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Nomenclators: a New Kind of Information Service

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Social scientists need a new kind of reference work to supplement ordinary dictionaries and glossaries which help them understand existing texts. Such works provide little help when scholars are writing and cannot think of a suitable word to express their precise meaning, especially when it is actually a new concept. Moreover, because social scientists tend to avoid coining new words or phrases for their concepts, they resort to the expedient of stipulating new meanings for established terms, a procedure that compounds existing ambiguities. The onomantic method supplements established semantic methods by helping writers determine whether or not any given concept already has been used in the literature: if it has, the terms in use are identified and citations to the relevant literature are provided. If it has not, the author feels entitled to propose new terms. The availability of reference works which may be called nomenclators can now, in principle be produced in machine-readable form so that their databases can be used in a personal computer. The potential market for such a product justifies the hope that a commercial publisher of social science information may want to sponsor the production and marketing of nomenclators. (Author)

0. Introduction

Dr. Eric de Grolier has recently compiled a *Nomenclator* (4) for the use of specialists on **InterEthnic Relations,** under a contract with UNESCO. This important project contributes to the elaboration of a demonstration project, sponsored by the International SocialScience Council, which has established both the feasibility and the need for a new kind of reference tool: also known as an *onomantic* or a *conceptual glossary*[1].

In the light of the experience and testing provided by a decade of preliminary work, the time has come when it would be appropriate for a publisher of social science information products to launch, on a commercial basis, the preparation and distribution of nomenclators, both in print and in machine-readable diskettes. The material which follows is divided into three parts: first, a summary of the conceptual/terminological **problems** which nomenclators are designed to solve; second, some technical innovations which are now available to provide an effective solution to these problems; and third, a discussion of the potential **market** and marketability of the proposed product.

1. The Need

A major obstacle to the effective indexing and retrieval of social science information arises from the sloppiness of its vocabulary: a virtual TOWER OF BABEL exists (12). We may attribute this problem to three interdependent factors: **polysemy, synonymy,** and **skepticism.** By contrast with the situation in technology and the natural sciences, every key word used by social scientists has a variety of possible meanings (**polysemy**), and for every concept there are often, if not always, a set of possible terms (**synonymy**). Moreover, whenever in the course of their research and theoretical work, a social scientist discovers that a new concept is needed and suggests a name for it, it is extremely difficult to gain acceptance for the new term (**skepticism**).

1.1 Roots of the Problem

An underlying reason for these difficulties arises from the reluctance of social scientists to accept 'neologisms', i.e. new words, phrases or acronyms that can unambiguously name a concept. Consequently, new meanings are often stipulated for old words, leading to **polysemy.** Since most of these words are borrowed, metaphorically, from ordinary language vocabulary, it is easy to confuse their original senses with the more specific meanings arbitrarily assigned to them by scholars. A secondary feed-back effect results, in some cases, in the intrusion of the new technical meanings of a word into ordinary language usage where the expression is misused for or against the interests of social groups in ways that spoil the scientific purposes of those who originally proposed a technical meaning for a term.

Since social scientists usually feel free to choose among established words any one that they consider most suitable for a given concept, the problem of excessive synonymy also arises. An important reason for this phenomenon can be traced to the lack of suitable reference works: dictionaries define words known by an author but they do not list the terms already used for a particular concept. As a result: 1) it is extremely difficult to discover whether or not a novel concept has already been used and named by someone else; and 2) in the absence of a tool that would easily demonstrate the need for a proposed innovation, social scientists jump to question its value even though they, also, can rarely justify their **skepticism.**

A contributing factor is the preference of anyone working in a specific theoretical or research paradigm to use words that distinguish its context from that of others who may already have proposed the same concept in a different context, especially if that usage has generated ambiguity or unwanted normative implications. Skepticism is also reinforced by a deeply engrained suspicion that anyone who offers a neologism is pretentiously playing a game designed to advance the career of the author more than to promote the growth of useful knowledge.

1.2 The 'INTERCOCTA' pilot project

--see note #1--was designed to investigate this problem and search for techniques that could be used to solve it. The field of **ethnic** or **inter-ethnic** research was chosen for a pilot project. When important concepts found in the scholarly literature of this field were examined in English, French and Russian, it became clear that in each language the problems mentioned above exist: **polysemy, synonymy, and skepticism.** Through the 'onomantic method' (explained below) it was also shown that unambiguous terms for any needed concept can easily be coined, when needed, to supplement (without necessarily replacing) those already in use. A new kind of reference work based on this method, known as a 'nomenclator', -- see Section 2.5 -- can easily be prepared.

Using data from the pilot project, augmented by additional sources, the author has prepared a paper which shows that four key words used by specialists on ethnicity -- *ethnicity, nation, race*, and *minority*--all have two or more important meanings for researchers in this domain of analysis. This essay also demonstrates that the important concepts identified by these ambiguous terms have been referred to by various quasi-synonyms with overlapping meanings: yet unambiguous terms for these concepts can easily be found. The original paper was received with approval at a roundtable on 'Politics and Ethnicity' sponsored by the ethnicity research committee of the International Political Science Association, held at the University of Limerick, Ireland, in July 1990, suggesting that this methodology can work well. The paper was subsequently accepted for publication in *International Sociology*, the official journal of the International Sociology Association (11).

1.3 A Thesaurus Test

The findings of the INTERCOCTA pilot project are reinforced by an analysis of several authoritative thesauri that are currently used by indexers to find descriptors for the main concepts used in the social sciences. These are:

UNBIS Thesaurus, (New York: United Nations, 1981), a list of terms used to index materials related to UN programs and activities;

Thesaurus of Sociological Terms, 2nd ed. (San Diego,

CA.: Sociological Abstracts, 1989), used primarily to index sociological abstracts; and

Political Science Thesaurus, (Washington, D.C.: American Political Science Association, 1975), used to index political science abstracts.

Three questions were asked about each thesaurus: 1) how have they handled terms relevant for ethnicity research? 2) are the available descriptors ambiguous or unequivocal? and 3) could a nomenclator for ethnicity research be used to enhance the precision and utility of a more general thesaurus?

1) In general, it was found that the descriptors related to key concepts needed in ethnicity research are widely scattered in the alphabetical term-lists of each thesaurus, and are not brought together in any of their hierarchical (systematic) listings. In none of the thesauri could the number of descriptors required by specialists on ethnicity be regarded as adequate, although many more are provided in the Political Science thesaurus than in the Sociology volume -- and the UN listing is utterly inadequate.

2) Since no definitions are provided in these thesauri, it is often difficult to determine just which of several possible meanings of each descriptor is intended, even though the contexts and an occasional 'scope note' often narrows the range of possibilities.

3) Finally, it can be shown, I think, that a nomenclator could easily be used in juxtaposition with any established thesaurus to amplify one of the subject fields which it covers. By this means, the adequacy of indexing within a given subject field can be considerably enhanced, field by field. In other words, it is possible to advance incrementally, to make improvements in the indexing of any subject field as a nomenclator for that field becomes available. A detailed analysis of the three thesauri, with illustrative data intended to answer the questions posed above, has been started with a view to future publication.

2. The Solution

A methodology that permits the problems identified above to be solved is now available. It is based, very simply, on a paradigm that reverses the familiar sequence found in semantic (or lexicographic) analysis, a sequence that starts with terms (words) and inquires into their meanings. The semantic paradigm leads to the preparation of dictionaries and conventional glossaries which are usually published as hard-bound reference works that presuppose a relatively static relationship with readers who want to know which meaning of a word is relevant in a given text. What is conventionally known as 'conceptual' analysis should, more accurately, be called a "'term' inquiry since it starts with a word (expression) to be investigated and inquires into its various meanings, sometimes augmented by a pragmatic study of who uses the term, in what theoretical, political or social contexts, and what consequences or conflicts flow from this usage.

2.1 The Onomantic Approach

The reverse paradigm has been called **ana-semantic** or, more conveniently, onomantic. It starts by describing a useful concept, identifying its theoretical research and pragmatic contexts of use and only afterwards by listing the various words, phrases, or expressions (i.e. **terms**) that are, or can be, used to name it. I believe this process is properly called conceptual analysis, although it is often mistakenly viewed as a 'terminological' approach, perhaps because *Terminology*, as a long established field, espouses this paradigm[2].

The onomantic approach is a branch of **Onomasiology**, i.e. the general science of naming. The Greek root, *onoma-*, is found in such words as *synonym, antonym, homonym, pseudonym, anonymous* and *onomatopoeia*. The more familiar Latin form, *nomen-*, is the base of *noun, pronoun, nominate, denominate, nomenclature*, and nomenclator. There are two main sub-fields of Onomasiology: **Onomastics**, the study of how persons, places and individual objects were and are named; and **Onomantics**, the study of how general concepts have been and can be named. By contrast with Semantics, which can take relatively permanent form in a **dictionary**, Onomantics is essentially dynamic and produces a **nomenclator**. It reflects and generates continuous change as new concepts and terms emerge from the needs of researchers and theorists. Consequently, an information service that can implement an onomantic project has to be interactive, utilizing a database (term bank) that can be loaded into a personal computer and augmented by users who contribute to the further development of its database. Although printouts from such a database serve a useful purpose, they are necessarily short-lived and should be viewed as by-products, not the main vehicle, of onomantic work.

2.2 A New Paradigm

The semantic paradigm is so deeply entrenched in our consciousness that most people find it extremely difficult to understand and embrace the onomantic paradigm, yet once they 'see' it, they discover how fundamentally it transforms their understanding of vocabulary problems. The familiar semantic mode of analysis is reflected in the design of dictionaries where each entry contains a word or expression followed by definitions of the meanings these lexemes have in various contexts. This paradigm is extremely helpful to readers who, when they encounter an unfamiliar word in a text, are enabled to discover which of its possible meanings makes sense.

Ordinary dictionaries help readers of works written in everyday or ordinary language. However, scholarly works are written in technical or special languages which involve fine conceptual distinctions, the drawing of boundaries, and the operationalization of concepts. Such distinctions, especially when they are idiosyncratic to particular authors, schools of thought or fields of discourse, are rarely reported in ordinary dictionaries.

Many technical glossaries, following the ordinary alphabetic (lexicographic) model, try to make sense of the increasingly chaotic vocabulary used by social scientists. Moreover, a whole new body of literature is emerging in which the meanings of key words, in various contexts of use and abuse, are closely scrutinized[3].

Although such works are intrinsically interesting and illustrate the dynamics whereby the stipulation of new meanings for old words brings about great terminological confusion in the social sciences, they do almost nothing to help us overcome this confusion. They do not help scholars find simpler and more unambiguous ways in which to clarify their concepts and communicate their intentions[4].

2.3 Terms vs. Concepts

Moreover, the difficulties that arise from the multiplication of meanings for familiar words are often compounded because no clear distinction is made by many writers between **terms** and **concepts**. Great debates often arise over the 'meanings' of 'concepts' when the real issues involve the different meanings assigned to a single word. Good examples will be found in Connolly (2), Gallie (7), and Boonzaier (1).

For example, Connolly's treatment of "essentially contested concepts" is actually a discussion of 'terms', as clearly shown by his extended analysis of *politics*, which he says is "a concept [sic] central to political life and political inquiry..." He really means that this is a key word, as he shows when it proceeds to identify, by definition, eight important concepts each of which is referred to by the word, politics (2, p.12-13). In subsequent chapters he takes up controversies over the proper meanings of interests, power, responsibility, and *freedom*. Although he shows convincingly that these words are indeed 'contested' insofar as rival users claim them as names for their own key ideas, he fails to show that the concepts designated by these terms are also contested. No doubt, in some contexts one or more of these concepts is useful (or useless), but this fact, as such, involves no "essential contest."

However, since there is a limited supply of established words in any language, and every word normally has several meanings while key words usually name many different concepts, all of which are important to their users, it is predictable that contests should arise when one word is used by different persons for overlapping but distinguishable ideas and each claims that her/his usage is the "correct" one. So long as resistance to newly coined words prevails, the available vocabulary items (words) become a scarce resource, subject to bitter battles for control over their use[5].

Admittedly, *concept* and *term* are themselves contested words -- each of them has a variety of meanings. In the present context, however, I am using *concept* only in its most usual sense to mean any general or abstract idea, notion or thought. By contrast, a *term* is a word or

expression used to name (designate) such a concept. To equate a word (term) with a concept (idea) is a reification -- as when a child identifies a pet's name with the pet, or a voodooist practices sympathetic magic on a doll equated with a particular human being. Admittedly, *concept* and *term* are also used to mean other things -- as they are by Connally, for example -- but the purposes of this analysis will be served if we remember to use these basic words only in their most relevant senses, as explained here.

2.4 Concepts as Ideas

While the supply of words is limited, the supply of concepts, by contrast, is virtually inexhaustible -- they can easily be created simply by explaining them with a text, a demonstration, an illustration or a mathematical formula. There is no need for contests over any such concepts. This is not to say that all concepts are of equal value: indeed, the concepts needed by any one scholar are often unnecessary and irrelevant to the work of others. Concepts may be clear or fuzzy, simple or complex, abstract or concrete, important or trivial, but they are never 'true' or 'false', and they need not be 'real'. It would be hard to prove that mathematical concepts, like zero (0) or equals (=), are 'real' or 'true', yet they are fundamentally important for mathematicians.

Consider that *justice* and *liberty* stand for ideals that are never fully realized in any political system, but that does not mean that the concepts represented by these words are not fundamentally important in political analysis. Thus, although concepts are freely available and not contested, they may be extremely useful (and often used) or quite irrelevant (and rarely or never used). However, theories and descriptions -- which may indeed be true or false -- require concepts as their units of analysis. Moreover, to establish the validity or falsehood of any statement, one needs to be able to construe correctly the concepts which its key terms refer to, i.e. to understand their meanings. In some contexts, useful concepts need to be 'operationalized' but in other contexts this may be unnecessary or impossible.

A clear distinction between **concepts** and **terms** enables us to clarify the difference between the basically **terminological** approach of conventional semantic analysis -- as illustrated in the work of Connolly and Gallie, mentioned above -- and the genuinely **conceptual** orientation implicit in the onomantic paradigm. Concepts and terms are, of course, always linked: to use a concept one must have a term (or terms) for it, and all terms refer to concepts. Dictionaries start with terms and identify the concepts they can stand for. By contrast, a nomenclator starts with concepts and names the terms that can represent them. The only kind of reference tool that can, I believe, contribute directly to the reduction of ambiguity in the social sciences requires us to supplement the semantic (dictionary) approach that is essentially terminological in character by using also the reversed ana-semantic, or onomantic (nomenclator) paradigm which is fundamentally conceptual in orientation.

2.5 Structure

The basic records found in a **nomenclator** (onomantic glossary) start with a specification of the essential characteristics of a concept, followed by a listing of whatever terms are available to name that concept. (By contrast, the **entries** found in a dictionary start with words and continue with definitions of their senses.) These records need to be rooted in the literature and illustrated by citations that quote from examples which clearly reveal the idea its author has in mind. Such citations, drawn from representative documents written by the most cited and influential scholars working in a given research domain, will not only identify key concepts and their terms, but will also establish the research programs, theoretical frameworks, and schools of thought in which any particular concept and term is used.

Because the first word in a concept description cannot be predicted, the records presented in a nomenclator have to be arranged systematically (i.e. according to a classification scheme) and, in any printed format, they need to be accompanied by a comprehensive index, one that not only identifies the terms used to name the concept described in a record, but also the (entailed) terms used in such records to define other concepts. Within a computerized database, however, terms can be retrieved without an alphabetical index. Moreover, although only one classification scheme is practical in a printed nomenclator, a computerized term bank can have several coding schemes for the same set of records, permiting users to select them in accordance with their own preferred frame of reference.

Every nomenclator should be accompanied by an explanatory text that identifies the main schools of thought, paradigms, or theoretical frameworks in which its concepts are found, plus a bibliography that lists relevant documents and identifies (if possible) their theoretical or research framework, and cluster authors according to their use of cross-references. A source index also helps users track the concepts and terms used by the authors who work in a given theoretical framework.

2.6 An Interactive Process

The onomantic paradigm differs from the semantic one in its fundamental relation to an audience: whereas dictionaries presuppose a unidirectional or passive relationship, nomenclators are interactive and multi-faceted. The users of a **dictionary** assume the existence of a well established vocabulary and usually want only to learn about particular words and their relevant meanings so that they can understand how they are used in a text. Lexicographers do not expect their readers to react or to generate changes in a finalized and published text.

By contrast, nomenclators are designed to influence the vocabulary of writers and to reflect such changes in frequently revised 'editions'. As such changes in scholarly usage occur, the vocabulary found in research reports will become increasingly unambiguous and, therefore, easier to understand and to index. This will happen in several ways.

First, users of a nomenclator will soon discover that the available terms for a given concept are clumsy or ambiguous. When they need to use a concept frequently, they will want to have more convenient and unambiguous terms for it. They may choose to find or coin such a term, to use it in their own writings and to recommend it to their colleagues. The editor of a nomenclator can encourage such innovations by suggesting terms that will stimulate the user's imagination and creativity, but such suggestions should never be viewed as recommendations. Only those writing authoritatively in their own fields of specialization have the authority to recommend new terms.

Perhaps even more significantly, when a social scientist discovers that a new concept is needed within the context of a given theory or research program, a nomenclator can demonstrate that the concept is indeed new and, therefore, requires a new and unequivocal term. Such terms, of course, need not be new words: they may be borrowed from ordinary language or even from technical terms used in other fields of discourse. The main restriction is that new terms should have only one meaning within a scholar's research domain or discourse community. As the use of nomenclators becomes established, it will become increasingly easy to identify the vocabulary already in use within any given scholarly domain.

Whenever a new term enters the vocabulary of a scholarly community as a result of the recommendation of a specialist within that community, it should, on the basis of a good citation, be added to the official database containing a nomenclator's records. Scholars using the frequently issued texts (diskettes) of a nomenclator will easily find useful recommendations that are now usually lost in a flood of literature which no single reader can hope to master. At the same time, the nomenclator will also guide users, bibliographically, to the documents which contain recommended terms and will facilitate the evaluation of their importance and utility. This information will help users decide whether or not to add the new terms to their own vocabulary-- if they are unhappy with them, they will still be free to recommend synonyms and have them added to the nomenclator.

Many users of a nomenclator will want to establish their own personal databases as a supplement to the official versions provided by an editor. From time to time they should also send the information in this private supplement to the editor for inclusion in the official version. Although the official material ought to be provided in a 'read only' format, both the official and personal databases can, of course, be consulted by a user

with the same command -- just as we now consult a machine-readable speller. A single official version of any nomenclator is needed both to assure consistency in the information offered a community of users and also to protect the financial interests of those who subsidize its preparation. This rule will not inhibit any user from adding to the lexicon of a field or exercising creative ingenuity when writing. Instead, it will help them bring their innovative recommendations to the attention of colleagues more quickly and authoritatively.

As scholars working in a given domain start to use and interact frequently with a nomenclator designed to meet their needs, the vocabulary of that field will become increasingly precise. This will make their writings easier to index, and users of information systems will, accordingly, find that they can retrieve relevant data more easily. As the amount of 'noise' or 'garbage' found in retrieved documents diminishes, the tendency of scholars to rely on formal information systems will also increase. Precisely because of the fuzziness of the key terms used by social scientists, many of them now distrust information systems and rely instead on informal methods, such as queries addressed to colleagues and members of 'invisible colleges'. Thus the widespread use of nomenclators can close the gap which now exists between the information scientists who compile indexing, bibliographic, abstracting, and retrieval services, and the social scientists who now resist the use of these facilities (13).

2.7 To Mobilize Users

Needless to say, nomenclators cannot be expected to perform their expected functions in the absence of explicit and well planned efforts to bring relevant communities of users together and to encourage them to make good use of this new kind of information service. It is not enough to sell a product to libraries and expect users to find what they need by their unaided efforts. In order to establish the necessary linkages with user communities, we need to rely on the networks that already exist within particular discourse domains. These can be discovered through a cluster analysis of journals, citation indexes and bibliographic and abstracting services. Such an analysis will provide lists of authors (scholars) to whom information about a given nomenclator can be directed.

Moreover, important research communities are already organized on a global and regional basis. In the field of ethnicity research, for example, well established communities can be found within the framework of the international associations for Political Science, Sociology, and Anthropology. UNESCO and the International Social Science Council, through its Vienna Centre, also have created international networks in this field. At the regional level, there is a National Association for Ethnic Studies in the United States, and parallel groups can be found in other countries and regions. Efforts are now under way to establish a network through which these

organized communities can become aware of the INTERCOCTA pilot project for ethnicity research and participate interactively in its use. As the project proceeds, it will also become possible and necessary to initiate research on the utilization of nomenclators and their ability to serve a variety of important functions.

In addition to these organized research communities, there are a score or more of scholarly journals that address themselves primarily to problems of inter-ethnic relations. Through these journals and their subscribers we may also be able to reach many of the scholars who are investigating these questions.

2.8 New Information Technologies

The comprehensive Social Science Citation Index, initiated and published by the Institute for Scientific Information, in Philadelphia, now provides an ideal instrument for systematizing the identification of important subject fields and the authors who have contributed most significantly to the development of the research literature and basic concepts needed in these field. Cutting across disciplinary boundaries, the data found in this index -- and no doubt in other related services -- now provide a flexible means to identify the groups involved in what Mattei Dogan has called "creative marginality"[6].

Newly available information technologies will now enable us not only to identify key authors but also, by a cluster analysis based on their cross-references to each others works, to establish research areas or programs in which new concepts have arisen and in which, moreover, familiar words have acquired new meanings. Utilization of the **automated** procedures that are becoming available for the analysis of this material will, I believe, enable us to identify efficiently the important concepts of a given field and to retrieve the influential texts in which these concepts have been explained and named.

Where different terms have been recommended for a single concept, it will become easier to identify them and where the available terms appear to be inadequate, it will be simpler to find better and more acceptable terms and to help leading scholars in each field win acceptance of the terms they recommend. The next frontiers for research under the auspices of INTERCOCTA will, I believe, involve automating the selection of authors and texts to be used in the compilation of future nomenclators. These techniques can be used, initially, to revise the pilot projects which have already been prepared, and to make them publishable in order to test the validity of the approach described above.

A related project already under way at INFOTERM, in Vienna, under the direction of Gerhard Budin, involves the perfection of a computer program that will enable users to access the database of a nomenclator in a hypertext format -- in other words, linkages between terms, concepts, class numbers, authors, and references will become readily available, on diskettes, to specialists within their own area of expertise, as they work on their own personal computers.

3. The Market

No matter how useful and valid the theory and design of nomenclators presented above may be, the whole approach will be doomed unless adequate financial support can be secured for their preparation, distribution and utilization. Although the INTERCOCTA project has received modest support from UNESCO (for which we are very grateful) to enable us to carry out the pilot project to develop and test the onomantic approach and the design of nomenclators, realistic development of this approach will require generous and long-term financing. Although some further subventions from UNESCO and private foundations may be necessary -- especially to perfect the methods for automatic compilation of input data and to develop the computer program for its utilization as a hypertext -- we shall eventually need the long-term support of a publisher interested in social science information.

Consequently, unless we can really visualize the feasibility of building a substantial market for the distribution and interactive use of nomenclators, we might as well abandon the project as ultimately utopian. Moreover, since nomenclators will, as explained above, have to be continuously revised and up-dated while the technical vocabulary of a given subject field evolves, we must think in terms of 'serial' orders or 'subscriptions' that will generate continuing sales: a nomenclator is not a once-for all product but, like many text-books and computer programs, it will require frequent revisions and reliable standing orders.

3.1 Constituencies and Audiences

We need to distinguish between the primary and secondary markets for nomenclators. The primary market contains **constituents**, i.e. the supporters who play an active role in the utilization and further development of a nomenclator, and the secondary market may be viewed as an audience whose members play a more passive role, buying and using nomenclators but not contributing to their growth. No doubt, the audience is, potentially, much larger than the constituency, but its size will grow only as the constituents start to contribute actively to the validation and development of the product.

The constituency will consist mainly of scholars who are actively doing research and writing in the domain of a given nomenclator: for them it will become an indispensable working tool that can be tapped in their personal computers, and only when they start using and interacting with the main database will the product gain reliability and credibility: its contents will be continuously improved and users will increasingly trust its data. Gradually, as the importance of having a nomenclator becomes apparent to all scholars doing research in a given domain, they will increasingly realize that they cannot avoid buying a copy to use in their personal computers and they will also have to place a standing order for the revised versions as they appear.

As nomenclators become available in a wide range for subject fields of the social sciences, libraries will acquire them as a basic information service. Scholars who will not need a particular nomenclator for daily use will, nevertheless, be able to consult a copy in their research library. Part of the constituency for any given nomenclator, therefore, will be found among the users of library copies. We may expect that their experience will lead many of them to decide to acquire personal copies. As concurrent nomenclators appear in each of the major world languages, this market will be multiplied and, gradually, every nomenclator will become universally available to scholars everywhere in the world.

3.2 A Conceptual Encyclopedia

A comprehensive set of onomantic glossaries (nomenclators) for all subject fields of contemporary social science research will constitute a kind of international and universal conceptual encyclopedia. All research libraries will need to acquire it on the basis of continuous standing orders. In addition to its most important function as:

1) an information service for creative writers in need of a **term bank** to help them develop their own technical vocabulary and present their ideas more clearly and accurately, each nomenclator will also serve a variety of supplementary purposes:

2) it will constitute an authoritative **dictionary** giving semanticinformation on the meanings of technical terms used in the social sciences,

3) it will provide up-dated **bibliographic** information on the important texts in every subject field, categorized by major schools of thought, theoretical frameworks, or research programs,

4) it will supply mini-texts in the form of **citations** drawn from this literature,

5) by means of its coding schemes it will help **students** learn and understand the relationships (within relevant contexts) of the key concepts needed by specialists in a given field, and

6) it will become a database for **researchers** who can use the material supplied in one or more nomenclators as a source of primary information to answer many important questions, especially as they learn to use the contents of each nomenclator and the whole 'encyclopedia' as a gigantic hypertext.

A conceptual encyclopedia consisting of continuously up-dated nomenclators available in the form of diskettes as well as in printed texts will, therefore, fulfill many of the functions of standard alphabetical encyclopedias. However, unlike the latter, a conceptual encyclopedia will not have to be purchased.as a whole within a short period of time -- after all, users of conventional encyclopedias cannot be satisfied with a volume for 'A' or 'M' or 'U'. Since each nomenclator stands by itself as a product designed to serve the needs of a discrete audience, it may be used to answer questions within its own domain of knowledge as soon as it becomes available, and individual scholars working in its subject field will want to buy it as soon as possible without having to acquire the other nomenclators in the total encyclopedia. Consequently, each nomenclator will concurrently become interactively engaged with its constituency while also starting to meet the needs of a growing audience[7].

3.3 A Paradigm Change

An energetic educational campaign will be needed to launch an encyclopedic series of nomenclators simply because this project involves a basic paradigm change. All scholars are accustomed to a semantic mode of thinking in which **terms** are confused with **concepts** -- as when writers speak of the concepts of *ethnicity, nation, power* or *justice* as though each of these words could represent only one concept. Actually, as noted above, each of them names a congeries of different important concepts, each of which is needed but cannot be mentioned unequivocally. This conventional paradigm dictates the heavy reliance now placed on alphabetical dictionaries and glossaries that universally (though unnecessarily) use entry words (terms) as the starting point for any conceptual analysis.

The semantic paradigm is, at present, inescapable simply because of the lack of nomenclators based on the onomantic paradigm. Once nomenclators become available, however, it will be easy to demonstrate the advantages of the supplementary paradigm. The onomantic paradigm, indeed, only supplements and will never replace the semantic approach. However, its use overcomes the inherent limitations of semantic analysis.

Nevertheless, until nomenclators are widely available, frequent explanations and pilot project demonstrations will be needed to persuade some scholars that a genuinely conceptual (**onomantic**) approach is needed to supplement the conventional term-based (**semantic**) way of thinking. We need to recruit enough potential users of this innovation to secure their help in motivating a publisher to take the risks associated with the launching of a new kind of information service.

After the advantages of the supplementary onomantic paradigm become apparent, I expect a flood of demands to escalate for nomenclators in machine-readable form for every domain of scholarly research. Indeed, when that time comes, there may be a danger that the whole idea can be discredited by shoddy imitations and competing nomenclators in the same subject fields. Precautions will be needed to safeguard the integrity of nomenclators that comprehensively and reliably serve the interests of all scholars working in a given research domain. I do believe that it will be possible to implement such precautions, but it seems premature to speculate here about the rules that may be required.

3.4 A Learning Tool

The constituency for nomenclators -- including researchers and libraries, as identified above (3.1) -- ought to be large enough to cover the basic costs of developing and marketing them. However, this market can be augmented by audiences that are, potentially, much larger[8].

Perhaps the largest component of this audience will consist of students who want to master a nomenclator's subject field. Increasingly, students have their own PCs and use them as study tools. If they could tap a nomenclator 'on-line' they could quickly and easily view sets of closely linked concepts and learn the important distinctions between them as well as the available vocabulary. They would also be able to identify the relevant literature, including the very text-books they had been assigned to read, and view citations in which the concepts had been used. They will find that mastery of the new material is facilitated, and they will be able to compare and contrast the various approaches used by different texts and the main writers in the field.

This suggests a fruitful marketing approach. When compiling a nomenclator, it will be useful to identify leading text-books and the universities and faculty members who adopt them. The authors of these texts will become constituents, but in addition to their participation in the project they will recommend (or even require) that their students make active use of the relevant nomenclator. Those who lack a PC can acquire a print-out for desk-top use, and they will demand that their reference libraries place a complete set of all available nomenclators at their disposal -- both in hard copy and in machine-readable form.

Graduate students who have learned to use nomenclators will, no doubt, evolve into constituents as they begin to contribute to the field's vocabulary as a result of their own research. Many dissertation writers are, indeed, among the most interested and subtle critics of established concepts and terms. Consequently, both graduate students and text-book authors, in addition to established researchers in any given domain, will buy nomenclators and become interactive partners in their further development.

3.5 Translators

Another important audience will consist of translators and interpreters. Of course, the size of this market will depend on the availability of concurrent versions of a nomenclator in the leading world languages -- the Ethnicity pilot project is already in draft in English, French and Russian, and may soon become available also in German, Spanish, a Nordic language and, possibly, Arabic.

Large-scale Term Banks are already available to help translators working in ordinary languages and in the special languages of technology and natural science. An outstanding example is the Canadian term bank in Ottawa which supports English/French translations, but parallel projects exist in other countries and special

domains. They have recently collaborated to establish **TermNet** with headquarters at INFOTERM. Through TermNet and INFOTERM it will be easy to gain access to the global community of translation services and their users. Organized associations of applied linguists and translators may also want to cooperate.

Actually, translators are already familiar with the onomantic approach because writers in the hard sciences and technology are generally willing to use a 'preferred term' for each technical concept, as recommended by a 'standardizing' committee. Indeed, one term is often used for the same concept in different languages -- or at least the precise equivalence between such terms is readily established. By contrast, for reasons given above, social and information scientists do not accept standardizing recommendations and it is often extremely difficult to find truly equivalent terms in different languages. Consequently, translators of social science texts are often unable to find adequate terms for use in a target language to express concepts used in the source language[9]. The INTERCOCTA methodology, however, will be able to establish equivalent and related concepts -- hopefully by class numbers but assuredly by definitions -- and it will therefore help translators select **target** language terms that most faithfully represent concepts found in the **source** language.

Of course translators, as such, are not expected to contribute to the development of a special language or a technical vocabulary. Their starting point is always the semantic problem of understanding texts written in a source language. However, when writing translations in the target language, translators frequently confront situations in which no good equivalent can be found. A leading professor of English/French translation, David Reed, has told me about the great difficulties he faced when looking for French equivalents to translate English legal terms. The difficulty arises from the fact that almost all French legal terms presuppose a Civil Law context which means that they can rarely convey the precise meaning of an English Common Law term. Not only would nomenclators in English and French for legal concepts provide much needed assistance, but a translator may well want to propose new terms in French to convey Common Law concepts found in English -- or *vice versa*. Consequently, I expect that some of the most highly qualified specialist translators will also become constituents, making useful contributions to the development of a nomenclator.

3.6 The Interdisciplinary Matrix

There is a growing emphasis on the importance of interdisciplinarity. This is true not only between established disciplines, such as sociology, anthropology, eco-nomics, and political science, but also between different schools of thought or theoretical frameworks within the same discipline. Consequently, the same terms are often used by different authors to stand for marginally different

ideas (concepts) which presuppose special theoretical contexts[10]. The use of a nomenclator will help to untangle such confusions. By establishing the theoretical framework of cited authors who use a given concept and offer a term for it, readers will easily discover not only when a particular term represents several different concepts, but they can also identify the theoretical frameworks involved. The use of bibliographic information provided in a nomenclator will also help users go more deeply into a subject by reading works authored by the main writers espousing each stipulated special meaning for a given word.

Such knowledge will not only interest those who seek a better understanding of what they are reading, but it will also help those who want to reach a wider audience through their own writings. When using any given term, they will be helped to warn readers that the same term has other meanings when used by specialists in different disciplines and theoretical frameworks. They will also be better able to convey their own ideas by using pleonasms -- i.e. by mentioning synonyms used in different contexts, perhaps in parentheses after the term they themselves prefer. In other words, the use of nomenclators will enable scholars to reach a much larger audience than they can when only readers who belong to their own theoretical and disciplinary contexts of interpretation can really understand them. Ordinary dictionaries and alphabetical glossaries rarely provide this kind of important information.

3.7 Information Science

Finally, a strategically important part of the audience for nomenclators will consist of information scientists, especially those involved in the preparation of indexes and thesauri for specialized services -- such as those of research libraries, abstracting services, and utilities such as the *Social Science Citation Index*. We may expect the staff members preparing such services to use nomenclators when they become available in the fields covered by their work. As the limitations of existing thesauri mentioned above demonstrate, social science indexers face baffling problems, and they will surely welcome nomenclators as supplements to the thesauri on which they must now depend.

The classification of social science concepts also creates huge problems. Any general scheme for the social sciences or for such a discipline has to scatter the concepts required for any concrete research field under a variety of major categories. Moreover, when classification schemes are used to class books which must be located at only one place in the stacks of a library, only one scheme is permissible. Both of these features of available classification schemes can be overcome when concepts are classified in a nomenclator.

First, because the schemes required for a nomenclator have to be field-specific, they will group concepts in ways that respond to the frameworks in which they are used, cutting across the general categories found in all library classification schemes. Moreover, several such field-specific schemes can be entered in a single nomenclator's database. Several different class numbers can be assigned to the same concept, thereby permitting the use of several classification schemes. This means that users whose theoretical and disciplinary contexts differ from each other will be able not only to find concepts within a classificatory scheme congenial to their own needs, but they will also be helped to relate them to the systematic frameworks into which they fit in other fields of enquiry or research strategies. Moreover, since each of the classification schemes used in a single nomenclator can be coded distinctively, different printouts can be produced, each reflecting the needs of a particular theoretical approach yet also cross-referenced so as to guide users to the other available approaches.

If scholars working in different languages could agree on a single classification scheme -- as demographers have already done -- then it would be possible to identify equivalent concepts in these languages by looking up a single class number. Admittedly, in many fields this may not be possible, but equivalents can still be discovered by cross-references in each nomenclator to the same or similar concepts in others. Ideally, the same class number can be used for a given concept in each language, but when this is not possible, then equivalent terms in each language can be mentioned. Because a great many such cross-references will be needed, computerization will, of course, be required.

The classification schemes prepared for individual nomenclators should also be linked to the various general classification schemes and thesauri found in the social sciences. For example, a computerized index of all the class numbers relevant to a particular concept (or set of concepts) prepared for a particular nomenclator could guide users to the class numbers used in general classification schemes (e.g. Dewey, the Library of Congress, U.D.C., Bliss, Colon, and UNESCO's Social Science Scheme) and to the descriptors found in several relevant thesauri. Such an index will help users find pertinent documentation and data in libraries and information systems based on these classification schemes and thesauri. The general classification schemes and thesauri could also be marked so as to refer users to available and relevant nomenclators. However, the preparation of such indexes and cross-reference systems should be regarded as a long-term project which would be prepared only after a nomenclator had become well established as a reference tool for its primary constituency and audience.

4. Conclusion

To summarize, there exists a real and important information need (problem) among social scientists that is not being met by any of the various types of information

service now available to them. This need lies at the interstices of information science and the substantive areas in which social scientists are doing research. It calls for a new ana-semantic (or onomantic) paradigm that would supplement the existing semantic paradigm on which current indexes and information services are based[11].

The possibility of a solution to this problem is now available for several reasons. First, the experimental pilot project for ethnicity research carried out through the INTERCOCTA project, under the auspices of the International Social Science Council, with support from UNESCO, has demonstrated the feasibility of producing and developing (in cooperation with user-scholars) a new kind of reference tool, called an 'onomantic glossary' or a 'nomenclator'. Second, the development of personal computers and sophisticated data management programs that permit the creation and home use of integrated information systems now makes possible the widespread utilization of nomenclators, something not heretofore feasible. Third, additional work is needed both on the preparation by computer of input data for a nomenclator, and the development of a suitable program for retrieving information from a nomenclator, I believe we may be able to solve these problems in the near future.

Finally, I believe that the potential market for nomenclators, appearing as a conceptual encyclopedia that would cover all the major foci of research, especially in interdisciplinary areas (fields of 'creative marginality') is large enough to justify a serious investment of time, effort and funds by a suitable publisher of social science information.

As a closing remark, let me again thank Eric de Grolier for his personal inspiration and for his special contribution in calling attention to the problems and possibilities involved in marketing and gaining acceptance for the information that can be made available through nomenclators (3, 4).

Notes

1   Eric de Grolier also prepared a special report to UNESCO (1988) on the INTERCOCTA project of the International Social Science Council (sponsored by its Standing Committee on Conceptual and Terminological Analysis [COCTA]). This study formed the basis for de Grolier's recent essay (3) which contains suggestions that helped the author in the preparation of this article and also provided a framework for the special approach adopted by de Grolier in the preparation of his 'Inter-Ethnic' nomenclator (4).

The first pilot nomenclator (conceptual glossary) for researchers on 'ethnicity' was prepared by the author (1985) and it provides a concrete illustration and testing ground for the INTERCOCTA methodology. Subsequent testing of this methodology in de Grolier's project,

and in a parallel Russian version prepared at the Soviet Institute of Ethnography in Moscow, were subsequently analyzed in more detail by the author in (13-17). Early presentations of the onomantic-('ana-semantic') framework can be found in (18 and 19). The current essay updates this material and provides some further observations.

2   I view the semantic framework of Lexicography and the onomantic framework of Terminology as necessarily complementary, not competitive. Each offers services and methods needed by the other, and each helps users establish the identity of concepts. An elaboration of this position can be found in (14), and illustrations of the complementarity of the semantic and onomantic methods are offered in (11).

A different but closely related dichotomy concerns the status of concepts: "are they independent of the theoretical discourses that they serve to construct," writes Jacques Gerstle, "or are they on the contrary dependent on the theories that combine them?" (8, p.607). New concepts, I believe, typically emerge during research, in a theoretical context which requires them and which also needs to be understood in order to grasp the concept fully. Subsequently, however, as such theory-based concepts become known, it is not surprising that they should sometimes take on a kind of autonomous existence and suggest questions or approaches that can be used in other theoretical inquiries or research programs. I doubt that useful concepts ever originate outside of a context in which they are needed. However, there is no contradiction between the theoretical and research context in which concepts are *formed* and their subsequent availability for *use* in other contexts. Thus, the complementarity of concept **formation** and **utilization** determines their history, status and identity.

3   A pioneering work in this mode is Kroeber and Kluckhohn (9) which demonstrates the very large number of meanings stipulated for *culture* by anthropologists, psychologists and other social scientists. Other books offering similar analyses of key words, their meanings and uses, can be found in the series edited by L. Schapiro, *Key Concepts in Political Science*, and P. Rieff and B. R. Wilson, *Key Concepts in the Social Sciences*. A similar work in a dictionary-like format (22) contains short essays on the many meanings of about 150 keywords.

Boonzaier (1), by contrast, adopts an 'interpretative' or 'pragmatic' approach. It is not so much concerned with the meanings of terms used in scholarly discourse as it is in the political use and abuse of terms such as *culture, community, ethnicity, race*, etc. Since these words are borrowed from scholarly discourse, especially to support the interests or projects of ruling elites, the book illustrates a process that reverses the tendency of scholars to stipulate technical meanings for familiar

words found in ordinary language. The perverse use of vulgarized technical terms demonstrates a peculiar risk that occurs when technical meanings are assigned to familiar words: namely, the possibility that they will be re-introduced into ordinary langage as pseudo-technical terms where they frequently serve highly objectionable social and political purposes. A familiar example involves *rationalize*. Its original sense of 'make logical or sensible' was modified by psychologists who used the word to mean "attribute self-gratifying but incorrect reasons for one's behavior". This meaning has now become so familiar that it is often encountered in ordinary language, with confusing results. By contrast, it is much rarer for technical neologisms found in the hard sciences to be so vulgarized.

4   I assume that careful scholars do indeed want to express themselves as unambiguously as they can. By contrast, of course, politicians, humorists, poets and novelists often deliberately engage in ambiguity so as to entertain or inspire others and to advance their own reputations and careers. They should, by all means, do what serves these interests or fancies.

By contrast, I believe that scholars who write ambiguously do not do so intentionally: they are simply hampered by the defects of the vocabulary available to them, or by their own analytic and rhetorical limitations.

5   The dichotomy mentioned by Gerstle (see note #2) may also be interpreted as an issue involving the understanding of terms rather than of concepts. The question may well be raised whether we must always understand terms (not concepts) in the contexts where they are used. Alternatively, can they have an autonomous (unambiguous) meaning? (This is a very different question from the issue of how concepts are formed and used). The answer to this question is easy to give: insofar as the words we use are polysemic, having a variety of meanings, we will always need a context of use in order to interpret their meaning unambiguously. However, in special (technical) languages, to the degree that terms -- typically neologisms -- become monosemic, they may be understood out of context: *oxygen* and *phoneme* may be such terms. Moreover, within the domain of a given discourse community, a word may have only one meaning (it is *unequivocal*) even though it has other meanings in different communities.

In the social sciences, I believe, our aim should be to have at least one unequivocal term for each concept needed in a given research domain -- such a term may well be a polyseme that has other meanings in different domains. Thus, *to develop* is unequivocal in photography, but this word is highly equivocal in the social sciences. Familiar and equivocal terms can also be used unambig-uously whenever the context shows clearly which of several possible meanings is intended. My point is that there is no need for monosemic terms in technical

writings provided polysemic terms can be used unambiguously (in context). This possibility enables us to economize on the use of scarce words while multiplying the number of concepts which they can name. However, a willingness to form new terms can surely simplify our discourse: imagine how difficult it would be for chemists or linguists to explain many important issues if they lacked such neologisms as *titanium* and *morpheme*. Clearly this concern does not apply to forms of writing in which ambiguity is permissible and only ordinary language vocabulary is available.

6   Advances in the social sciences frequently stem from the research and discoveries of scholars who are able to tap the literature and insights of several disciplines as they pertain to a single domain of knowledge or investigation. In their words, "...innovation in the social sciences occurs more often and with more important results at the intersection of disciplines" (6). Although single disciplines -- like economics, sociology, political science -- are well organized, real creativity is infrequently generated by scholars who limit themselves to the parameters of their own disciplines, according to Dogan and Pahre.

7   An earlier formulation of the rationale and possibilities implicit in the notion of a conceptual encyclopedia for the social sciences is contained in (16).

8   Eric de Grolier's report to UNESCO (5) and his recent essay (3) call attention to the importance of these markets for the promotion of onomantic glossaries (nomenclators).

9   A simple illustration of this problem can be found in Walne (21). This 'dictionary' purports to identify the technical concepts needed by archivists working in seven languages. Its entries are arranged alphabetically by the English term for each concept, e.g. *charge-out, dummy* and *production ticket*, represent four different ideas: 1) a document requesting an archival item; 2) the act of removing the item requested from a file; 3) a document recording the loan; and 4) a surrogate for the removed item. In English, *production ticket* names the first of these concepts and *dummy* the fourth, while *charge-out* can be used for both the second and third, no doubt distinguishable by a verbal or a nominal usage: 'to charge-out' or 'a charge-out.' In French, however, *fantome* stands for either the third or fourth concept, *bulletin de demande* for the first, and there is no French term for the second. In German, we find, *Bestellzettel* can represent either the first or the third concept, but there are two terms for the second concept and two for the fourth.

Clearly, no word-to-word equivalence applies for any of these four concepts, and users of an alphabetized multi-lingual dictionary may be puzzled as much as they

are helped. By contrast, in the format of a nomenclator, each of these four concepts would be found adjacent to each other, each followed by the words in several languages that can represent (in context) the intended concept. They will also be warned when a term is equivocal, i.e. it can name more than one archival concept, and the translator will easily know how to add contextual modifiers that specify which of these concepts is intended. No doubt variations in standard archival methodology can explain these differences, but notes in a nomenclator could easily explain them, something the dictionary simply cannot handle. For more details see Riggs (15) and Walne (21).

10 The result is what Gallie (7) and Connolly (2) have, misleadingly, called "essentially contested concepts". Interestingly, the title of Connolly's book is "The Terms of Political Discourse" (emphases mine). Had he consistently observed the term/concept distinction, I would heartily agree with almost everything he might have said about "essentially contested terms." Terms which may be unequivocal in a given disciplinary context become equivocal and contested when used in a closely affiliated but different field.

11 Further thoughts on how nomenclators and the onomantic approach can provide important linkages between the information and social sciences will be found in (13).

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