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A New Paradigm for Social Science Terminology

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Terminology is concerned with the naming of concepts, and hence both with the meanings of words and with the need to signify concepts unambiguously. Three terminological paradigms are examined: normative, analytic, and synthetic. The close relation of normative terminology to conceptology is explained and the intimate association of analytic terminology with lexicology is also examined. By contrast, the idea of synthetic terminology as the best bridging model is supported. The establishment of a new computerized terminology bank for the social sciences, as proposed by UNESCO's INTERCONCEPT project, is reported as an important development favoring the feasibility and usefulness of synthetic glossaries in selected subject fields of the social sciences. (Author)

"But 'glory' doesn't mean 'a nice knockdown argument'," Alice objected.

"When I use a word," Humpty Dumpty said in a rather scornful tone, "it means just which I choose it to mean – neither more nor less."

"The question is," said Alice, "whether you can *make words mean so many different things."*

"The question is," said Humpty Dumpty, "which is to be master – that's all."

from *Through the Looking Glass*, by Lewis Carroll

1. Alice versus Humpty Dumpty – the basic dialectic

Alice and Humpty Dumpty pose a dialectic that remains a hang-up to the present day. If Lewis Carroll saw the solution, he did not present it in his fable for children, but I believe we can now find it in the subject field called 'terminology'[1], or rather in one of three different terminological paradigms.

To present Caroll's dilemma in the words of his protagonists, we find Alice taking the position of a lexicologist, Humpty Dumpty that of a 'conceptologist', if we may also claim his prerogative of coining words. Humpty explained that "to 'gyre' is to go round and round like a gyroscope".

As for 'slithy,' it is a portmanteau, he said, packing two meanings into one word: 'lithe' and 'slimy'. For the concept defined as "a nice knockdown argument" he offered the term, 'glory', despite its other meanings.

For Alice such improvisations appeared to be a lexical heresy. Siding with the lexicographers, she questioned Humpty's cavalier attitude toward words: they can only mean, she thought, what established usage shows they have always meant.

What might be called the 'Alice/Humpty dialectic' can be posed in more academic terms by referring to its disciplinary foundations, evolving on the one side out of linguistics, and on the other out of philosophy. Within the camp of linguistics there are a variety of related disciplines, such as semantics, sociolinguistics, psycholinguistics and language planning that can all claim as one of their associates the subject field called *'lexicology'*.

In the other camp, relating to philosophy, we find the field of logic, philosophy of science, and classification research. In this context there has emerged a subfield that focuses on the analysis of concepts, including their relation to science as theoretically significant units of knowledge, and their relation to empirical observations as judged by "operational" or "denotative" criteria. So far this subfield has not established its autonomy, although its problems are much discussed in the literature of its parent disciplines. For the purposes of this paper, it is convenient to coin a word, *conceptology*, to be defined as the systematic study of concepts. Philosophically, conceptology might rest on the theory of 'conceptualism', but it is probably as much at home with the antagonistic theories of 'realism' and 'nominalism'. Conceptology as a field, however, is open to different philosophical approaches and need not be linked with any one of them.

The relation between lexicology and conceptology – which is my present concern – arises because of their reciprocal interaction. Among the various meanings of words are the concepts used in political and other social sciences. Hence from the *lexical* side, the study of words leads to questions about the concepts they sometimes designate. From the opposite side, the *analysis of concepts* remains tongue-tied until it has names for each concept. Such names are typically composed of words, which may be created, like 'conceptology' or 'slithy' to serve one's purposes, or they may well be familiar words, like 'glory', appropriated to mean new things.

In order to visualize the relationships that have just been postulated, a diagram may be helpful, as shown in Figure 1.

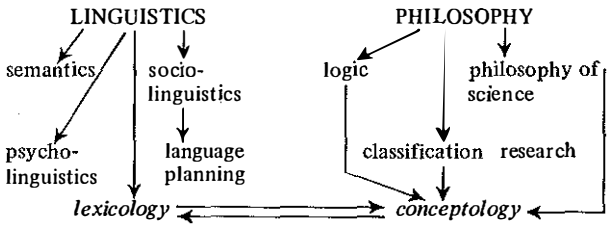

Fig. 1: Basic disciplines and fields

2. Terminology as a linking field

Terminology is a subject field that can, potentially, build a bridge between lexicology and conceptology. The definition of "terminology" is simply the study of terms. Unfortunately, the word 'term' has so many meanings that it is typically used ambiguously and the word 'ter-

minology' itself is often used to mean a collectivity of terms. Here, however, 'term' is used for an interfacing concept: when a word signifies a concept, then it is a term, but not otherwise. Conversely, when a name is selected for a concept, then that name is a 'term'. Correspondingly, as a term links word and concept, so terminology, as a field of study, links the related fields of lexicology and conceptology. The essential character of this linking relationship can be visualized quite simply, as shown in Figure 2.

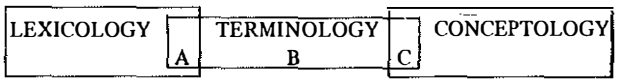

Fig. 2: Terminology as a necessary link

It appears that there are three main approaches to terminology, which roughly correspond to the areas marked by the letters A, B, and C in Figure 2. These terminological approaches or paradigms can be referred to as: *analytic*, for A; *synthetic*, for B; and *normative*, for C. As we shall see, the analytic approach assimilates to lexicology; the normative approach fuses with conceptology; but the synthetic paradigm forcefully establishes its autonomy and provides the most substantial linkage between lexicology and conceptology. The main substantive argument of this paper consists of an attempt to sustain this position, which is reasserted in Figure 3.

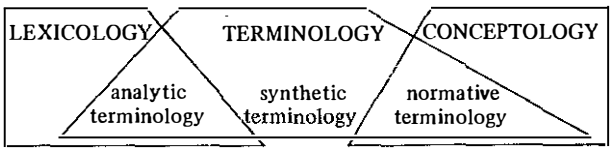

Fig. 3: Three terminological paradigms

In order to make sense out of the definition of 'term' which follows, it is important to consider first the semantic problem faced by lexicologists and terminologists. This problem arises because words almost always have more than one meaning – or "sense", to use the word favored by lexicographers. This characteristic of words is called 'multivalence'. In order to understand what a word means, its context of use has to be considered. If someone says, "The Spring *term* has ended," or "The first *term* in this algebraic equation ...", or the "middle *term* in a syllogism," one will readily understand the difference between the senses of 'term' in these three expressions, and know also that 'term' in 'terminology' must mean something quite different. Recognition of this fact underlies *analytic terminology*.

A contrasting point of view is sometimes adopted by *conceptologists*, who would find life much easier if for every concept there could be a unique name not used for any other concept. The conceptological slogan is: "one meaning, one word, and one word, one meaning." This ideal or norm of a one-to-one relation between words and concepts is referred to, technically, as 'univocalism'. A word is univocal[2] if it has only one possible meaning. *Normative terminology* tends to embrace this ideal.

In practice, as lexicologists quickly point out, univocalism is both impossible and unnecessary. All words are *evocative* in the sense that they call to mind a variety of possible meanings and attitudes. Indeed, sometimes authors deliberately evoke several meanings simultaneously, as when they write metaphorically, use puns, write poetry, or engage in political rhetoric. Thus by contrast with the norm of univocalism, they revel in the evocativeness of words. To untangle the evocations of a word is a challenge relished by lexicographers, and analytic terminology accepts a similar task.

Steering dangerously between this Scylla and Charybdis, *synthetic terminology* seeks a standpoint that, curiously, is still unnamed. The concept I have in mind is the possibility that, although a word has a variety of senses, the intended sense should be unequivocally apparent from the context of use. Actually, this is the implicit ideal of all scholarly or scientific writing. A chemical 'element' is known unambiguously by chemists to be quite different from a mathematical, musical, or military 'element'. When a word evokes only its intended meaning, it does not at the same time evoke all its other possible senses, and yet it need not be univocal.

We need, then, a third word to stand, between 'evocative' and 'univocal', for an intermediate concept, to designate just one among several possible meanings of a word. An archaic form of the word, 'evoke' is 'evocate', and it might well be revived to serve as a technical term for this concept. The Latin roots, 'vox' and 'vocare', meaning 'voice' and 'to call' have evolved into a large family of related English words, such as 'vocabulary', 'vocalize', 'invoke', and 'equivocal', in addition to 'univocal', 'evocative', and now, 'evocal'. Accordingly, like Humpty, we may choose to make *'evocate'* mean the invoking of one, but not all, the senses of a word. Many meanings of a word are evoked concurrently, but only one of its meanings at a time, by definition, can be evocated. If a word has only one meaning, it could be 'univoked,' but this possibility is as unlikely as this word is strange! (Persuasive stylistic objections have been raised to the use of an archaic form of a word for a new meaning. Perhaps a different prefix, e.g. 'syn-' to resonate with 'synthetic' might be preferable – giving us then 'synvoke' and 'synvocalism' as an admitted neologism for the required new concept. If unacceptable, then what alternative?)

The possibility of evocating (not evoking or univoking) the meanings of words lies behind the theory of synthetic terminology. (Appendix A gives the various forms of these words as a crutch to memory.) To visualize the relationships just postulated, we can represent them schematically, as in Figure 4:

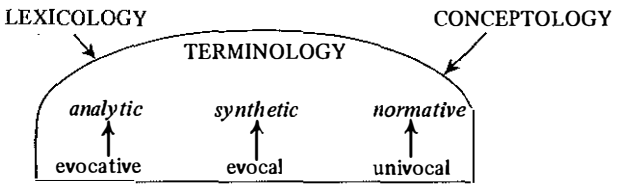

Fig. 4: Types of terminology

3. Defining 'term' in terminology

In order to evocate (not evoke) the meaning of 'term' in 'terminology' we need to determine which of its possible meanings is the appropriate one in this context. Sometimes 'term' is used in place of 'word', and sometimes in

place of 'concept'. Both are clearly not the intended meaning of 'term' in our context, nor are these meanings supported by dictionary definitions. If we turn to *Webster's Unabridged Dictionary* we shall find that eight leading senses of 'term' have been identified by Webster's lexicographers. Only the eighth of these senses is intended here. The dictionary defines this sense as follows:

"a word or expression that has a precisely limited meaning in some uses, or is peculiar to a science, art, profession, trade, or special subject."

Clearly implied by this definition is the proposition that although a word may have several senses, only one of them is intended when it is used as a term. Hence a word is a term only when it designates one of its possible meanings. To establish the context of this usage, we use the expression 'technical term' to show that the word, 'term', is used in this eighth sense. Note that technical terms may be quite familiar words – they need not be neologisms or exotic forms. However, they may require context indicators, or what Webster calls a "precisely limited meaning in some uses..." If this meaning of 'term' is well understood, then it will become apparent why a 'term' is not ambiguous, although the form of the term, – i.e. the word used to express it – may have multiple meanings. Consequently, to *evocate* a word is to use it as a term, unequivocally, even though the word is multivalent (or should we say 'multivocal'?).

This statement may still seem paradoxical. Let us, therefore, consider the point more fully. We may do so with the help of Figure 5.

CONCEPTS

WORDS	P	Q	R	S
A		A(Q)		
B	B(P)	B(Q)	B(R)	B(S)
C		C(Q)		
D		D(Q)		

Fig. 5: Word/Concept Matrix

The point, to repeat, is that words may designate concepts, and only then are they terms. The letters A, B, C, D, in Figure 5, are used to symbolize different words. By contrast, the letters P, Q, R, and S are used to symbolize different concepts.

Taking a row first, we can imagine that the word, B, in different contexts, has four senses. Thus B(P) is the word, B, in a context that tells us it designates concept P. Similarly B(Q) is the same word B, in a context that gives it the meaning, Q.

Now consider the column, Q, and imagine that in addition to signifying this concept by the use of B(Q), we can also use the word, A, in a suitable context, A(Q), or the word D, in context D(Q), to mean the same thing.

Let us illustrate by substituting some actual words for the alphabetic symbols. We have already seen that the word, 'term' has eight senses. Two of them are 'logical term', used in logic, and 'technical term', used in terminology. If we think about the concept of a 'technical term', we will see that it can also be signified by 'term', and no doubt by other words, such as 'name', 'expression', 'label', etc.

Clearly different words or expressions can be used to signify precisely the same concept. Indeed, the relation of concepts to terms mirrors that of words to senses: in both cases it is one to many – each concept can have many terms; and each word can have many senses. Had Alice held her looking glass to Humpty, she might have seen the point.

When several expressions are used as terms for the same concept they form a "term family". Members of a term family are synonymous terms. In our illustration, 'term', and 'technical term' are synonymous terms, but they are synonymous terms only when used in contexts which show that they both designate the same concept.

Synonymous terms are not synonyms – an apparent paradox which becomes clear when we think about it. Dictionaries often list a set of words that have similar meanings and they call such sets, 'synonymies'. Each word in a synonymy has its own cluster of meanings (senses). It would indeed be strange if all the senses of each word in a synonymy were identical, yet we still call the words in such a set 'synonyms'. Indeed, typically 'synonyms' are words with *similar*, but *not identical meanings*. When two expressions are used to designate exactly the same concept we can then – and only then – think of them as 'synonymous terms'. (The more conventional distinction between 'synonyms' and 'near synonyms' makes the same point, but less precisely.)

The selection of an appropriate term is determined by the context of its use. In the context of terminology, we use 'term' only in the sense of the name of a concept, or a technical term. So evocated, the word 'term' becomes unambiguous. Outside of such a context, however, it might be necessary to use a more cumbersome expression, like 'technical term', to distinguish the intended meaning of 'term' from others evoked by the same word. This leads to a useful distinction between synonymous terms that are unambiguous *out of context* (STOC), and other members of the same term family that are unambiguous only *in context* (STIC).

If terms are available which are unambiguous out of context, one might wonder why they are not always used. The answer is given by the principle of "least effort". If a term has to be used very often, we want to have a short and easy-to-remember word for it. To illustrate, consider this example: in mathematics a 'set' may be infinite or finite, but computer scientists have no use for infinite sets. Accordingly they could use 'set' in context to mean 'finite set'. Communicating among themselves, no ambiguity would arise from using the shorter form, but if mathematicians are to be addressed, then the longer form, 'finite set', would be more expedient. 'Finite set' and 'set' are by no means synonyms, but they can be used as synonymous terms. Similarly 'term' is a convenient and unambiguous form to use in a terminological discussion, but out of context, 'technical term' would be a more suitable expression.

We can now consider the three paradigms of terminology: the normative the analytic, and the synthetic. Essentially *normative* terminology wants all terms to be STOC's, i.e. Synonymous Terms Out of Context, and hence to be expressed *univocally*. By contrast, *analytic* terminology can accept the idea that all terms are

STIC's, i.e. Synonymous Terms In Context, and hence to be understood *evocally*.

Synthetic terminology shares some features of both analytic and normative terminology, but rejects some aspects of each. It shares the conceptual orientation of normative terminology, but rejects its *univocalism* – by means of the synonymous terms (i.e. term family) it proposes alternative means to signify each concept. It therefore shares the permissiveness of analytic terminology but rejects its *evocativism*, its lexical orientation. Recognizing that words can in context express a multiplicity of concepts unambiguously, it focuses on the concepts to be signified, rather than the words that designate. While insisting that each concept have at least one STOC, it also accepts the use of STICS. Its basic orientation is that of *evocalism.*

4. The normative paradigm

The normative orientation is revealed by its use of the terms, 'standardization' and 'normalization'. When the members of a term family are considered, normative terminology judges them, typically selecting one to be used, univocally, as the 'preferred' term, castigating others as 'deprecated', and tolerantly mentioning the rest as 'permitted'. Prescriptive glossaries which purport to give the terms which ought to be used in preference to others are an output of such efforts. In technological fields, where contracts involving large sums of money hinge on the precise understanding of technical terms, it is sometimes possible to prescribe and enforce terminological standards. Many international institutes, committees and working groups are engaged in this kind of activity. About 175 such bodies are listed in the *World Guide to Terminological Activites.* Infoterm Series 4. (Munich: Verlag Dokumentation, 1977.)

Much of the effort to achieve terminological standardization involves choosing among competing alternatives. Established terms may be criticized because of their misleading connotations, and alternatives selected, sometimes invented, to take their place. Certain principles of naming can be formulated, and they form an intrinsically interesting subject to study. The Technical Committee on Terminology of the International Standards Organization (ISO/TC37) has produced a draft international standard (R704) on this subject, entitled "Naming Principles". It is even now undergoing revision by an international working group (ISO/TC37, WG1).

The possibility of applying normative terminology in the social sciences is quite limited. Social scientists not only resist neologisms, but they strongly oppose efforts to 'legislate' when it threatens their freedom of choice in the use of terms. Fortunately, it appears to be quite unnecessary to attempt to 'legislate'. The normative approach to terminology, at least for the social sciences, appears to me to be both dysfunctional and unnecessary. It hampers essential work in conceptology, and screens from view the more viable terminological paradigms that are analytic and synthetic.

5. The analytic paradigm

Analytic terminology resembles lexicography so much that the two methods are sometimes confused with each other, or mistaken for twins. To illustrate, the International Congress of Applied Linguistics (AILA) has recently established a new section, #13, named, "Lexicology, Lexicography, Terminology". When it met in Montreal a year ago, it discussed twelve papers, only two of which appear to have directed attention to terminological problems, and they did so in a linguistic framework. Subsequently the Commission has been split, forming a separate Commission on Terminology.

Obviously much that interests lexicographers about a word is irrelevant to terminology: its structural and grammatical properties, its etymology and orthography, for example. The overlap occurs at the point where the various senses of a word are defined. A technical difference can be used to distinguish between these semi-twins, namely the structure of entries. Each paragraph or record in a dictionary is called an 'entry', and is headed by an 'entry word'. What follows is the text, within which is embedded a number of 'lexical definitions', one for each of the senses signified by the entry word. It is useful to think of any text that contains entries of this type as a 'dictionary'. Its organizing principle is distinctively lexical in that words, notably entry words, are the subject of investigation and explication.

It is convenient to use the word 'glossary' to refer to any comparable output based on terminology. Webster defines a 'glossary' as a collection of terms, not of words. It would be better to think of the elements of a glossary as concepts, each of which, of course, has to be signified by one or more terms. However, even if we think of a glossary as a collection of terms, we have to acknowledge that for each term (or rather, for each term family) there is only one concept. If the entry takes the classical form – as it typically does – of a dictionary entry, then the entry word has to be repeated for each glossary entry. To illustrate, consider the following example:

Dictionary format: (Uses lexical-entries)

term.... 2: a definite extent of time; ... 7: substantive element of a syllogism; 8: word with a precise meaning in some uses

Glossary format: (Uses concept-entries)

term (also *temporal term*): *a definite extent of time*
term (also *logical term*): *substantive element of a syllogism*
term (also *technical term*): *word with a precise meaning in some uses*

Fig. 6: Dictionary vs. glossary format

Note that in the dictionary it is a word that is being defined, but in a glossary, each concept is defined. In the example given in Figure 6, the word 'term' heads a *single* dictionary entry, which contains three senses. By contrast, the corresponding glossary treatment contains *three* entries, one for each concept. The same word heads each entry, it serves each time as a different term. Not every analytic terminologist, unfortunately, is sensitive to this distinction and therefore easily falls into the lexicographical format found in dictionaries. The resulting confusion of thought has made it difficult to separate the purposes, methods, and basic rationale of analytic terminology from that of lexicography.

There is another practical difference between lexicology and analytic terminology: the former is concerned only with established usages but the latter picks up many senses of a word that have been stipulated by scholars and are infrequently used. This difference corresponds to a semantic contrast between 'homonyms' and 'polysemes'. Most words, as we have noted, are multivalent – they have more than one meaning. Typically it is easy to distinguish between the familiar meanings of a word. To tell the 'Fall *term*' from a 'technical *term*' or the 'senior *class*' from a 'social *class*' presents no difficulties. In such ordinary language usages, words are homonymous, it is easy to evocate each of their separate meanings. Normally, moreover, there are not many of them, as we can see by looking at typical dictionary entries.

By contrast, in scholarly work, especially in the social sciences, we have to examine a far more complicated situation which results from 'terminological overloading'. By this expression I refer to the unbridled proliferation, by stipulation, of new technical senses for familiar words. The phenomenon arises because social scientists, when they identify a new concept, prefer to use a familiar expression to signify it. Normally they select words whose previously established senses are similar to the new sense.

When two or more senses of a word are so similar, so marginally differentiated from each other, that it is difficult to decide which is intended, we speak of the word as a 'polyseme'. This term comes from the polysemantic use of words, thereby generating the problem of 'polysemy'. The word 'role', to take an example, may be deliberately used metaphorically and polysemantically. However, specialists in the various subject fields of sociology, psychology, social-psychology and political science may also take considerable pains to disentangle a few of the many possible meanings of this word in order to use them in a scientific analysis. The question raised in analytic terminology is how to do this most expeditiously. One possible solution is to prepare an 'analytic glossary', which is to say a glossary in which all the different concepts signified by a word are defined in separate entries, and the term family of each is identified, hopefully with at least one synonymous term out of context (STOC) so that the concept can be easily identified whenever ambiguity arises.

The need for this kind of glossary can be readily illustrated by reference to a book by two anthropologists, A. L. Kroeber and Clyde Kluckholn. The book, which is called, *Culture: A Critical Review of Concepts and Definitions* (Vintage, 1963) contains over 160 formal definitions of 'culture', classified into seven major categories, some of which are also divided into subclasses. The contexts of use of these various 'concepts' are discussed and, in the conclusion, the authors set forth their own definition, giving what they consider to be the essential meaning of 'culture', (p. 357).

What Kroeber and Kluckholn have done, therefore, is not to prepare an analytic glossary but rather to give us a book-length 'explicative' definition of 'culture'. No doubt the expression, 'explicative definition' can be given several interpretations, but the sense intended here is that of a text which offers a new definition augmented by extensive conceptual analysis, after a more or less comprehensive review of the various meanings previously assigned by different authors to a word. Such 'explicative' definitions typically add to the number of senses of a polyseme. Moreover, they generate controversy to the degree that earlier authors or their followers respond by attempting to justify their own original definitions.

While the Kroeber and Kluckholn example illustrates the need for analytic glossaries, it also shows how an unconscious mixture of conceptology and lexicology leads to unfortunate results. Much of this book is, in fact, an analysis – no doubt intrinsically useful – of the various concepts called 'culture', showing their theoretical and historical relations with each other. My point is that the conceptual analysis could have been carried out more efficiently and clearly if an analytic glossary had been prepared first. Then, in a subsequent, and separate, discussion of the various concepts of 'culture', each could have been referred to more easily and unambiguously.

Although analytic terminology all too easily falls into the pattern set by lexicology, and sometimes spills over into conceptual analysis, it has yet another drawback which we can see when we take the user's point of view. We have to ask who is the audience or the client for an analytic glossary. One potential user is immediately apparent, namely the information specialist trying to establish a viable information service. The analytic glossary facilitates identification of the various concepts authors have in mind when they use an overloaded word. It can augment, without displacing, the thesaurus or controlled vocabulary, as a retrieval tool.

From the point of view of scholars as authors, however, an analytic glossary has limited utility. It spills over into many different subject fields, while giving only fragmentary information about the concepts used in any particular field. What, from the user's point of view, appears to be far more helpful is, instead, a synthetic glossary. Let us, therefore, take a closer look at the paradigm of synthetic terminology which, I believe, avoids the main traps found in both normative and analytic terminology, and substantiates the autonomy and utility of terminology as a linking field between lexicology and conceptology.

6. The synthetic paradigm

The basic content of a synthetic glossary is a set of entries defining the important concepts used distinctively in a subject field. Two problems arise when we consider how to produce such a glossary.

The first relates to the selection of entries: how can we distinguish between the concepts that are *distinctive* for a subject field, and others borrowed from a parent discipline or even from ordinary language. One way to solve this problem may be to examine the index of standard text books and note the words that have a technical meaning in the field concerned, as compared with those that do not. Sometimes the distinction is plainly marked in the index. Consider, for example, the first page of the index for John Lyons, *Semantics*, Vol. I (Cambridge, 1977), which is reproduced as App. B of this paper. The fact that a word is used as a technical term in semantics is clearly marked by the use of asterisks, and a page number in bold face – clear enough in the original text – points to the definition. The number

of page references after an index term also gives a rough measure of the importance of a concept in its field, suggesting the need to look first at such terms when constructing a systematic glossary. Terms which are not starred in the Lyons' index can be ignored since they refer to words whose meaning, presumably, can be determined outside the field of semantics. For example, 'abstraction' and 'agglutinating' are used by Lyons in a technical sense, but 'adverb' and 'accent' are not.

Some authors also give glossaries in their books. Robert Hall's *Essay on Language*, (Chilton, 1968) is an example. A page from his glossary is appended as Annex C. As Hall admits, the terms given in his glossary are idiosyncratic – reflecting the usages given in his book, with no claim to exhaustiveness. Nevertheless, such a list could be taken as a preliminary indication of the concepts that at least one linguist considers distinctive for his field.

The Hall glossary also gives us a clue to the second difficulty confronted by anyone preparing a synthetic glossary. Its basic arrangement resembles that of a dictionary. Thus, although it is clearly intended to be a glossary of important concepts in a subject field, it looks more like a lexical than a terminological product. The difference is not merely a question of format and style. As we have seen, the entries in any glossary, based on terminological principles, offer 'concept-entries' rather than 'lexical-entries', if we use these terms to distinguish between an entry based on concept definition, and one oriented to an entry-word (see Figure 6). This distinction, and its logical implications for the systematic arrangement of concepts in a synthetic glossary, can be illustrated quite well by taking a look at several entries in Hall's glossary where entry words are followed by more than one sense. Virtually at random, consider the entries headed by the words: 'phoneme', 'phonemics', 'phonetic', and 'phonetics'. Let us first arrange the concept definitions in a more or less logical sequence and see what problems we encounter.

No.	DEFINITION OF CONCEPT	TERMS USED BY HALL
1.	speech-sound	----------
2.	speech-sounds of a given language	phonetics
3.	significant unit of speech-sound	phoneme
4.	pertaining to speech-sounds	phonetic
5.	structure and organization of the significant speech-sounds of a language	phonemics
6.	the study of speech-sounds as such	phonetics
7.	the study of significant speech-sounds	phonemics

Fig. 7: Data from Hall's glossary

Since the word 'speech-sounds' occurs as a key element in all of the definitions which follow, but is not itself defined, one wonders if its meaning is self-evident, or can be understood as a lexical primitive by means of its dictionary definition. Actually, the expression does not appear in ordinary desk dictionaries, nor in the *Oxford English Dictionary*, but Webster's unabridged gives it three senses: the first by a lengthy definition, and the other two as synonymous with 'phoneme', and 'phone'. The definition of 'phone' comes closest to what I believe Hall's intentions were – it includes all the sounds made in ordinary speech in any language, but not other audible vocal expressions made, for example, when singing, laughing, crying, or communicating with animals, i.e. all 'phonic sounds'. In this context it might, therefore, appear useful to include in the glossary a definition of this central concept, accompanied by a technical term, e.g. 'phone'. Note also that 'phonetic' is used for (4.) but not as a singular word form for (2.).

As Figure 7 also shows, two different concepts (2. and 6.) are both signified by the same word, 'phonetics', and two other concepts (5. and 7.) are also signified by one word, 'phonemics'. No doubt in most contexts of use, it will be easy enough to determine which of these meanings is intended. However, in situations where the context does not clearly show which meaning of 'phonetics' or 'phonemics' is intended, it would be helpful to have a synonymous term for use *out of context* (STOC), e.g. 'phone' for (2.), 'phonetic science' for (6.), 'phonemic structure' for (5.) and 'phonemic science' for (7.). On the basis of such considerations, the glossary in Figure 7 might be rewritten, with some additions, and a new notation, as in Fig. 8.

The systematic arrangement of concepts, by their definitions, enables us to discover some eleven different notions all of which may be of value in linguistics. Although some of these concepts are omitted from Hall's glossary, he covers six of them with two words, each in two word-forms. The example shows that it is easy to devise eleven different terms so that all of the concepts identified in Figure 8 can be unambiguously signified out of context (i.e. by STOC's).

Moreover, such an arrangement facilitates the writing of definitions that are simple and unambiguous. If the term, 'phones', has been well defined, then it is easy to define concepts (2b) and (4b) in which the word, 'phones', is used for an entailed concept, i.e. a defining characteristic.

If a comparison between Figures 7 and 8 is made, it will be seen that a change in the numbering scheme (notation) brings out the logical relation between concepts more sharply. The structural arrangement has led to the identification of gaps (1a, 2a, 2c, 3b, and 4a) which were not included in Hall's glossary but may well be useful concepts in linguistics. The possible ambiguities which arise from using the same term for more than one concept in the same field (1b & 4b) and (3b & 4c) can easily be overcome by proposing STOC's, as shown in Figure 8. Moreover, Figure 8 brings out the point that whereas 'phonemics' is used for both the study and structure of phonemes (3b & 4C) but not for their attributes, 'phonetics' is used for the study and attributes of phones – but not for their structure. Each word, in short, could be used for three concepts (attributes, structure, and study) of phones and phonemes respectively, but in Hall's glossary, each word is used for two of these concepts, but not the same pair in each case. Figure 8 also shows that the use of 'phonetic' for (2b) precludes its unambiguous use for the singular of (1b), a difficulty easily overcome by using the singular and plural forms of 'phone(s)'. Similarly, one can see that the use of 'phonemic' for concept (2c) was omitted from the Hall glossary, although it might well have been included.

Let me now re-emphasize the point that a synthetic glossary with term families does not imply the need to abandon using familiar terms, such as those in Hall's

No.	DEFINITION OF CONCEPT	STOC: SYNONYMOUS TERMS OUT OF CONTEXT	STIC: HALL'S TERMS
1a.	Any audible product of human speech organ	phonic sound	- - -
1b.	Phonic sound(s) used in any language	phone(s)	phonetic(s)
1e.	Phones used as functional equivalents	phoneme	phoneme
2a.	Pertaining to phonic sounds	phonic	- - -
2b.	Pertaining to phones	phonal	phonetic
2e.	Pertaining to phonemes	phonemic	- - -
3a.	Structure and organization of phones	phonetic structure	- - -
3b.	Structure and organization of phonemes	phonemic structure	phonemics
4a.	The study of phonic sounds	phonic science	- - -
4b.	The study of phones	phonetic science	phonetics
4e.	The study of phonemes	phonemic science	phonemics

Fig. 8: Revision of Figure 7

glossary, but it does offer the possibility of reducing ambiguity by suggesting synonymous terms that can be used, •ut of context, to supplement or clarify the meaning of word-forms that are used as terms for more than one concept, as 'phonetics' and 'phonemics' are in Hall's glossary.

It would, of course, be presumptuous for a non-linguist to suggest conceptual innovations to linguists or even to propose new terms for their established concepts. The illustration is intended, rather, to suggest how a systematically structured synthetic glossary could be used in any subject field both to identify needed concepts and to improve their definitions. At the same time it can indicate several options that might be used to signify these concepts.

Unfortunately, we do not have many synthetic glossaries in the social sciences to use as examples. One reason may be that the cost of preparing them is greater than the cost of creating analytic glossaries, though not, I would think, more than the cost of compiling lexically sound dictionaries, or even normative glossaries – if the political struggles that accompany their preparation are counted as costs.

A more important reason, I should think, is the widespread lack of knowledge of synthetic terminology. Once the possibility of treating words evocally, rather than evocatively or univocally, is understood, and the possibility of using terminology as a link between lexicology and conceptology is also grasped, interest in the preparation of synthetic glossaries should increase, and financial support may correspondingly be found.

7. Summary: types of glossaries

To summarize the foregoing discussion of different paradigms or formats for use in glossary construction, the simple two-by-two matrix in Fig. 9 may prove suggestive:

	Multiterm (More than one term for each concept)	*One-term*[2] (Only one term for each concept)
Classified (onomasiological)	A	C
Alphabetical (semasiological)	B	D

Fig. 9: Types of glossaries

The most typical kind of a technical *glossary is type D*: alphabetically arranged entry words are followed by the definitions of one or more senses of each word – but only one preferred term is given for each concept. Other terms, if given, are typically marked as unacceptable or deprecated. This type of glossary combines the worst features of the analytic and normative paradigmas. Its alphabetical (or semasiological) approach leads to the preparation of independent definitions, which are therefore unnecessarily lengthy and confusing, and its uni- or one-term method ('univocalism') leads to its rejection by writers who simply prefer to use different terms for some of the defined concepts.

Glossaries of type C reflect the *normative* paradigm. They have the advantage of a classified (onomasiological) structure of interdependent definitions which permits the use of technical terms defined in one entry to be employed for characteristics of other definitions – i.e. as entailed terms. However, the one-term character of such glossaries – which may well lead to the acceptance of term standards in some fields of technology and the natural sciences – almost certainly contributes to the rejection of such glossaries by social scientists.

Type B glossaries resemble ordinary dictionaries in their alphabetical arrangement of entry words and they permit more than one term per concept. This makes them more acceptable to social scientists, but the semasiological sequence of entries makes it difficult to write interdependent definitions which reveal the systematic relations between concepts, and accordingly the definitions also tend to be unnecessarily complicated. Such glossaries probably reflect the use of the *analytic* paradigm.

Finally, *type A glossaries*, recommended here for use in the social sciences, are based on the *synthetic* paradigm. Their classified (onomasiological) arrangement of single-concept entries permits maximum simplicity and clarity in the definition of a set of interdependent concepts. Moreover, by providing a set of synonymous terms, each marked to show its appropriate contexts of use, the glossary is more likely to be accepted by social scientists who manifest a strong attachment to their own, somewhat idiosyncratic, vocabularies.

In the foregoing discussion of different models or paradigms for terminological work in the social sciences, the usual, type D, glossary has not been mentioned because it should surely be avoided. The normative and analytic paradigms, leading to glossaries of type C and B, have each their appropriate uses, but the synthetic, type A glossary is recommended here as the form best suited to meet the terminological needs of social scien-

tists. Perhaps, once it has been tried, it will also seem advantageous for use in some other fields of knowledge as well.

In order to create such type A glossaries on an interactive basis with users in a subject field community, the facilities of a computerized terminology bank seem to be needed, for reasons which will next be mentioned.

8. A terminology bank for the social sciences

A new kind of resource for terminological work has been created in the form of computerized information services that provide records of terms with their definitions, including bibliographic sources and identification of subject fields in which the recorded concepts are used. Such a data base and information service is usually called a 'terminology bank'. As of 1977, when the *World Guide to Terminological Activities* (cited above) was published, there were some 16 banks in operation, and an additional seven were being planned. In 1979 a network of terminology banks, called 'TermNet', was established, and provisions are being made for the reciprocal exchange of data in machine-readable form.

None of the established terminology banks, however, focus on the concepts and terms used by social scientists. Fortunately, one of the planned projects is UNESCO'S INTERCONCEPT[3] which will, precisely, make social science terminology the focus of its attention. The goal of this project is to provide a centrally available data base in which any group of scholars can enter its key concepts and terms, and retrieve publishable glossaries in systematic order, with an alphabetical index, that can be inexpensively reproduced and frequently revised. When this proposed data base becomes available and expands, it should become possible for users to retrieve, on-line, information about the terms and concept definitions used by specialists in a growing variety of subject fields. Thus the economy and precision of systematic glossary construction should increase as the data base becomes established. It should be added that no one expects that a terminology bank, like the proposed INTERCONCEPT system, would be tapped on an everyday basis by scholars who should, instead, have access to printed glossaries generated as INTERCONCEPT outputs. The users of INTERCONCEPT should be those engaged in the preparation of glossaries, and others interested in terminological and retrieval problems. Translators and public agencies are also potential clients of such a data base, but there is no need to discuss this aspect of the proposed service here.

If and when the INTERCONCEPT project is actually launched, COCTA[4] hopes to be able to work as an intermediary with various research committees of IPSA[5], and other scholarly groups, to supply guidelines and technical assistance so as to facilitate the production of synthetic glossaries that can, in fact, be used to improve the quality and communicability of scholarly writing, and also to enhance the capacity of retrieval services to help scholars find what they are looking for.

To conclude this paper we might revert to the Alice/Humpty dialectic attributed to Lewis Carroll, proposing the lines that follow as a valedictory toast:

Alice and Humpty posed the dialectic:
analytic or normative,
evocative or univocal;
Humpty's thesis was stipulative,
Alice's antithesis, lexicographical;
They failed, between them, to find the slithy synthesis:
evocal and synthetical.

Notes:

1 The word, 'terminology', is sometimes used to mean the terms of a subject field. Here, however, it is used for a different meaning, namely a subject field concerned with the study of terms. The word 'term' also has a variety of meanings: the one intended here is that of a word or expression used in a precisely limited sense, as in one of the social sciences. Terminology is often subsumed under 'lexicology' or 'conceptology', but its true role is that of a link between these two fields of knowledge. The linguistic subfield of lexicology is concerned with the meanings of words in use; conceptology as a branch of philosophy includes the analysis of concepts, their relations to science as units of knowledge and as working tools.

2 In preference to 'univocal' which designates the concept of 'one concept per term, we may use 'one-term' (or 'uni-term') which expresses the idea of using only one term per concept. By contrast, in preference to 'multivocal' – standing for words having several meanings – we should use a term like, 'multi-term' to represent the possibility of one concept having several terms. Note, though, that the term, 'uniterm', as used in information science, designates a different concept.

3 For further information on INTERCONCEPT see Intern. Classificat. 5 (1978) No. 2, p. 102.

4 COCTA stands for the Committee on Conceptual and Terminological Analysis; see also Intern. Classificat. 5 (1978) No. 3, p. 166.

5 IPSA = International Political Science Association.

Appendix A:

GLOSSARY ON THREE MODES OF WORD USE

1a. to summon up all the meanings of a word	to evoke
1b. to summon up just one of the meanings of a word	to evocate
1c. to use a word in its only meaning	to univoke
2a. attribute of a word whose meanings can be evoked	evocative
2b. attribute of a word one of whose meanings can be evocated	evocal
2c. attribute of a word having only one meaning	univocal
3a. the evocative use of words	evocatively
3b. the evocal use of words	evocally
3c. the univocal use of words	univocally
4a. the practice of using words evocatively (metaphorically)	evocativism
4b. the practice of using words evocally	evocalism
4c. the practice of using words univocally	univocalism
5a. one who evokes	evoker
5b. one who evocates	evocator
5c. one who univokes	univoker
6a. attribute of a context which permits a word's meanings to be evoked	evocable
6b. attribute of a context which permits only one of the possible meanings of a word to be evocated	evocatory
6c. attribute of a situation in which a word is univocal, and hence can be understood out of context	univocable

Needless to say, many of the terms suggested in this glossary are not established – they are stipulated for the purposes of this paper. However, all of the concepts defined in this glossary are useful for terminology and, by whatever terms they may be signified, we need to add them to our repertoire. More specifically, the concepts – those based on the verb, 'to evocate' – are essential for terminological work in the synthetic paradigm, and the lack of established terms for them puts scholars in the untenable position of supposing that there is no intermediate option between the equally false contraries of evocativism (metaphorical language), and univocalism.