way to closely examine eleven U.S. “National Security Strategy” (NSS) documents that were produced between 1990 and 2010.¹ We have chosen the NSS documents in order to learn about the deeper structures of rhetorical logic that undergird the U.S. government’s efforts to discursively define its place within the international social order and to legitimate its actions within that order (Wagner-Pacifici, 2008). The Office of the President is mandated by Congress to regularly produce these reports on the international social order. They are to include the administrations’ perceptions of short and long range strategic threats and opportunities; they are also to sketch the outlines of U.S. plans for action within these global situations. While the texts express the authorial perspective of the sitting American President (a trope that is promoted by the convention of starting off each NSS with a short, signed Presidential cover letter endorsing the accompanying analysis), in fact, these are highly bureaucratic documents. They have multiple authors, they pass through multiple layers of review,

¹ They have been published since the late 1980s, at uneven intervals but usually about every three to four years (see The White House, 1990, 1991, 1995, 1996, 1997, 1998, 1999, 2000, 2002, 2006, 2010).

and they have to comport with multiple administrative logics (Stolberg, 2012).² Yet they are not especially big—George HW Bush’s 1990 NSS was 34 pages, Obama’s 2010 document comes in at 52 pages, and Clinton’s 2000 report was the largest so far at 84 pages and about 44,000 words. In this article, we employ Burke’s ideas along with a set of automated text analysis algorithms (named-entity recognition (NER), semantic parsers and statistical topic models) to zoom in for a detailed look at these NSS texts with the goal of identifying some of the basic elements and patterns of rhetorical form that make up the grammar of motives that U.S. National Security organizations employ when publishing these types of pronouncements.

2. Deep meanings/close readings

Our primary research interest concerns the *discursive style of the state*. We ask: what are the specific cultural and literary forms that the NSS authors use in practice, and how does the use of these forms influence the overall rhetorical effects of the text? Finding out what these texts say is not very difficult. Because our corpus is small, we can read these documents from start to finish and thus, unlike the problem with large text corpora, our goal is not so much to discover what these texts “say” so much as it is to read them closely to find out what these texts “mean” (or at least, to better understand *how* they mean). Of course, this immediately leads into a morass. Meaning is complicated; there are many types and theories of meaning and many ways of interpreting meanings. Following Kenneth Burke (1941), we will focus here on the distinction between semantic meanings and poetic meanings.

A semantic meaning tries to provide an exact specification of a concept that uniquely defines it within a field of other concepts. Burke offers the idea of a mailing address as a model for the notion of semantic meaning. “The address, as a counter, works in so far as it indicates to the postal authorities what kind of operation should be undertaken. . . And extending from that I should state, as the semantic ideal, the aim to *evolve a vocabulary that gives the name and address of every event in the universe*” (Burke, 1941, pp. 140–141). Thus, it is the *analytic precision and disambiguation that is valued here*. “An ideal semantic definition of the chair would be such that, on the basis of the definition, people knew what you wanted when you asked for one, a carpenter knew how to make it, a furniture dealer knew how to get it, etc.” (Burke, 1941, pp. 141–142).

But, as Burke explains, there is much more to understanding the meaning of a term than simply grasping it in a precisely defined semantic sense. Continuing with the postal analogy, Burke writes, “when you have isolated your individual by the proper utilizing of the postal process, you have not at all adequately encompassed his ‘meaning.’ He means one thing to his family, another to his boss, another to his underlings, another to his creditors, etc.” (Burke, 1941, p. 142). And while there is some overlap between semantic and poetic meanings, ultimately they operate in very different registers. Poetic meaning, unlike semantic meaning, is not presumed to be simple and unambiguous. On the contrary, poetic meanings are described with passion, attitude and ambiguity. Or, as Burke puts it, “(t)he semantic ideal would attempt to *get a description* by the *elimination* of attitude. The poetic ideal would attempt to *attain a full moral act* by attaining a perspective *atop all the conflicts of attitude*. . . the first would try to *cut away, to abstract*, all emotional factors that complicate the objective clarity of meaning. The second would try to derive its vision from the maximum *heaping up* of all these emotional factors,

² The 2006 NSS went through some 70 drafts (interview with Peter Feaver). Stolberg (2012) provides a detailed account of how the last several NSS texts were drafted.

playing them off, one against the other, inviting them to reinforce and contradict one another, and seeking to make this active participation itself a major ingredient of the vision” (Burke, 1941, pp. 147–148). For Burke, then, the poetic is a very broad category of understanding, one that is anchored in the human condition itself. Says Burke, think of poetry (which includes “...any work of critical or imaginative cast) as the adopting of various strategies for the encompassing of situations. These strategies size up the situations, name their structure and outstanding ingredients, and name them in a way that contains an attitude toward them” (Burke, 1941, p. 1).³

Happily, Burke (1941) also provides us with a framework for interpreting poetic meaning. He calls his approach “dramatism.” Burke’s idea is that the best model that we have for studying the meaningfulness of human discourse is to look to the models of that discourse that humans have themselves made—which is to say, we should examine the literary, the poetic, and the dramatic as exemplars for understanding human meanings. Burke urged the development of what he called “sociological categories” for understanding works of art “as strategies for relating enemies and allies, for socializing losses, for warding off evil eye, for purification, propitiation, and desanctification, consolidation and vengeance, admonition and exhortation, implicit councils or instructions of one sort or another” (Burke, 1941, p. 304). Burke’s emphasis on strategy accords well with our own, providing a direct bridge to our use of Burkean terminology to assist our analysis of the National Security Strategy reports as relational texts (relating enemies and allies, for example), as active texts (propitiating, consolidating, admonishing, and so forth), and as encompassing emotions, world-views, human motivations, and the intersections of these elements in a way that is much more multidimensional than are rational choice readings of strategy and strategic action.

As Burke explains, dramatism “invites one to consider the matter of motives in a perspective that, being developed from the analysis of drama, treats language and thought primarily as modes of action. . . it offers a system of placement, and should enable us, by the systematic manipulation of the terms, to ‘generate,’ or ‘anticipate’ the various classes of motivational theory” (Burke, 1945, pp. xxii–xxiii). In making his case, Burke moves fluidly back and forth between literary theory, social scientific theory and the philosophical understandings of both (a penchant that contributed to his intellectual identity as an iconoclast). But his method also has an analytic rigor to it that makes it useful for us.

In the introduction to *The Grammar of Motives*, Burke explains his project this way. “What is involved, when we say what people are doing and why they are doing it? An answer to that question is the subject of this book. The book is concerned with the basic forms of thought which, in accordance with the nature of the world as all men necessarily experience it, are exemplified in the attributing of motives” (Burke, 1945, p. xv). Burke goes on to explain the principle of what has come to be known as the dramatistic pentad.

We shall use five terms as generating principle of our investigation. They are: **Act, Scene, Agent, Agency, Purpose.** In a rounded statement about motives, you must have some word that names the *act* (names what took place, in thought or deed), and another that names the *scene* (the background of the act, the situation in which it occurred); also, you must indicate

³ Burke writes, “. . . something of the rhetorical motive comes to lurk in every ‘meaning,’ however purely ‘scientific’ its protections. Wherever there is persuasion, there is rhetoric. And wherever there is ‘meaning,’ there is ‘persuasion.’ Food, eaten and digested, is not rhetorical. But in the *meaning* of food there is much rhetoric, the meaning being persuasive enough for the idea of food to be used, like the idea of religion, as a rhetorical device of statesmen” (Burke, 1950, pp. 172–173).

what person or kind of person (*agent*) performed the act, what means or instruments he used (*agency*), and the *purpose*. Men may violently disagree about the purposes behind a given act, or about the character of the person who did it, or how he did it, or in what kind of situation he acted; or they may even insist upon totally different words to name the act itself. But be that as it may, any complete statement about motives will offer *some kind* of answers to these five questions: what was done (act), when or where it was done (scene), who did it (agent), how he did it (agency), and why (purpose). (Burke, 1945, p. xv)

Burke's actual program for the analysis of motives becomes considerably more complex as he begins to highlight the interrelationships between the five elements of the pentad. As Burke explains, "... insofar as men cannot themselves create the universe, there must remain something essentially enigmatic about the problem of motives, and ... this underlying enigma will manifest itself in inevitable ambiguities and inconsistencies among the terms for motives. Accordingly, what we want is *not terms that avoid ambiguity*, but *terms that clearly reveal the strategic spots at which ambiguities necessarily arise*" (Burke, 1945, p. xxviii). He describes the relations between the five terms as binary ratios indicating which of the two factors is more fully determinative of a given outcome. Thus the "scene-act ratio" measures the extent to which "the scene contains the act. . . It is a principle of drama that the nature of acts and agents should be consistent with the nature of the scene" (Burke, 1945, p. 3).

These more complex formulations are intriguing, but we want to begin with the basic idea of trying to read the NSS as poetic documents in Burke's sense of the term, and thus, our intention is to search out the specific literary forms that perform the rhetorical work of the state and to do this by employing the dramatic pentad as a way of analyzing characteristics of rhetorical forms within the texts themselves.⁴

3. The rhetorics of states

Our overall goal is to make use of these new advances in computational text analysis and Burkean interpretation to provide a patterned reading of the U.S. "National Security Strategy" documents in order to help us understand something about the discursive powers of the state (Wagner-Pacific, 2008, 2010). Alan Stolberg explains that, "(t)he NSS is intended to represent the highest level national strategy document in the United States. It establishes the strategic vision or grand strategic direction for the administration in power, provides the 'objectives,' and includes all the elements of national power. It also serves as the 'umbrella' strategy for guiding a number of other national security related strategy documents. . . ." (Stolberg, 2012, p. 71). In other words, these are texts that *matter*. They are widely read and, like legal doctrines, the contours of meaning expressed by the text have echoes across many other official documents and policy statements and ultimately into the very practices and principles of the state bureaucracy.⁵ Many scholars

⁴ One other important aspect of Burke's pentadic structure is that the elements, in their combinations, generate and carry the energy of the specific system/worldview they are limning. Burke identifies this source of energy as the "Godterm" (the unconscious for Freud, the invisible hand for Smith, and so forth). It is useful to keep this systemic energy (with its frictions and mismatches between, say, act and agent, as Burke highlights in the ratios) in mind. The mapping of international strategy is about the management of the energy of this anarchic system, after all.

⁵ Snider and Nagl, analysts at the Army War College's Strategic Studies Institute, note that these texts are sent to many constituencies. "Many of these are foreign, and extensive distributions through the U.S. Information Agency have proven effective at communicating changing U.S. intentions to the governments of many nations not on our summit agenda" (Snider and Nagl, 2001, p. 130).

(Chang and Mehan, 2006; Hartnett and Stengrim, 2006; Rice, 2003; Steinberg et al., 2002) have singled out the George W. Bush *National Security Strategy of the United States of America 2002* for analysis—first and foremost, for its announcement of a new “preventive war” policy. Indeed, that is how these documents first came to our attention. But having read this first document, our interest extended to all of the NSS reports, read as a series of related documents—sequential, similar in focus and structure, but not necessarily interlinked or cross-referencing one to the other.

But if this is rhetoric that matters, how does it matter? And, how does it work? We have sought an answer to this question by reading administrative histories of the NSS documents and by interviewing some of the personnel involved in crafting these documents.⁶ We are also interested in understanding how the texts themselves function as formal documents that exist and have constitutive powers in their own right partly through the content of what is contained within the text itself (Wagner-Pacifi, 2008). In other words, we seek to read these documents for clues into the question of how these formal pronouncements operate as highly stylized, agenda-setting works of rhetoric that are then employed in and through the state’s conduct. We wonder how this rhetoric operates, how it is encoded and decoded, and how it varies from one text (or indeed, from one topic) to another. Or, to put this in another way, we ask *how the state talks* when it speaks of strategies for national security. And how the state imagines the world of entities and actions involved in national security. We expect that these types of speech activities both reflect and also enable the exercise of power that the United States continuously exerts when it acts upon the world stage.⁷ We also anticipate, but cannot yet demonstrate, that the texts conjure precise images of that world stage as populated by various agents (friends, enemies, partners, neighbors, competitors) and their networked relations to each other.

Of course, these rhetorical claims do not occur in a vacuum. On the contrary, the discursive conventions employed in these texts derive from and echo loudly across many different communications settings that tie together large conversational communities representing the many national (and extra-national and intra-national) interests who are also linked into the world political-economic system through an array of legal regimes, market relationships, strategic alliances and other institutionalized forms of practice and understanding (Maoz, 2011; Meyer, 2009; Ruggie, 1998; Wendt, 1999).

4. The computer as close reader

The potential for a productive convergence between the computational sciences and the social sciences has been attracting a lot of attention recently, as well it should.⁸ Especially in the context of the rise of the Internet and so-called “Big Data” initiatives, there appear to be a number of significant new opportunities for scientists, engineers and Internet entrepreneurs emerging from

⁶ We conducted an interview with Peter Feaver (Duke University), who helped coordinate the Clinton 1994 NSS and had the lead in developing the Bush 2006 NSS. And we had an informal interview with Stuart Kaufman (University of Delaware), who worked in 1999 at the National Security Council on a Clinton era NSS report. We thank them both for sharing important insights with us.

⁷ Of course, it would be a mistake to confuse written texts with spoken texts. Ricoeur (1981), for example, describes the wide array of difference between spoken and written forms of speech.

⁸ See, for example, the series of recent National Science Foundation program solicitations (such as “Core Techniques and Technologies for Advancing Big Data Science & Engineering [BIGDATA]”) that are directed toward advancing “the core scientific and technological means of managing, analyzing, visualizing, and extracting useful information from large, diverse, distributed and heterogeneous data sets” (NSF Program solicitation # 12-499, June 2012). Similar solicitations have also come from NASA, DARPA and other federal agencies.

these proposed programs for analyzing large-scale data systems.⁹ For the social and cultural sciences, this could be a game changer. Research in these fields may change fundamentally given the following developments: being able to systematically capture a broad variety of social information, entire archives of textual data, available in their totality for instantaneous qualitative or quantitative analysis or large-scale social interactional systems, streaming in real-time, in real-life, directly off an Internet feed, at whatever scale or filter one might want to apply. Specifically, the rise of Big Data holds out the possibility of making new kinds of data available (both quantitative and qualitative) that are abundant, accessible, nuanced, of high quality, and gathered at levels that exceed our capacity to analyze or comprehend them (Diesner and Carley, 2005; Hey et al., 2009; Jockers, 2013; Kleinberg, 2008; Lazer et al., 2009; Michel et al., 2011; Mohr and Bogdanov, forthcoming; Moretti, 2013). This would represent an historic change for the social sciences that, since their origin, have been severely hampered by the scarcity, thinness and costliness of data.¹⁰

But all the talk about “Big Data” has shifted attention toward the potentials and complications of harvesting these new mega-information sources. Our interests are different. We want to combine new text mining theories and methods from the computational sciences with the kinds of textual analysis strategies and practices that humanists and social scientists have traditionally associated with a “close reading” of a particular text or body of texts. This means that, instead of worrying primarily about how we will effectively sample, share or statistically condense enormous amounts of information (the classic problems for “Big Data” computer technologies), we are confronted instead with the opposite problem of how we can use these new types of algorithmic methods to enrich our understanding and appreciation of the available “informational signals” in the texts that we are studying by more carefully attending to the patterning of those signals—just as humans have traditionally done when they engage in a close reading.¹¹ Thus, instead of applying these new text mining tools like telescopes to take in the vastness of the Internet, we will turn them around and point them down like microscopes to focus in on the smallest units of meaning in a handful of texts—in this case, the eleven U.S. National Security Strategy (NSS) assessments. Doing so enables us to sort through these documents in such a way that we can begin to identify the deeper patterns or structures of meaning that appear to order this dramaturgical and institutional space (e.g., Breiger, 2000, 2002; Mohr, 1998; Wagner-Pacifici, 1986, 2005, 2008).

⁹ Of course, the benefits need to be weighed against the costs—for example, costs to privacy (e.g., from state and or corporate surveillance, as well as unauthorized disclosure). Questions of this sort are very much in the news today, as the Anthony Snowden story unfolds even as we write.

¹⁰ The social sciences have gone through a series of stages with regard to data collection and usage. The disciplines emerged as handmaidens to the state, taking in, analyzing, and designing new systems of data collection required by the modernizing nation state (e.g., taxation and conscription). For nearly a hundred years, there was almost nothing other than official statistics available to consider. New types of data collection were developed at the end of the 19th century, with the emergence of city surveys (such as Booth’s studies of London, and W.E.B. Du Bois’s study of the black community in Philadelphia) and also by the newly developing profession of social work. The next big change came in the 1930s with the rise of survey research by independent polling firms and research universities. Like the invention of the random sample survey, new developments in text mining the Internet may change the very nature of data usage in the discipline. Even today, reliable social data continue to be difficult to come by, costly to obtain, limited in scope, and plagued by the vast distances separating what is being measured and what is actually going on in the social world (Giddens, 1987; Lazarsfeld, 1961; Mohr and Rawlings, 2010; Platt, 1996; Ross, 1992).

¹¹ In this, we sympathize with Moretti’s (2013) lament about the need to learn to refocus our style of understanding. Thinking about the new possibilities of “Distant Reading,” Moretti writes that “literary historians don’t really know how to think about what is frequent and small and slow; that’s what makes it so hard to study the literary field as a whole: we must learn to find meaning in small changes and slow processes—and its difficult” (Moretti, 2013, p. 192).

Thus, another goal that we have for this article is to link these more humanistic styles of textual engagement to contemporary theories and methods of text mining and analysis that are being developed by computational scientists. In particular, in this article, we use automated procedures for coding the NSS documents so that we can begin to examine within a new methodological context some of Burke's ideas about the empirical analysis of rhetoric. Our basic idea is to begin by constructing a network mapping of the terms inside these texts and to do so in a way that allows us to capture a Burkean mapping of motives.

In this article, we take a preliminary step by using advanced text mining algorithms to code our texts. There are several reasons to do this. First, hand-coding of texts is tedious, slow and unreliable. The social sciences have developed traditions for managing what are described as “inter-coder reliability” problems, but the basic fact remains that human communication is complex and multi-layered and therefore interpretation is rarely simple or straightforward. The need for hand-coding of texts is certainly the biggest barrier to the up-scaling and formalized development of cultural readings of texts and their poetic meanings. Thus, we think a useful linking between automated text mining procedures and the interpretive coding of texts would be a major contribution to the field and would serve as an impetus to helping move social scientists away from the traditional practice of hand-coding texts to pre-identify and pre-label relevant meanings.

Of course, the very ambiguity of meaning (which Burke celebrates) also makes it that much harder to use automated coding procedures. Indeed, it is only by drawing upon the individual social scientific interpreter's skills in being able to understand this ambiguous meaning—skills developed through training in reading texts, in understanding culture and society and in the nuanced feeling for language that ferrets out meaning—that we are able to begin to understand the complexity and nuance of what a computer must be trained to accomplish. And it is only by holding up the subtleties and accomplishments of a skilled human reading of these texts that we are able to appreciate the vast difficulties that any computer-assisted readings must overcome.

But there are also some important advantages to formalizing the coding process. First, the computational sciences have made great strides in recent years in developing new methodologies for analyzing texts. The use of formal procedures for textual analysis has been used for decades by social scientists to read a great variety of texts.¹² But the procedures have always been quite crude and the loss of information between the original text and the data representations of the text were enormous. The difference today is that with a large step-up in sophistication in information retrieval from text, text analysis and natural language processing, we may be able to lash together some new sets of automated text analysis procedures that come closer to achieving the kinds of complex interweaving of noticing and awareness that sophisticated human close readers would apply in their appreciations of both the styles and the messaging embedded within a text. So, the first reason to try to use automated coding is that, perhaps for the first time ever, we actually can.

¹² For example, early work in word counting technology was done during World War II to analyze enemy propaganda (see introduction to this special issue), and early work in literary text use of computers for text analysis goes back to the efforts of Father Roberto Busa to compile a complete computerized concordance of all the words in the works of St. Thomas Aquinas (Hockey, 2004, p. 4). Later, technologies for text analysis improved by incorporating information from semantic context—such as Franzosi's (1989, 1990) use of semantic grammar coding schemes, but this work was still highly dependent upon hand-coding. More recent work by Franzosi and colleagues (Sudhahar et al., 2011) has involved efforts to substitute automated text mining tools for hand-coding. New work in the tradition of digital humanities has extended these core ideas in many new directions. Digital humanities scholars are also leading the way in incorporating advanced text mining tools into the study of texts (e.g., Jockers, 2013; Moretti, 2013).

Beyond this, there are a number of obvious advantages. Automated coding is fast, it is replicable, and multiple scholars can work on identical procedures simultaneously—all of this leads to the kind of continuous practical tinkering and iterative improvement of method that characterizes most mature science programs. Finally, and especially important for the topic of Big Data, automated procedures are scalable to large texts and large collections. Thus, once we understand something about how literary forms operate in the context of these rhetorical acts by the state, scalable methods will enable us to then track the diffusion, absorption, and transformation of these rhetorical effects across other institutional, dramaturgical and textual domains.

In what follows, we will lay out the procedures that we have followed and also show some preliminary results. In brief, we will use three sets of text mining technologies to code three different elements of [Burke's \(1945\)](#) pentad. We use Natural Language Processing methods (specifically, Named-Entity Recognition) to search the NSS texts in order to identify all of the probable examples of what Burke would describe as “Agents” (or, “Actors”). Second, using semantic grammar parsers, we identify “Acts” that are purported to be associated with these agents by pulling out all of the verbs that are semantically connected (within a sentence) to agents. Third, using Latent Dirichlet Allocation (LDA) topic model techniques, we identify each of the “Scenes” in which the identified agents act. Using these three legs of the pentad, we will then explore the utility of seeking to understand the NSS documents in terms of the grammar of motives that underlie the rhetorical form being employed in the NSS documents.¹³

4.1. Natural language processing and the search for actors

Our first task is to identify the relevant “Actors” in these texts. From reading the NSS documents, we already know that most of the agentic action described there is located in nation-states. But, not all of it—a number of formal organizations are also actors in these texts (including, for example, the United Nations, the World Bank, and The Irish Republican Army). There are also individuals who act as agents in the documents, mostly these are leaders of countries (Clinton, Yeltsin, Saddam Hussein), but there also leaders of non-state organizations and groups (Osama Bin Laden, and Zarqawi, for example). There is a good fit for this problem in the subfield of Natural Language Processing known as “Named Entity Recognition” (NER). An NER processor will take a text and extract its key entities and assign each of them to one of a set of basic ontological categories. We use a NER processor outlined in [Ratinov and Roth \(2009\)](#) that divides key terms into eighteen different categories. We have chosen six of these categories to include in our analyses because we think that they are most likely to contain references to agents—Person, Organization, Location, Nationality, Language and Geo-Political Entity.¹⁴

It is important to recognize that NER systems today are extremely sophisticated. As [Ratinov and Roth \(2009, p. 1\)](#) explain in the discussion of their NER program, “Natural Language Processing applications are characterized by making complex interdependent decisions that require large amounts of prior knowledge.” This means that the rules for assigning a category to a term are intricate and multi-tiered. They include, for example, looking for simple textual clues like capitalization (to identify proper nouns), but they also entail using various contextual

¹³ In this article, we have only sought to develop a procedure for these first three elements of Burke's pentad. As discussed in the conclusion of the article, our ambition is to eventually move beyond this initial formulation to implement the full dramatisitic pentad.

¹⁴ The NER produced categories that we did *not* employ are: Time, Law, Percent, Facility, Product, Ordinal Number, Work of Art, Money, Date, Event, and Quantity.

clues from the document itself (referred to as “context aggregation”)—including, for example, checking in with how the same term has been used (and classified) elsewhere in the same text. NER systems rely heavily on the use of prior knowledge that means that they employ “gazetteers” or resource sites where the model has access to ontologies in order to categorize terms from the text. [Ratinov and Roth \(2009, p. 6\)](#) employ “a collection of 14 high precision, low-recall lists extracted from the web that cover common names, countries, monetary units, temporal expressions, etc.” In addition, they include another 16 gazetteers that extract information from Wikipedia. Finally they also apply word class models to unlabeled text as a way to discover a term’s level of abstraction. These programs hierarchically cluster words, to produce a binary tree of words. Counting the number of links up a tree provides a way of measuring the term’s level of abstraction. Notice, by the way, that Natural Language Processing programs like NER systems are geared to allow the computer to exploit all the regularities of the text to disambiguate its meaning in a way that is quite similar to Burke’s (1941) ideal of a semantic meaning. In Burke’s terms, the computer follows the mailing address all the way down, wherever it leads, to find an exact match in semantic meaning.

The Ratinov and Roth NER system was applied to the NSS texts, returning 6102 terms across the eleven years or an average of 554 potential “Actor” terms per year. [Table 1](#) shows the most frequently occurring of these terms and their distribution across time.¹⁵ To make interpretation easier, we have plotted these data in three “heat map” graphs. The first of these, [Fig. 1](#), shows which nations were given more attention across the years. We can see there is a focus in the early NSS documents on the Soviet Union and Ukraine. Afghanistan and Pakistan are more salient in later years. Bosnia is a hot spot between 1995 and 2000. Iraq takes on importance with the first Gulf War (which begins with the Iraqi invasion of Kuwait in August of 1990 and ends with the victory of coalition forces in February 1991), and it continues to be increasingly salient across time. In this context, it is interesting to see how anomalously silent G.W. Bush’s 2002 NSS document is regarding the discussion of Iraq given that we know from subsequent reporting that, at the time, the administration was actively planning for the March 2003 invasion ([Woodward, 2004](#)).¹⁶

In [Fig. 2](#), we can see the shifting levels of attention to different geo-political regions across time.¹⁷ Europe, as a region, is salient throughout (though less so more recently). Eastern Europe is discussed a lot in 1991 and then it begins to fade from focus. The Gulf is important in 1991 but less so in other years. After 1991, Africa as a regional topic becomes increasingly more frequent. “Asia” is probably the most heterogeneous of these terms—and hence, perhaps it masks U.S. attention to China and N. Korea. [Fig. 3](#) provides the same information for the remaining sets of terms. Some of these would seem to count as actors in a Burkean sense (Clinton, the UN, The Department of Defense, NATO, G-20, Congress and APEC, the Asia-Pacific Economic Cooperation forum). Other terms that appear to not be agents are also included here. “The Cold War” was coded by the NER as a geo-political entity. And both NBC (which was an acronym used mostly by the Clinton team to designate “Nuclear, Biological and Chemical weapons”) and

¹⁵ Specifically, terms are included in this table if they are one of most frequent terms in at least one of the years. Note also that references to the U.S. were not included in this listing but they were used in subsequent analyses.

¹⁶ Note that [Stolberg \(2012, p. 78\)](#) reports, “The internal U.S. national debate over whether to attack Iraq was taking place during the final stages of the document’s drafting and coordination process in late summer 2002. NSA [national security advisor] Rice wanted the NSS to stand alone to represent the nation’s security strategy to the world writ large and not just for Iraq. She did not want the Iraq debate to be addressed in the document. . .” The distinction identified in the graph raises the very interesting issue of how computational text analysis can be (or cannot be) used to signal absence of text rather than presence and combination of text.

¹⁷ The data for [Figs. 1–3](#) are based on the unadjusted counts.

Table 1
Most frequent agentic concepts by year of NSS.

Sum – count	Year											
	1990	1991	1995	1996	1997	1998	1999	2000	2002	2006	2010	Grand total
AFGHANISTAN	3	2	1	1	1	5	2	4	6	15	20	60
AFRICA	8	9	18	16	23	39	39	42	12	11	11	228
AFRICAN				1	7	20	24	23	4	7	6	92
APEC			15	13	8	9	6	6		4		61
ASIA	2	2	8	11	13	22	15	14	5	7	8	107
BOSNIA			9	23	11	12	13	13				86
CHINA	6	6	15	22	20	45	29	53	18	28	10	252
CLINTON			21	27	5	30	16	14				113
CONGRESS	2	5	14	16	10	12	13	8	4	5	5	94
EASTERN EUROPE	14	14	7	13	3	5	9	8				73
EUROPE	28	42	30	31	23	29	26	42	6	8	7	277
EUROPEAN	6	8	13	12	15	19	16	32	6	2	5	134
G-20							1	1			12	14
GERMANY	6	6	2	2		2	1	3	1		1	24
GULF		24	2	3	3	6	6	5				49
INDIA	2	1	3	3	3	9	5	12	15	11	8	72
IRAN	1	2	6	11	8	14	13	15	1	10	10	91
IRAQ		12	11	16	10	20	15	15	1	26	18	144
IRAQI		7	1	1	1	3	7	9		16	11	56
ISRAEL	2	5	7	9	3	4	7	6	5	6	11	65
JAPAN	8	10	8	10	11	21	19	24	5	5	2	123
KOSOVO					1	3	14	29				47
NAFTA			13	18	5	6	3	7			1	53
NATIONAL SECURITY STRATEGY				1	1				29	11	3	45
NATO	2	15	32	49	19	27	40	45	13	7	12	261
NBC								19				19
PAKISTAN	3	2	2	2	3	8	7	15	5	9	13	69
SOVIET	34	49	9	2	2	2	8	5	1			112
SOVIET UNION	6		8	15	4	2	5	10	1			51
SOVIETS	4	9										13
THE COLD WAR	1	9	14	13	6	5		3	5	1	6	68
THE DEPARTMENT						1				3		4
THE DEPARTMENT OF DEFENSE	1				2			2	2	2	1	10
THE SOVIET UNION	22	33	1	3			1	2	2			64
UKRAINE			18	22	9	14	11	12		3		89
UN		6	25	29	2	14	10	14	2	9	14	125
WTO				6	19	35	21	21	4	7		113
Grand total	161	278	313	401	256	443	402	543	153	213	195	3358

“National Security Strategy” were both mis-identified as organizations in the coding.¹⁸ Fig. 3 shows that NATO frequently appeared throughout all of the NSS texts. The UN is an especially active agent between 1991 and 1996. Congress is a major concern throughout the Clinton years, less so after that, though it continues to be a salient “Actor” on and off across time. The G-20

¹⁸ Here, we should note that, in this article, we did not go back to perform any “re-coding” of the NER results (even though we are able to notice errors of this sort) for two reasons. First, we were interested in seeing just how far we could go with purely automated procedures. (It is, after all, an important feature of these methods that would be especially useful as we move to scale-up to larger text corpora.) Second, we are also substantively interested in the kinds of errors that NER coding makes. In this context, it strikes us as interesting to see just what kinds of non-agentic entities come to be perceived as agents. In this regard, it is quite intriguing to see that “The Cold War” (or “NBC” meaning Weapons of Mass Destruction or “National Security Strategy”) is seen by the computer to possess agentic qualities.

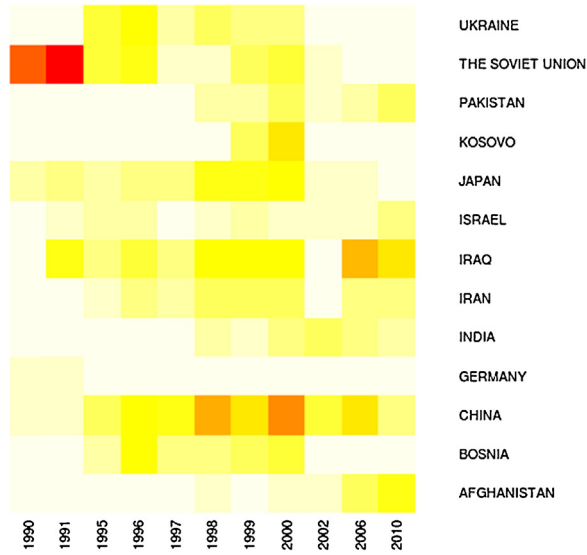


Fig. 1. Most frequent agentic terms—nation states (NSS, 1990–2010).

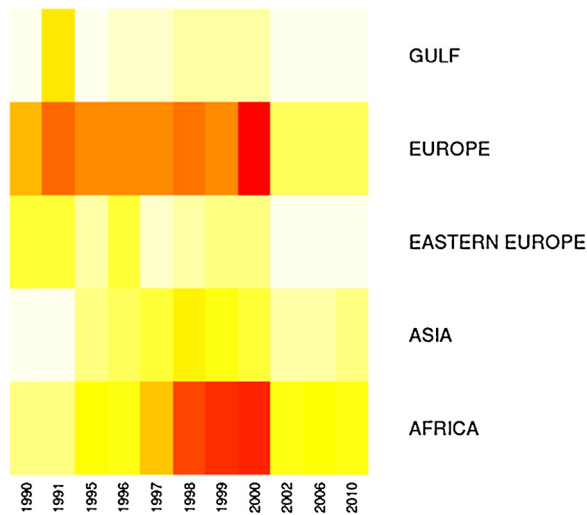


Fig. 2. Most frequent agentic terms—global regions (NSS, 1990–2010).

only becomes a factor in 2010. Our general sense is that, these findings have reasonable face validity to them and so we will press on to the next step, identifying “Acts.”

4.2. Part-of-speech tagging and the identification of acts

Our second goal is to assess which “Acts” were performed by the identified “Actors” in these texts. As a simple but logical first step, we make use of a part-of-speech tagger introduced by Toutanova et al. (2003). A part-of-speech tagger is a piece of software that reads text in some

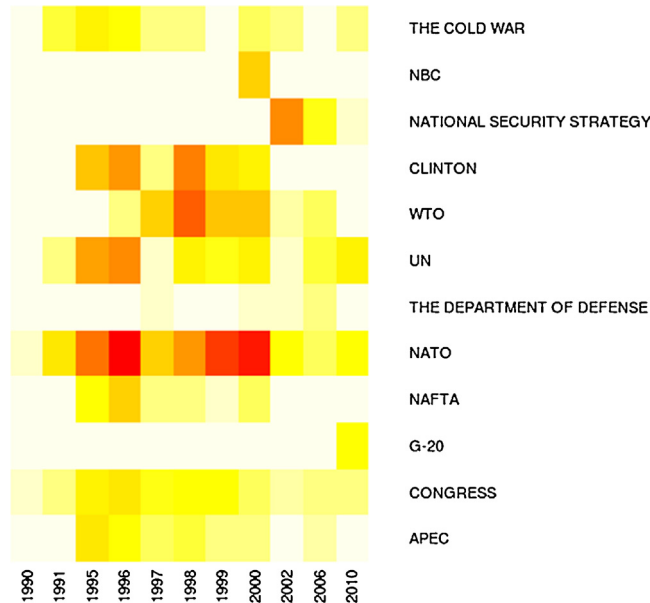


Fig. 3. Most frequent agentic terms—organizations and people (NSS, 1990–2010).

language and assigns parts of speech to each word—such as noun, verb and adjective. We tag the NSS documents and extract verbs connecting “Actors” within each sentence. The result of this procedure is a mapping for every Actor-Verb combination. We focus here on three types of combinations—Actor-Verb, Verb-Actor and Actor-Verb-Actor.

Fig. 4 gives an example. Here, we have applied the two tools together (NER followed by a part-of-speech tagger) to get a mapping of actors by acts in the 1990 NSS of GHW Bush. Because the overall mapping is quite large, we will focus our attention for the moment on just those Actor-Act combinations that are particularly frequent in the text. Specifically, we focus on combinations that occur three or more times in a given year, suggesting that they represent Actor-Act combinations that are particularly significant or thematic. In Fig. 4, we can see that the diagram mainly captures the wide variety of acts engaged in by the U.S. The UNITED STATES “protects,” “ensures,” and “negotiates.” (It also—is, maintains, continues, makes, promotes, accepts, seeks, sees, remains, works, creates, takes, reduces, expands, needs, supports, helps, looks and shares.) There are also a handful of other entities captured here. The “WORLD” appears as an actor in the limited sense of being tied (by the verb “to be”) to both “SECURITY” and “POLITICAL.” “ALLIES” are passive actors in the sense that the U.S. “shares” with them. For even greater simplicity, Fig. 5 presents just those Actor-Verb-Actor combinations that occur 3 or more times in the 1990 text. This graph is a subset of the graph in Fig. 4, and it clearly captures some fundamental sense of the rhetorical form that defines the text. The “UNITED STATES” “supports” “DEMOCRATIC” and “POLITICAL” (things). It “shares” with “ALLIES” and it “continues” “SECURITY.”

Fig. 6 presents the same analysis for the 1991 NSS. The Gulf War is the main difference in relevant world events between the publication of these two NSS documents. It is easy to see how this event changed the focus of the NSS. Now the United States relationship to security has become much more complex. The “UNITED STATES” “is” “SECURITY” and “SECURITY” “is” the

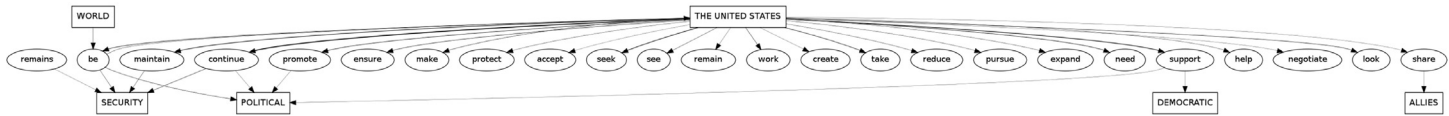


Fig. 4. 1990 NSS George H.W. Bush (Actor-Verb or Verb-Actor 3+).

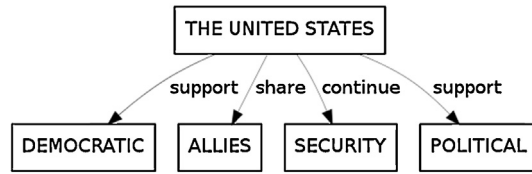


Fig. 5. 1990 NSS George H.W. Bush (Actor-Verb-Actor 3+).

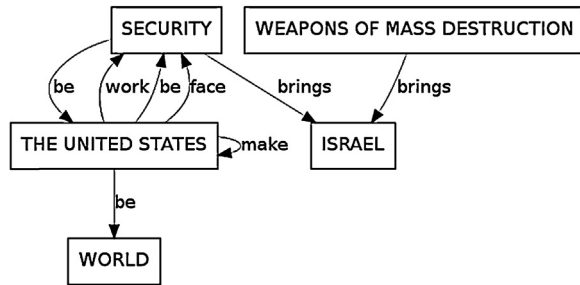


Fig. 6. 1991 NSS George H.W. Bush (Actor-Verb-Actor 3+).

“UNITED STATES.” The “UNITED STATES” “works” with “SECURITY” and it “faces” “SECURITY.” And “SECURITY” as well as “WEAPONS OF MASS DESTRUCTION” both “bring” “ISRAEL” into the frame. Here, it will be useful to refer back to the actual text from the NSS that is being mapped by our algorithm. One example of a passage from the NSS text that prompted this component of the 1991 graph is the following: “American strategic concerns still include promoting stability and the *security* of our friends, maintaining a free flow of oil, curbing the proliferation of *weapons of mass destruction* and ballistic missiles, discouraging destabilizing conventional arms sales, countering terrorism and encouraging a peace process that *brings* about reconciliation between *Israel* and the Arab states as well as between Palestinians and Israel in a manner consonant with our enduring commitment to Israel’s security” (The White House, 1991, p. 10). In other words, after the Gulf War, United States security became more complex and (at least, in the 1991 text) became more tightly coupled to Israel and to the problem of the loose dissemination of Weapons of Mass Destruction. Of course, it is not just the complexity that changes or that should be noted. We can highlight the way a human reader can quickly sense a shift in the document as verbs that are largely in the “maintain the world as it currently is” mode are replaced by verbs that are in the “change the world” mode (modulation). Also, when America does not agentically pursue or bring about security but becomes synecdochically coterminous with security—that is something a human can now see, but that machines can be trained to see.

Fig. 7 shows the same analysis for the Clinton 1995 NSS. Again, at this level, the texts are represented in a very abstract manner. The “UNITED STATES” “supports” “STATES,” it “reduces” “LEVELS” while “TREATY” “remains” (an important element of) “SECURITY.” Checking back in with the relevant text that prompted the coding (TREATY → remains → SECURITY) from the 1995 NSS includes this passage: “The full and faithful implementation of other existing arms control agreements, including the Anti-Ballistic Missile (ABM) *Treaty*, Strategic Arms Reduction Talks I (START I), Biological Weapons Convention (BWC), Intermediate range Nuclear Forces (INF) Treaty, Conventional Forces in Europe (CFE) Treaty, several nuclear testing agreements, the 1994 Vienna Document on

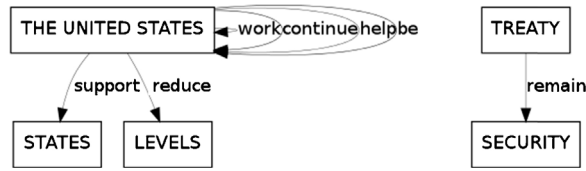


Fig. 7. 1995 NSS William Clinton (Actor-Verb-Actor 3+).

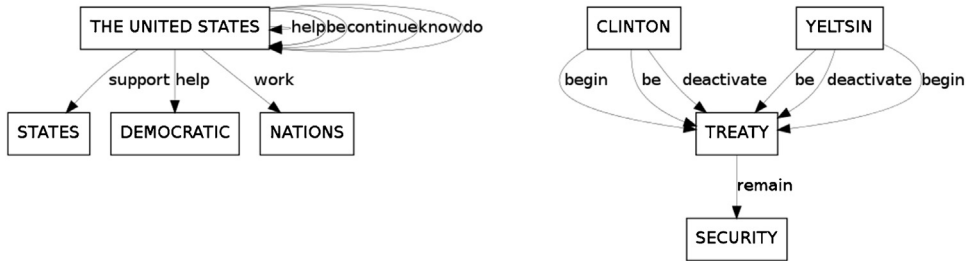


Fig. 8. 1996 NSS William Clinton (Actor-Verb-Actor 3+).

Confidence and Security Building Measures (CSBMs), Open Skies, the Environmental Modification Convention (EnMod), Incidents at Sea and many others will **remain** an important element of national **security** policy” (*The White House*, 1995, p. 15).

One year later, these themes have become a bit more elaborated. In Fig. 8, the “UNITED STATES” “*supports*” “STATES”, “*helps*” “DEMOCRATIC” and “*works*” (with) “NATIONS.” Interestingly, the discourse concerning treaty agreements has added a new set of actors. Now both “CLINTON” and “YELTSIN” are “*being*” “*beginning*” and “*deactivating*” the “TREATY” that “*remains*” (critical to) “SECURITY.” This change stems from the inclusion of a number of passages such as the following, “Presidents **Clinton** and **Yeltsin** have agreed that once START II is ratified by both countries, both nations will immediately **begin** to **deactivate** or otherwise remove from combat status, those systems whose elimination will be required by that **treaty**, rather than waiting for the **treaty** to run its course through the year 2003” (*The White House*, 1996, p. 21).

Fig. 9 has the same analysis for the GW Bush 2002 NNS. Perhaps the most striking thing about this graph is how little it says about the state of the world and how much it says about the administration’s efforts to radically re-design a new set of “NATIONAL SECURITY INSTITUTIONS” to “*meet*” the needs of the “TWENTY-FIRST” “CENTURY.” Beyond this, the only claims are that the “UNITED STATES” will “*incorporate*” “TRADE” (which will “*improve*” itself) and “*build*” the “WORLD.” Here, it is important to remember that this NSS text is itself small (only 31 pages)—and, therefore, the graph is small—and also that this was a highly contested text. As James Mann (2004) reports, after the first draft was written (by Richard Haass, a senior aide to Colin Powell), Condoleezza Rice (the National Security Advisor) “ordered that the document be completely rewritten. She thought the Bush Administration needed something bolder, something that would represent a more dramatic break with the ideas of the past. Rice turned the writing over to her old colleague, University of Virginia Professor Philip Zelikow” (Mann, 2004, pp. 316–317). Haass himself writes, “Although important aspects of what we had drafted regarding relations between the major powers survived, ‘revised’ doesn’t

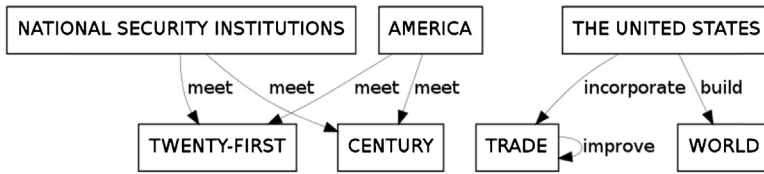


Fig. 9. 2002 NSS George W. Bush (Actor-Verb-Actor 3+).

quite capture what happened to what we had provided. The new text was maybe one-quarter the length and, more important, included several paragraphs building on the president's June 2002 West Point speech and that made the case for... a preventive (what the paper incorrectly termed 'preemptive') war against Iraq" (Haass, 2009, pp. 221–222).

Fig. 10 has the graph for the Obama Administration's 2010 NSS. First, it is noticeably more elaborate than the Bush map, but this is primarily a reflection of the fact that it is a much larger text (more than twice as big as the Bush 2002 NSS) and that the mapping technique for these figures is very sensitive to this as it selects all Actor-Verb pairings that occur at least three times in the text. That being said, Fig. 10 does provide an interesting summary of the main principles underlying the Obama NSS. Once again, we see that the United States has many things it does with regard to SECURITY, it seeks to "maintain," "deter," "develop," "strengthen," "continue," "work," "seek," "ensure," "enhance," and to "need" SECURITY. Under the Obama Administration, the United States will also "pursue" many things—"INTERESTS," "DEVELOPMENT," "NATIONS," and "ISRAEL" which is also being "pursued" by the "PALESTINIANS" and the "ISRAELIS" themselves. Also in the graph, under Obama, the "UNITED STATES" will "end" "IRAQ" and "dismantle" Al-Qa-"IDA."¹⁹

4.3. Topic models and the identification of scenes

Finally, following Burke's (1945) recommendation, we want to be able to locate the "Act" and the "Actor" in the context of a specific "Scene." Recall that for Burke, the scene describes the setting in which an act occurs. Burke (1945, pp. 12–13) writes, "Political commentators now generally use the word 'situation' as synonym for scene, though often without any clear concept of its function as a statement about motives." In the NSS documents, we think of various scenes as defining the different kinds of situations or types of topics that are being discussed in an ongoing way. There is, for example, a continuing discussion of the topic of terrorism across the NSS documents and terrorism represents a particular kind of a scene for thinking about acts, actors, purposes and agency in the international order. Compare this with the ongoing discussions over human rights or military preparedness or energy policy, and we will see very different situational logics are in play in each case. Thus, in order to more adequately be able to assess the connections between "Acts" and "Actors," we will want to isolate the various combinations according to the scenic setting in which they co-occur. Once again, we can turn to contemporary developments in computational science to find a tool that directly addresses this need.

LDA Topic models are a class of automated text analysis tools that seek to identify, extract and characterize the various (latent) topics that are discussed in a corpus of texts. The main

¹⁹ Note that because we relied entirely on automated text parsing, the term "al-Qa'ida" was broken into two parts after the "", so here the term "ida" indicates presence of the compound term "al-Qa'ida."

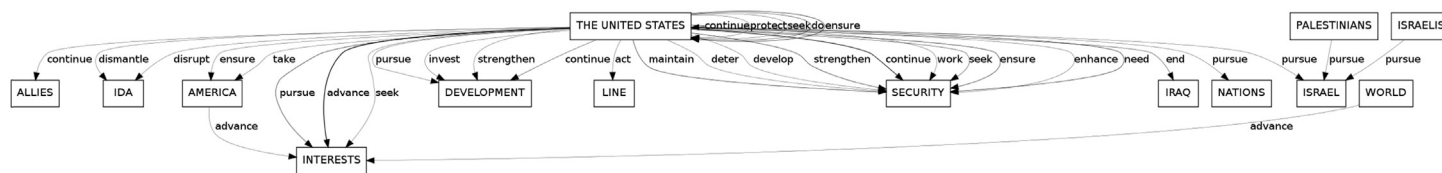


Fig. 10. 2010 NSS Barack Obama (Actor-Verb-Actor 3+).

assumptions are laid out by Blei et al. (2003), who explain, “The basic idea is that documents are represented as random mixtures over latent topics, where each topic is characterized by a distribution over words” (Blei et al., 2003, p. 996). The goal is to use probabilistic modeling of the co-occurrence of terms within the corpus to identify the latent topics that explain this observed distribution of terms. We used an LDA topic model design and after exploring different levels we settled on a 15 topic solution.

Table 2 summarizes the topics that were identified by this procedure. The columns W-1 through W-10 present the 10 words that were probabilistically most strongly associated with each of these topics. The topic label is not provided by the procedure; rather, it is assigned by us as a way to summarize the character of these terms. Thus, we assigned the first identified topic (T-0) as “Terrorism” as a way of characterizing the following set of highly significant words—international, law, enforcement, drug, terrorism, terrorists, states, trafficking, crime and efforts. One thing that seems apparent is that the LDA model in this case has identified a common topic that includes both so-called narco-terrorists associated with drug cartels and also political terrorists such as Osama Bin Laden. Were we to ask for a larger number of topics, these two sub-topics might be split. On the other hand, we think it is reasonable to begin with the idea that, in fact, there are a relatively small number of basic thematic topics that recur again and again in slightly different forms as the conversation about National Security Strategy evolves over time.

Table 3 shows the distribution of these topics (or scenic frames) across the corpus of texts. Fig. 11 presents the same information as a heat map. Looking at Fig. 11, we can see the outlines of scenic change across time. The dominant topic in the 1990 NSS document (topic-3, Eastern Europe) has a bright red signature. By 1991, Eastern Europe has become less of a focus and the topic of Military Force has become predominant (as we might well have predicted, as a consequence of the Gulf War pushing matters of Eastern Europe aside).

We turn now to the Actor-Act-Scene analysis. By selecting out only those segments of text from each NSS that are directed to specific topics, we should be able to observe a more focused set of Act-Actor relations that get us closer to being able to model Burke’s idea about the grammar of motives that is operating within these texts.

Fig. 12 shows all Actor-Act combinations that are present in the topical scene of terrorism in the 1990 NSS document. Here the Actor “ILLCIT” “imposes” on the Actor the “UNITED STATES” which leads to an “undermining” of “AMERICAN.” This is just a small segment of the 1990 text and the reference is clearly focused on narco-terrorism. But it is especially interesting to notice because so much of the NSS text is organized around the actions taken by the U.S. state. It is more rare to see the U.S. as being portrayed as the object of action, and this reminds us that it is useful to attend to the ways in which active vs. passive representations operate within the text.

Compare this to Fig. 13 that shows all Actor-Act combinations in the topical scene of terrorism in the 1991 NSS document—just one year later. Now the drama of terrorism has become far more complex or, at least, the graph has become much larger (reflecting an increase in the amount of text devoted to the topic). The “UNITED STATES” and its “ALLIES” have become the key actors in the scene and the acts that they engage in have shifted to reflect a much more aggressive and transformational stance—“defeat,” “repel,” “fail.” Now “INTERESTS” and “SECURITY” are implicated in the topic as is the need to “pursue” “GLOBAL PROTECTION AGAINST LIMITED STRIKES.”

We jump ahead now ten years to the NSS document issued by GW Bush in 2002, and we again examine the topical scene of terrorism. Fig. 14 shows that the basic dramatic template that was laid out by Bush the senior for this scene is still in place. It is the “UNITED STATES” and its

Table 2

15 level topic model of NSS corpus—top 10 words in each topic.

Topic	Topic label	W-1	W-2	W-3	W-4	W-5	W-6	W-7	W-8	W-9	W-10
T-0	Terrorism	International	Law	Enforcement	Drug	Terrorism	Terrorists	States	Trafficking	Crime	Efforts
		0.037129	0.021406	0.021207	0.019515	0.018619	0.018122	0.017226	0.017226	0.016828	0.014440
T-1	Treaties	States	United	President	Strategic	Treaty	Agreement	Convention	Missile	Agreed	Clinton
		0.030059	0.028628	0.021832	0.021713	0.019090	0.011339	0.010385	0.009908	0.009789	0.009789
T-2	Human Rights	Rights	Human	Democracy	Democratic	International	Freedom	Institutions	Promote	Respect	Rule
		0.040682	0.040504	0.027243	0.026264	0.019945	0.014249	0.014160	0.013804	0.012558	0.012113
T-3	Soviet/Europe	Europe	Nato	States	Soviet	European	Russia	Union	Democratic	Security	Partnership
		0.040466	0.029678	0.020987	0.020388	0.019789	0.016193	0.013795	0.013296	0.012696	0.011098
T-4	Economic Development	Development	Economic	International	Countries	Growth	Africa	Environmental	Financial	Assistance	Global
		0.028313	0.026894	0.020966	0.018377	0.018210	0.017793	0.016290	0.016039	0.015204	0.014620
T-5	Energy	Energy	Oil	Space	United	States	Access	Resources	Technology	Continue	World
		0.022811	0.017865	0.015815	0.013764	0.013643	0.012075	0.010266	0.009904	0.009542	0.009301
T-6	WMD	Weapons	Nuclear	Proliferation	Control	Destruction	Mass	Arms	Efforts	International	Chemical
		0.055497	0.053381	0.017992	0.016646	0.015973	0.015877	0.015588	0.014819	0.012800	0.010299
T-7	Conflict	Conflict	States	Political	Peace	Bosnia	Conflicts	Ethnic	United	International	Work
		0.017731	0.013331	0.010358	0.009645	0.008812	0.008693	0.008693	0.008574	0.008574	0.008218
T-8	Military Force	Forces	Military	Allies	Defense	States	Threats	United	Regional	Maintain	Capabilities
		0.042468	0.034874	0.015114	0.015114	0.013644	0.012338	0.010950	0.010786	0.009643	0.009562
T-9	Trade	Trade	Economic	Markets	Free	Market	Open	Investment	Economy	Agreement	American
		0.049693	0.026793	0.016920	0.016516	0.015626	0.014331	0.014169	0.010447	0.009961	0.009880
T-10	Peace	Peace	United	States	North	East	Iraq	South	Security	Region	Middle
		0.025209	0.019519	0.017385	0.015048	0.014438	0.013422	0.013321	0.011898	0.010781	0.010679
T-11	Intelligence	Security	National	Information	Intelligence	Government	Threats	Capabilities	State	Foreign	Critical
		0.035156	0.024982	0.023225	0.021560	0.014900	0.014623	0.012773	0.012496	0.012311	0.010831
T-12	Global Security Strategy	World	Security	Global	Strategy	America	National	Prosperity	International	Challenges	Values
		0.035358	0.031692	0.021315	0.018617	0.017510	0.016887	0.014397	0.013774	0.013290	0.013082
T-13	Cooperation	Security	Cooperation	Regional	Region	Asia	Economic	China	Pacific	Hemisphere	Stability
		0.031117	0.027217	0.026646	0.025410	0.025219	0.019607	0.017609	0.012186	0.011045	0.010474
T-14	Military Operations	Interests	Military	National	Operations	American	United	States	Make	Support	Objectives
		0.037385	0.024784	0.017416	0.015708	0.013145	0.011864	0.011757	0.009728	0.009408	0.008767

Table 3
 15 level topic model of NSS corpus—topic distribution across year.

Year	T0 Terror	T1 Treaty	T2 Rights	T3 EEur	T4 Dvlpt	T5 Enrgy	T6 WMD	T7 Cnflct	T8 Miltry	T9 Trade	T10 Peace	T11 CIA	T12 GSS	T13 Agree	T14 M-Ops
1990	0.022	0.073	0.037	0.171	0.045	0.084	0.057	0.069	0.097	0.068	0.045	0.013	0.118	0.052	0.048
1991	0.023	0.059	0.034	0.107	0.053	0.123	0.088	0.062	0.160	0.043	0.041	0.015	0.101	0.048	0.044
1995	0.025	0.079	0.051	0.081	0.071	0.038	0.071	0.050	0.082	0.082	0.050	0.032	0.094	0.072	0.124
1996	0.052	0.082	0.050	0.073	0.069	0.032	0.074	0.053	0.079	0.093	0.063	0.040	0.085	0.061	0.093
1997	0.069	0.026	0.063	0.062	0.069	0.032	0.065	0.026	0.095	0.127	0.052	0.052	0.102	0.095	0.066
1998	0.107	0.056	0.066	0.039	0.078	0.044	0.068	0.016	0.074	0.112	0.055	0.104	0.045	0.094	0.041
1999	0.068	0.059	0.081	0.062	0.083	0.036	0.081	0.032	0.079	0.083	0.075	0.086	0.040	0.082	0.053
2000	0.070	0.054	0.079	0.072	0.088	0.035	0.079	0.050	0.084	0.079	0.062	0.084	0.043	0.077	0.046
2002	0.076	0.016	0.078	0.041	0.105	0.054	0.039	0.048	0.095	0.082	0.049	0.061	0.182	0.035	0.037
2006	0.085	0.012	0.133	0.033	0.087	0.036	0.056	0.076	0.026	0.061	0.113	0.069	0.131	0.052	0.031
2010	0.046	0.002	0.098	0.019	0.075	0.077	0.040	0.050	0.035	0.029	0.048	0.137	0.259	0.053	0.031

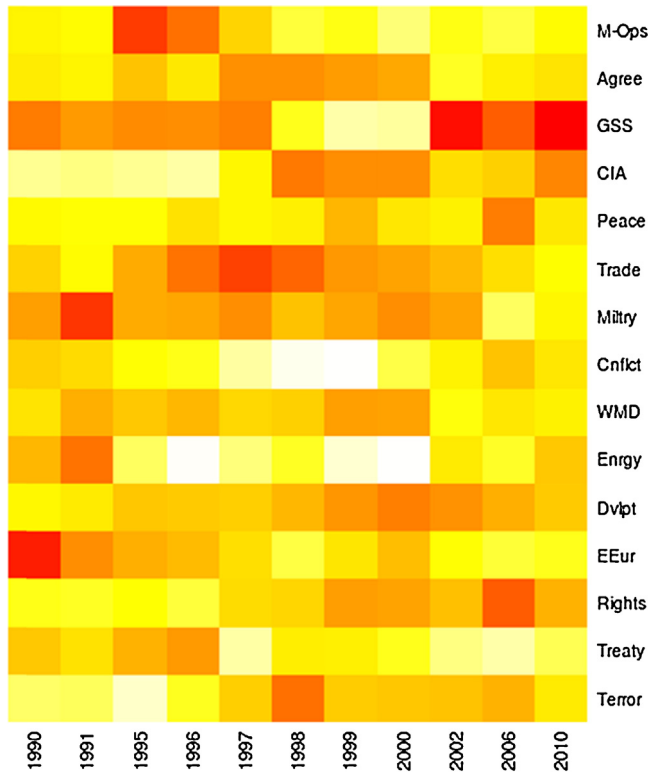


Fig. 11. 15 level topic model of NSS corpus—topic distribution across years.

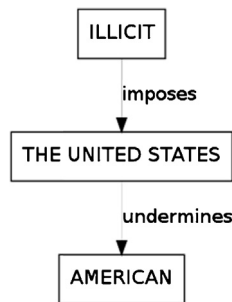
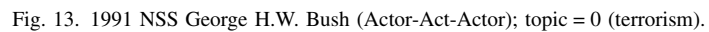
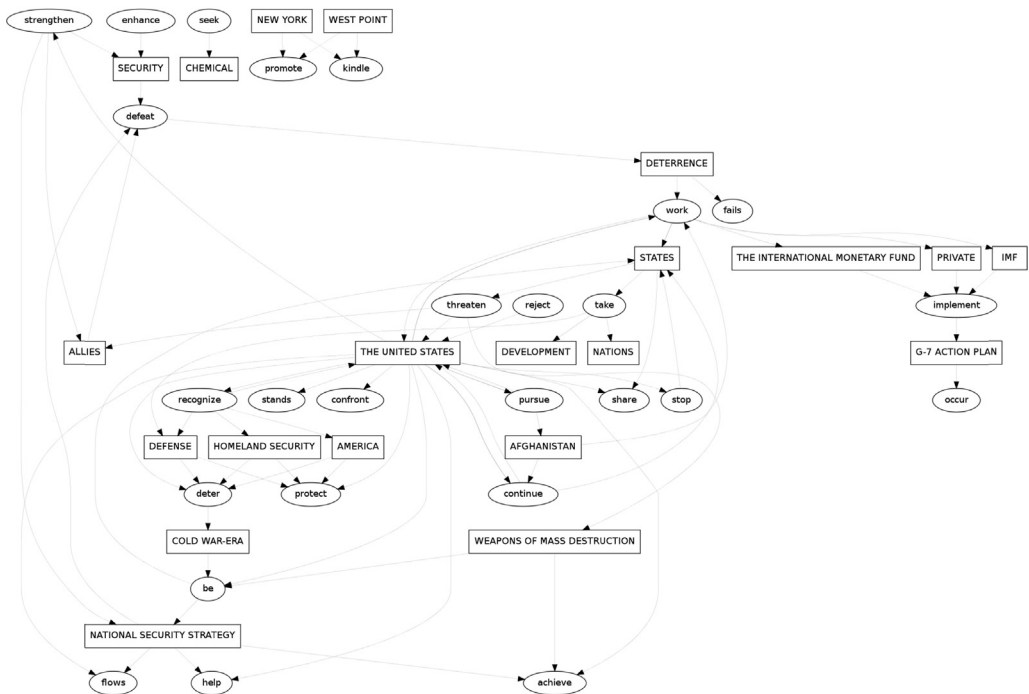
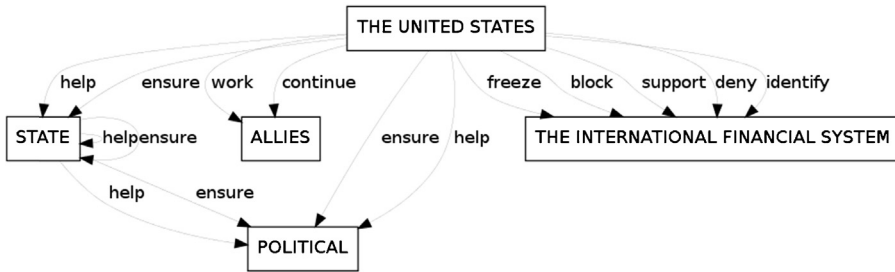


Fig. 12. 1990 NSS George H.W. Bush (Actor-Act-Actor); topic = 0 (terrorism).

“ALLIES” who remain the primary actors in the scene but the focus of action has shifted. It is now “THE INTERNATIONAL FINANCIAL SYSTEM” that the United States must “freeze,” “block,” “support,” “deny,” and “identify.” And it is the “ALLIES,” the “STATE,” and the “POLITICAL” that are needing to be “helped,” “ensured,” and “continued” as the United States presses the kind of conflict that defines this scene.

This finding seems to be a bit of a surprise. We might have thought that the first NSS published after the 9/11 attacks might have adopted a more expansive and aggressive dramatic response to terrorism. However, upon further investigation, what we discovered was a generalized





diffusion of the terrorism theme. It is not so much that the scene of terrorism itself had been radically transformed, so much as the “Actors” and “Acts” (and presumably the “Agency” and “Purposes”) of the terrorism scene began to cross into and populate a variety of other scenes as well. So, for example, when we look into the topical scene of energy policy in the 2002 NSS (see Fig. 15), we find that “WEAPONS OF MASS DESTRUCTION” and “HOMELAND SECURITY” are prominently included in the scene. This occurs because among the paragraphs that were defined by our model as being concerned with the topical scene of energy policy included paragraphs, such as the following, which describe “rogue states” that “brutalize their own people and squander their national resources for the personal gain of the rulers; display no regard for international law, threaten their neighbors, and

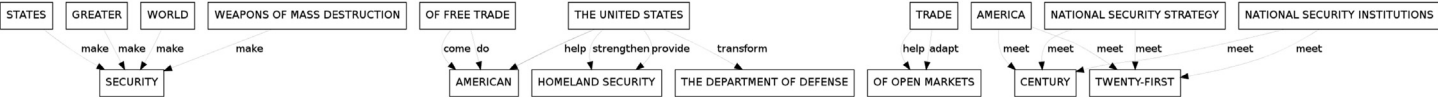


Fig. 16. 2002 NSS George H.W. Bush (Actor-Act-Actor); topic = 7 (conflict).

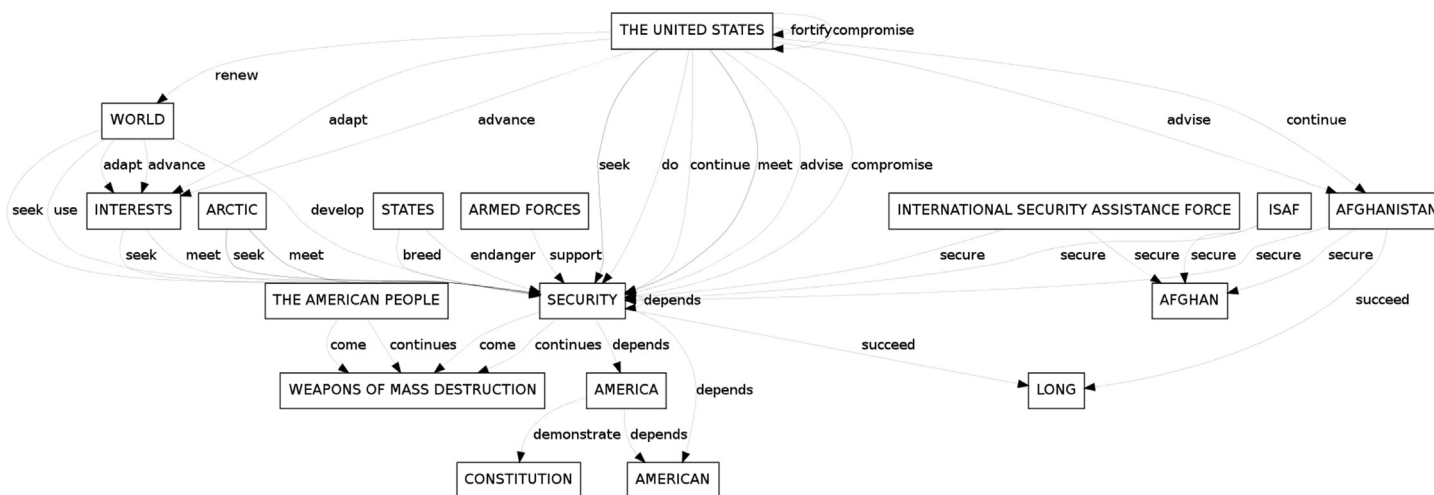


Fig. 17. 2010 NSS Barack Obama (Actor-Act-Actor); topic = 7 (conflict).

callously violate international treaties to which they are party; are determined to acquire weapons of mass destruction, along with other advanced military technology, to be used as threats or offensively to achieve the aggressive designs of these regimes; sponsor terrorism around the globe; and reject basic human values and hate the United States and everything for which it stands” ([The White House, 2002](#), p. 14).

Much the same can be said for the scene of international conflict more generally (see [Fig. 16](#)). Here “WEAPONS OF MASS DESTRUCTION” are operating as Agents that “make” “SECURITY” happen (or not) and (once again) concerns for the “UNITED STATES” to “help,” “strengthen” and “provide” “HOMELAND SECURITY” have become a part of how the scene for international conflict, in general, is constructed.

Perhaps this is the most telling finding to emerge from these preliminary investigations, the suggestion that the broader variety of conversations about National Security came to be transformed during the GW Bush era as a result of a shift in the logic of motives that are deployed for making sense of strategic threats in the global order. These effects are not only apparent in the 2002 NSS document, they are also carried forward in the dramatic logic of the Obama Administration. So, for example, if we examine Obama’s 2010 NSS discussions of Global Conflict (see [Fig. 17](#)), we find that a concern for “WEAPONS OF MASS DESTRUCTION” continues to occupy a prominent place (“there is no greater threat to the American people than weapons of mass destruction, particularly the danger posed by the pursuit of nuclear weapons by violent extremists and their proliferation to additional states” [[The White House, 2010](#)]).

5. Conclusion

The way states talk matters. In this article, we have looked closely into the content of a set of official documents—U.S. National Security Strategy statements, 1990–2010—which have as their charge, the giving of an account (or set of accounts) that both constitutively defines the nature of the international order and also explains (and legitimates) the actions and policies undertaken by the U.S. state in its pursuit of its global political-economic agenda. One contribution of our article has been to suggest the need to step back and think more carefully about how we are to understand and analyze texts such as these, arguing for the need to bring the poetic meaning of these texts into the center of our investigations. We have drawn upon [Kenneth Burke’s \(1941, 1945\)](#) ideas for this discussion, and we proposed a way to make use of his dramatic pentad to help facilitate the kind of detailed thinking through of the types of questions we want to put to these texts. A second contribution of this article has been to carry this appreciation of poetics over to the field of computational science—where we have sought to lash together, bricoleur style, an assemblage of procedures for matching the types of questions and concerns that we ourselves bring to our reading of these texts.

In this article, we have only provided a preliminary testing out of these ambitions. For one thing, we have only gotten so far as developing a dramatic triad; the application of procedures for automatically coding *purpose* and *agency* are also within reach of this style of analysis but we have not yet incorporated those elements into our procedures. This is because the assessment of agency (how the act is carried out) and purpose (why the act was carried out) are especially difficult matters for the computer (or, indeed, for the sophisticated human reader) to discern. In part, this has to do with the need to move above the level of the sentence and thus beyond a syntactic mode of analysis to incorporate a broader range of associations and assumptions. We have begun working on some procedures that we think will enable us to characterize these

qualities of the text, but we have not yet developed them to a level that we can present them here.²⁰ Second, we stopped short of performing the kinds of detailed formal analysis that a more ambitious network style project would want to pursue. In this article, we have only produced a first simple set of graphs, and we have only examined them “by eye.” Certainly, a primary goal of this type of measurement project is that it will ultimately allow researchers to treat these texts as complex networks mapping the core elements of a grammar of motives, thus opening up all kinds of new possibilities for the formal investigation of the structural properties of rhetorical forms. We believe that, so far, we are just skimming the surface of a network analysis of texts (compare, for example, [Diesner and Carley, 2005](#)). Future papers will be directed toward the development of a more extensive formal analytic program for studying the grammars of motives as a special type of network analysis problem. Finally, as [Burke \(1945\)](#) emphasizes, perhaps the real power of the pentad is the logic of binary oppositions between the terms that Burke describes as ratios. Future work will also then be directed toward understanding how we can expand upon Burke’s theories of dramatic ratios as a way to further develop our project of empirically analyzing the poetic logic of texts.

We also hope to make a contribution through these efforts to state of the art work in computational science. In this respect, it is worth remembering that the proposal we have made is not really very different than a variety of other programs of research into automated computer processing. In fact, early work in Artificial Intelligence by [Schank and Abelson \(1977\)](#) advocated the development of a similar style of nested questions, going up in abstraction level from scripts to plans, to goals and to more general forms of understanding—as a way to enable a computer to get a grounding for the meanings of human experience. In this context, the real difference that Burke and his dramatic approach contributes to the field has more to do with his full throated advocacy of the need to appreciate the ambiguity of meanings. Burke writes, “Poetic meanings, then, cannot be disposed of on the true-or-false basis. Rather they are related to one another like a set of concentric circles, of wider and wider scope” ([Burke, 1941](#), p. 144). He goes on to say, “(t)he test of a metaphor’s validity is of a much more arduous sort, requiring nothing less than the filling out, by concrete body, of the characterizations one would test. . . Let each show the scope, range, relevancy, accuracy, applicability of the perspective, or metaphor, he would advocate. . . and only after each has been so filled out, can we evaluate among them” ([Burke, 1941](#), pp. 145–146). Our analyses have only scratched the surface of this style of understanding—and yet we have the sense that by beginning to break this kind of systematic program of reading into its constituent parts and by seeing the ways in which these elements are combined together within a broader pattern of associations, we have opened the door to a broader and more interpretively rich style of computer assisted reading of texts.²¹

A few years ago in an article entitled, “Ask not what Textual Entailment can do for You...,” [Sammons et al. \(2010\)](#) issued a challenge to computer scientists. They wrote, “Tasks such as Named Entity and co-reference resolution, syntactic and shallow semantic parsing, and information and relation extraction have been identified as worthwhile tasks and pursued by numerous researchers. While many have (nearly) immediate application to real world tasks like search, many are also motivated by their potential contribution to more ambitious Natural

²⁰ Once again, [Franzosi’s \(1989, 1990\)](#) work has opened up important insights into these kinds of procedures, but Franzosi has tended to stay at the level of the sentence. We think an important advance that Burke (and by extension, our efforts to implement Burke) has in the current project is that the dramatic project is less wedded to a purely semantic style of analysis and, instead, is directed toward the broader understanding of poetic meanings within a complex text and to the types of ambiguities that such a reading necessarily implies.

²¹ Here, we would echo the sentiment expressed some 25 years ago by [Mallery et al. \(1986\)](#) of the need to take the ambiguity of hermeneutic meaning as an explicit object for computer analysis.

Language tasks” (Sammons et al., 2010, p. 1199). We think the study of poetic meanings is just such a task. In fact, we think that the focus on the interpretation of poetic meanings is a critical and necessary step for the development of the next stage of a genuine program of cultural science, and we think that the way forward on this type of scientific convergence involves the very type of collaboration which we have tried to enact in this project. We have sought to bring together the best practices of the tradition of humanistic interpretation with the best practices of the modern science of text mining. Each partner in this collaboration has something important to contribute. The challenge, as always, is finding a way to link the two endeavors together such that each leverages the best of the other to create something that transcends the original capacity of either.

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