Arguing for the Rainforest:
High-Tech Topoi and the Value(s)
of a Database

by
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Abstract: When the World Bank created its Environment Department, no institutional mechanism existed to create, collect, or disseminate environmental information that had accumulated in the Bank. Considering the ethical and political dimensions of environmental information, designers of an environmental database began to conceive it as a source for arguments rather than as a storehouse of data. Conceived in terms of argument, the database was developed in light of rhetorical principles that recognized that "factual" and "objective" knowledge shifts radically in destabilized contexts and is inseparable from values and beliefs.

I WOULD LIKE TO TELL A STORY here, a story about the philosophy of rhetoric, the World Bank, the environment, and the development of a database. Now I do hope that a story with such a range of elements appropriately invokes interdisciplinarity, for playing these elements against one another creates an interesting problem for information retrieval and interdisciplinarity, a problem that becomes identifiable most readily (if not exclusively) from perspectives of rhetoric.

To weave the different strands of this story in a way that has at least a chance of making sense, I must offer a few strands of my own story. For a number of years I was a graduate student in English at the University of Maryland. There, from the bottom up, the ever present necessity of teaching freshman composition led me, eventually, to study the history and philosophy of rhetoric. At the same time the ever present necessity of paying rent led me downtown to Washington D.C. and the Planning and Policy Unit of the Information Resource Management Department of the International Bank for Reconstruction and Development—in short, the computer-policy division of The World Bank, (For those who don't exactly keep a scorecard of global organizations, The World Bank is a cousin of the United Nations, and like the United Nations it is constituted of member countries. The governments of member countries may borrow capital to finance development projects in sectors ranging from agriculture to water supply and sewerage.) There at the Bank, from the top down, long before I ever learned to use a computer, I learned, as a technical writer and editor and low-level bureaucrat, to think about computers and data and information storage and retrieval—brains-on experience came before hands-on experience. Now large bureaucracies are by nature and necessity, I suppose, largely Heraclitian: you never step into the same organizational unit twice. After a few years of information resource management, I migrated—like data or wildebeest do—and landed in what was then the Bank's newly formed Environment Department. And there, between 1987 and 1989, from the inside out, I helped design an institutional database for an environmental information system. My manager, Dr. D. Jane Pratt, envisioned the system; my colleague, Masood Ahmed, was in charge of its overall technical design and implementation. My part was small: to figure out what the Bank already knew about environmental issues and how that knowledge, at once ubiquitous and inaccessible as mountains of text, could be shaped into meaningful, accessible information.

Those are shreds of autobiography on the level of plot. At this point I need to say a few words about my understanding of rhetoric and to share an observation 1 made during my early days in information resource management.

First, my notion of rhetoric lies along an axis that may be roughly defined on the one end by Plato and Aristotle, on the other by Kenneth Burke and Jurgen Habermas. This axis defines rhetoric in terms of understanding and action, rather than "mere" textuality. Thus a rhetorician is not concerned "merely" with words and their seductive effectiveness, but rather with language as a ground for action. Rhetoric looks in many directions for the reasons people give one another for doing this or believing that. Where logic examines strictly defined statements of rationality, rhetoric looks to the ethical and emotional dimensions of statements as well as the totality of statements that make up an account or group of accounts, raising questions about the accuracy or appropriateness of accounts, what is included or what is left out. Thus the task of rhetoric is not concerned primarily with the manipulation of textual surfaces for the sake of effect nor, by extension, the manipulation of discrete words, nor, by extension once again, the manipulation of discrete data. Instead, the task of rhetoric is to discover, in the language people use and the reasons that they give one another, a credible basis for a course of human action. Such rhetoric I've come to

term "critical," since it is concerned with judgments that enable (or disable) people's action.

So what happens when the task of database development is played out against the concept of critical rhetoric? The result is not so much a base of data for manipulation as it is a basis of information for taking a stand, and the end product is not so much a printout of data as it is the elements of an argument.

Now here I would like to pause to reflect upon a phenomenon that I caught a glimpse of when I worked in information resource management. What I am about to offer is the interpretation of something I saw, incidentally, peripherally, not the summation of carefully collected data. At the Bank minds much greater than mine and technical experts whose expertise I could only marvel at set out to tackle a problem that I suspect was pretty common in large organizations by the early 1980s. Put in my crude and unsophisticated terms, the problem can be stated as a question: "What are we going to do with all these different computer systems that have grown up over the years? We have VAXs for this system and that; and these data reside on a Burroughs system, while those reside on an IBM." In raising this question, those who wished to manage information as a resource where data could be accessed by different users on different systems for different purposes ran into a bit of an obstacle, an obstacle caused not so much by technology as by belief, or rather, disbelief. "How," some asked, "could data on one system make sense on another system?" These folks could not tell the data from the dance, a curious position to hold when considered against Walter J. Ong's distinctions between orality and literacy, distinctions that become apparent through what he calls "the technologizing of the word." Ong observes that to the oral mind all language use is immediate and situational; only with the written, technologized word does mediated, abstract language use become possible. Now this was indeed a curious thing, not from a technological point of view, but from a philosophical one. Data seemed meaningful in only one context. Here we had a group of sophisticated users of the most highly technologized and abstract form of language ever imagined and realized, but they could only conceive of data in the immediate situation of a particular computer system. Data were data and only their parent system could coax them to speak meaningfully. The computer system seemed to provide a fixed, stable conceptual system where fixed sets of data could answer fixed sets of questions, solving fixed sets of problems in a fixed and stable world. Take those data away from the system and they would become mute and sullen or babbling and nonsensical. Or put in slightly different terms: there were data there, but you could only ask them one question or one fixed set of questions. No matter what you wanted to ask, the system would only allow you to ask certain questions and the answers always came back the same. Data reflected factotums of objective reality and no matter how frail and subjective and inappropriate a human question might be, the system would make sure that that factotum, that datum of reality and objective truth, would prevail and prevail in the way that it was supposed to. To dislodge those data, 1 suspect some felt on a deep, even inarticulate level, would be to dislodge the certainties of reality. If data could be meaningful on different computer systems, then they could be meaningful in different conceptual systems. The stable environment of one system giving data fixed meanings would give way to a destabilizing plurality of systems and meanings. Data would lose their essential(ist) virtue, born of monogamous systems, in a welter of promiscuity.

But what if neither facts nor data speak for themselves, that their meaning and significance lie not in themselves but in the questions we are capable of asking them? What if a plurality of contexts give data dimensions of meaning? What if we are as dissatisfied with mute data pretending to be meaningful as, in Plato's *Phaedrus*, Socrates was dissatisfied with mute texts that pretended to speak. What if we wish to query a database in the same way that Socrates wished to query a written discourse? The answer is not to do away with databases, just as the answer for Socrates was not to do away with writing (as a currently popular but poorly considered interpretation of the *Phaedrus* has it). What the answer demands is the reconception of a database, rejecting the notion of stabilized contexts as necessary for giving data, or information in any form, its meaning. Furthermore, the answer demands a rejection of physicalist. objectivist reductions of reality to data that can truly or falsely answer a few fixed questions imposed by fixed systems, technological or conceptual. But the answer also demands a rejection of linguisticist, subjectivist reductions of reality to words that will, truly or falsely, say anything you want them to. In short the answer demands rejecting the reduction of information to either scientistic data or sophistic cant. The answer demands the construction of an information system that responds to human questions regarding human action, a system, in short, that is rhetorically conceived to support the development of a variety of arguments.

Now a variety of arguments implies not a fixed and stable context where the same information always means the same thing, but rather a variety of rhetorical situations where information can be used to support widely divergent, even opposing, arguments. What are the rhetorical situations that will shape the arguments that the proposed information system will help to support? The question leads to another question, slightly different from the typical question of the system designer who asks about the information needs of the user. Our question became not what information do you need, but rather what arguments will you have to make? In what ways, with what audiences, to what ends, will you have to argue for the environment? The open endedness of the questions is underscored by the open endedness of environmental issues themselves: what is an environmental issue? Can it be neatly defined? Is it geophysical, anthropological, biological, political, legal? All, part, some, none, it depends? Mostly, it depends. Different phenomena and groups of phenomena can be perceived as having greater or lesser environmental significance, not only in their own terms, but in terms of what particular argument needs to be made. The activity of raising livestock in Botswana, for example, could be seen from a variety of perspectives from which a variety of

arguments could be made. Geophysical and biological: livestock production wreaks havoc with the physical environment and has disrupted the migration of wildebeest. Anthropological: raising livestock is an integral part of traditional cultures. Political and legal: environmental damage is caused not so much by livestock per se, but by property rights: confining livestock to a fixed piece of owned land is environmentally degrading in a way that rotation of grazing public lands is not. Such ambiguity regarding both environmental issues and rhetorical situations that would generate arguments addressing environmental issues quickly undermines not only the efficacy of raw information but also that of the keyword. For as handy as keywords can be. they need a relatively stable rhetorical situation where the same arguments are made over and over again, and even more so, they demand a key speaker whose speech and anticipation of rhetorical situations is, a priori, as all knowing, all wise, all holy, righteous, true, good, and merciful as the speech of catechized God himself. And while that string of adjectives might apply to any World Bank senior economist, it did not happen to apply to any of us wrestling with the environmental information system. For how could we impose keywords upon a text without repressing as many potentially important environmental issues as we were highlighting? How could we impose keywords without repressing possible arguments? And it doesn't really matter whether keywords are assigned, descriptive labels or "significant" words derived from texts themselves, for both require acts of interpretation and an understanding that information, like knowledge itself, participates in both the partial and partiality. Keywords are melodramatic in their extremity, after all: what they do not bring into the light they cast into eternal darkness. A text on Botswana livestock may be keyworded by assignation or, possibly, term significance, "endangered species," for the wildebeest or "environmental degradation" for the Kalahari, but what if someone is asking a different sort of question, making a different sort of environmental argument—one regarding indigenous people, say, or one regarding the environmental effects of private ownership of land? What, in other words, if someone creates a new context that destabilizes the original text itself, that renders insignificant "endangered species" or "environmental degradation"? When beholden to keywords, these new questions would leave both text and questioner in darkness: new readers make text significant in new ways that keywords can't anticipate.

But I'm a bit ahead of my story. Through the musings and questions, we came fairly quickly to realize that we needed a text-oriented system—one that could handle large volumes of text easily and that could extract information in a fairly sophisticated and precise manner. For those who are interested in the technical side of things, though it may well be quaint lore by now. we ended up using STAIRS (an acronym for STorage and Information Retrieval System) on an IBM 3090 mainframe, a combination powerful enough to allow us to query large amounts of text with a good range of logical operators. We had also decided, for a number of internal reasons, to tie the database to the Bank's project cycle, which generates a series of documents that are fairly consistent, if at times maddeningly official. The immediate logistic and rhetorical problem became what to do with those documents. Ours was not a unit responsible for Bank-wide information systems; thus, we did not have either the resources or the authority simply to put online those thousands of documents generated by the project cycle. We had to do some sort of condensing, and that's where we ran into the problematic of keywords, arguments, and rhetorical situations.

Because environmental issues are as ill-defined, teeming, and shifting as life itself, and because there is in our emerging consciousness so little fixed vocabulary to identify and discuss environmental issues, the act of assigning keywords to a text seemed to be an act of hubris classical in proportion and, perhaps, tragic in its implication: we would be mining key terms from the text in the same limited ways that the most pernicious exploiters of resources mine key trees from the forest, trashing the rest. We did not want to do that. We did not want to cut out future possibilities. We did not want to create a system made reticent by a limited and limiting vocabulary. For the same reason, we did not wish to write abstracts of documents. Here too we would be imposing our limited and limiting vocabulary, and in turn limiting the potential usefulness of the database in a variety of rhetorical situations. What we chose to do instead was to let the normal language continue in its normal way. Rather than begin by imposing discrete, arbitrarily assigned terms or renditions, we would begin by recording pieces of discourse that were as long as our limited resources would allow: we excerpted material unedited from Bank documents. Now we realized that by the very act of excerptation we ran risks of limitation and distortion but believed that the risk of limitation and distortion would not be nearly so great as if we went the route of keywords and abstracts. The realm of rhetoric is the realm of probability after all, and we thought that, in this less than perfect universe of discourse, we were probably right. For had we gone the keyword/abstract route from the beginning we could have only argued what was potentially arguable in those terms and abstracts. We could not have anticipated what arguments lay ahead, and our information system would have been as mindless as those poorly conceived texts that Socrates complained of, texts that could only numb with reiteration rather than respond with critical appropriateness.

Let me turn now and discuss what happens with a rhetorically conceived database. Months passed as text was loaded. And then we began to query our database, letting Bank staff know that if they were searching for environmental information about Bank-funded projects they might consider using ENV1S, as we had taken to calling, in fine bureaucratic acronymy, the *ENV*ironmental *I*nformation *S*ystem. The first task we faced in addressing questions was to instill in our colleagues a bit of a rhetorical sensibility, although, of course, we dared not speak that name in the face of earnest researchers earnestly searching for truth. But after all, we had conceived ENV1S rhetorically: it thus needed to be perceived rhetorically—at least a little—or it would not be perceived at all. Blindness to rhetorical situation shaped the following early question that we received: How many environmental projects has the Bank funded? Now that's rather like asking, "How many economic projects has the Bank

funded?" As a development institution, virtually any Bank-funded project will be inextricably environmental insofar as development itself is inextricably environmental. The question, void of rhetorical situation, then, produces an answer void of argumentative efficacy: all Bank-funded projects are environmental, but are they environmental in a way that the Sierra Club would call environmental? Indeed, the answer is not even informative, let alone useful argumentatively.

At this point let me provide an example that may help bring to light some points I've been moving toward about the relation between rhetoric, interdisciplinarity, and information retrieval. Here is a little scenario that I wrote and explored for a draft user's guide. As part of its information base, an environmental task force is building a specialized database to identify projects with components to prevent or mitigate natural disasters and projects aimed at reconstruction after recovery from disasters, including civil war. To create data, a researcher needs to review project documents to establish which projects actually contain such components.

This particular scenario is interesting because it completely destabilizes the conceptual context in which the texts were originally written. Keep in mind that the texts are Bank documents tied to the project cycle. As a bureaucracy, the Bank has a series of sectors that constitute one of the basic conceptual frameworks in which the Bank carries out its work and writes its documents. The series of sectors and subsectors, then, could be seen as an original, stable context under which the documents were produced. Some sectors/subsectors that might apply to our scenario are energy/pipelines, population/health. transportation/ highways, urban, water supply-sewerage/water supply. There is no sector for relief or rebuilding. To understand what I mean by a stable context, consider each sector/subsector as a discipline/subdiscipline, each neatly defined, each enabling us to ask neat questions that do not challenge the integrity of the discipline or sector: How many pipeline projects has the Bank funded? Easily answered. How much has the Bank loaned to provide water to urban areas? Easily answered. As long as one reads texts and asks questions and builds arguments under the conceptual framework in which the texts were written, information retrieval is not unusually problematic—sector/subsector can serve as an assigned keyword, or, with full-text capability, significant words could be identified from the documents themselves.

But the questions of the task-force researcher have destabilized that context, that conceptual framework, and those documents, by asking questions that break down the integrity of sector and subsector, by asking questions that interdisciplinarians might ask. The researcher's questions create new texts with new significances that were not originally anticipated. Thus if queried simply for "natural disaster," a data base of Bank documents would produce a random sample since "natural disaster" is a random term, existing outside the conceptual framework of Bank sectors. Similarly, keywords for the researcher, that is, significant terms in her vocabulary, were "recovery" and "reconstruction," but these meant something entirely different in Bank documents than what they meant to her. A search made on variants of "recovery" and "reconstruction" generated information on 160 projects and represented over a third of the Bank's lending program for fiscal years 1987 and 1988. This seemed rather excessive. Browsing through the documents. I saw that "recovery" tends to be primarily an economic term in Bank documents, used in combination with words like "financial" or "credit." Variants of "reconstruction" were used in speaking about only 28 projects, but again the term is broad: economies, means of production, and inadequately maintained roads may all require reconstruction, whether or not there has been a disaster, A more meaningful search entailed the term "disaster" along with particular terms and their variants, marginal and incidental terms indicating disasters: flood, hurricane, fire (but not firewood), earthquake, cyclone, landslide, mudslide. This search generated information on 88 projects, whose documents could then be analyzed more closely to determine which ones actually contained components to mitigate natural disasters and which ones aided in recovery and reconstruction. The move from conceptualizing interaction with text in abstract, categorical terms to particularized, marginalized terms entailed a move on the researcher's part from hyper-rationality to rhetoricality.

While ENVIS consists of only excerpts from documents, it is paradigmatic of the interrelation between interdisciplinarity and rhetoric even in a full text situation. For inierdisciplinarity in effect reconstructs the texts it searches as it resignifies them. Words written originally on the margins of significance—a cast off detail about a cyclone here or an earthquake there—become highly significant in a destabilized, interdisciplinary context that reconfigures the significance of texts as it requires of texts new information for new rhetorical situations: new arguments needed to be made from newly refigured texts. Thus while the most recent developments in automatic text retrieval "take advice from Wittgenstein and others who suggest that text understanding must be based on a study of how text words are used in the language" (Salton and Buckley, 1012)—such as "recovery" and "reconstruction" from our example—there is still the conceptual problem bom of interdisciplinarity and destabilized texts: it is difficult to weight terms systematically when terms themselves change register from reading to reading, argument to argument. "Earthquake" may register as an organizing concept in one reading or as a barely significant detail in another reading. Surrounding textual signifiers, which information retrieval tends to rely on in matching meanings across texts, may determine the meanings of "earthquake" (is it a natural disaster or a mixed drink?), but they do not determine the register of "earthquake," only the rhetorical situation does.

Such a destabilized context, in conjunction with a rhetorical sensibility, raises an even more complex issue, one of value, where there is no such easy thing as "mere" information. And this inability to derive "mere" information gets at the heart of the matter: the ancient Greeks had it right when, at the etymological root, they identified saying and speaking with irony and

dissimulation. Text can seem at once mute and babbling; discourse, valuable and valueless; data, value-free and value-laden. To curb the free-fall descent from irony to duplicity, one needs a rhetorical stance. ENVIS demands such a stance: you must ask a meaningful question to get a meaningful answer, and the meaning derives from the basic rhetorical situation at hand, a situation that becomes ineluctably embedded in values. The researcher in our scenario was situated in a particular rhetorical situation that demanded an ethical and political position as a *telos* guiding even her queries of the database. Neutral, abstract terms were meaningless until valorized particulars were brought into play: "natural" disasters are often manmade: when you search for the earthquake, you may be searching for poor construction materials; when you search for landslides, you may be searching for misguided developmental policies and tax incentives.

So the value of a database conceived rhetorically is that it acknowledges destabilized contexts and brings values into play. It shifts attention away from the fixed meaning of the text to the reading of the text for different purposes. In ENVIS, the "environment" cannot be conceived as something fixed and other that one may or may not throw money at or about which one may systematically retrieve abstract information. Specifically, the value of ENVIS is that it demands that we think of the environment as something that is always already with us—at least until we obliterate it and ourselves: and with the necessity of such awareness imposed upon us, where environment takes on the same ubiquitous circumference and scenic values as economy, we can at least begin to argue for the rainforest in particular, as ethical situations instead of merely bidding against it.

Generally, the development of ENVIS is a paradigmatic case that poses an interesting philosophical problematic at the intersections of textuality, information retrieval technology, and the valorized, destabilized context of interdisciplinarity, a problematic that cannot be addressed simply in technological terms. As text becomes more unbounded and more transformed by information technologies, on the one hand, and destabilized in constant rereadings, reconfigurations and resignifications by interdisciplinary gestures, on the other, a challenge falls not only to information technicians but to discourse practitioners as well, and it is the practitioners who may gain most from assuming the gestures of rhetoricality. For in so doing we can find a strategic stance vis-a-vis, on the one hand, dramatically increasing universes of information and, on the other dramatically decreasing rainforests: the rhetorical stance is at the intersection of information and action.

Biographical Note: David Sebberson completed his PhD at the University of Maryland, College Park, and left the World Bank in 1989. He is currently an assistant professor of rhetoric and composition in the English Department at St. Cloud State University, St. Cloud, Minnesota, where like Kenneth Boulding in his undergraduate days, he now finds it easier to make things up than to look things up. He teaches a variety of writing courses as well as graduate seminars in the history and philosophy of rhetoric.

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