

Fred W. Riggs  
University of Hawaii, Honolulu

## Establishment of Glossaries: Their Basic Functions\*

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The underlying problems of terminology have been treated at the level of effects, not causes. The overloading of terms has resulted in the proliferation of meanings attached to familiar words, and consequent ambiguity. To counteract this effect, efforts are often made to sort out the meanings of key words – an interminable task since never meanings continue to proliferate on these very words. A more radical solution goes to the root of the problem by seeking to identify new concepts as they emerge from scholarly work and to facilitate new terms as unambiguous designators. A continuing, interactive glossary project, prepared and used by specialists in a given subject field, would be a basic tool in the repertoire of any discourse community seeking to promote the cumulation in its own specialized field of knowledge. Modern technology, especially as reflected in the use of automated terminology banks, can greatly facilitate the operation of a glossary program, but it is not a *sine qua non*. The cooperation of editors, both of newsletters and journals in the field concerned, is essential for the success of a glossary project. Because the concepts used in a specialized field of knowledge are highly interdependent, it is important that they be presented in a systematic (i.e. classified) glossary, with inter-linked definitions, and a comprehensive alphabetical index to all of the terms that can be used to designate each concept given as an entry in the glossary is also necessary. (Author)

### 0. Introduction: The Example of 'Interdependence'

A recent essay by David A. Baldwin<sup>1</sup> analyzing the meanings of 'interdependence' makes several useful points that contribute to the purposes of this paper. Baldwin notes, first, that "... international relations scholars writing on interdependence during the last decade have paid very little attention to treatments of this topic by previous generations of scholars in the same field" (p. 481). Clearly the cumulation of information in a given field of knowledge will be hampered if this is a common phenomenon – how can we know that scholars currently writing about any concept, such as "interdependence", are actually writing about the same thing as their predecessors? What Baldwin shows in his essay is that, by ignoring the earlier literature, contemporary scholars have been able to write about something different, even though using the same term for it.

A second point made by Baldwin concerns a redefinition of 'dependency' proposed by other contemporary

\* This article is taken from a paper prepared for use at the CONTA conference in Bielefeld, May 1981. Its full text contains also a sample glossary and index of the technical terms introduced in the article – they have been omitted here. Anyone interested in seeing this supplementary material may obtain a copy of the manuscript by writing Fred W. Riggs, Political Science Department, University of Hawaii, Honolulu, Hawaii 96822, U.S.A.

North American scholars who want to use this word to represent a concept formulated by the Latin American authors of *dependencia* theory. Baldwin offers several objections to this proposal, but I will mention only one here, namely his contention that "... to redefine 'dependency' in terms of 'a certain body of historical, political and sociological thought' is to open the floodgates for numerous redefinitions . . . . It is, in short, a corruption of language" (p. 493).

Combining these comments, note that the use of a familiar word to represent new concepts presents two important risks, especially when earlier relevant meanings are displaced by new ones: first, we may lose knowledge generated by writers using the word in one of its earlier senses; and second, we may "corrupt" the language. By this term I understand Baldwin to mean that we increase ambiguity and confusion of thought when a given word comes to be used, confusingly, for different but similar ideas.

### 1. Concept Innovation

The usual approach of scholars who want to solve the problems manifested in the accumulation of new meanings for familiar words has been to seek to disaggregate them, following the lexicographical paradigm. In other words, by identifying the various senses (meanings) of a word, one can, hopefully, reduce its level of ambiguity by enabling users to show, in contexts of usage, which meaning of the word is intended.

For example, Baldwin tells us that, in ordinary usage, two important senses of 'dependence' occur, and both are important in social science. Both meanings of the word involve relationships in which an actor's behavior is influenced by someone or something else. In the first sense, the amount of influence is not great, whereas in the second it is so great that termination of the relation would be costly. Baldwin notes that the term, 'sensitivity interdependence' has been used for the first sense, and 'vulnerability interdependence' for the second. However, Baldwin uses these cumbersome expressions infrequently, leaving it to the reader to determine, in context, which sense of 'dependence' he has in mind when he uses the word.

When the different senses of a word are radically different, it is usually quite easy to determine, in context, which is intended. Thus, among the many meanings of 'state' it is easy enough to sort out the different senses of the word in "state of mind," "nation state," and "state papers". Fields of application, if known, may also serve the same function: thus 'power' in mathematics has a meaning readily distinguished from 'power' in political science. Within political science, however, 'power' has many meanings that are not so easily distinguished from each other, although some can be sorted out by subject field. For example, a "power" in international relations clearly is a different kind of actor from a "power" in a legislative assembly – but normally political scientists use 'power' to refer to a relationship between actors rather than to a kind of actor.

These comments presuppose an existing situation: namely, the various meanings of a word have already been established, they merely have to be sorted out. The fewer the established meanings of a word, and the more

sharply distinguishable they are from each other, the easier it is to disambiguate words by identifying their various senses. However, in the social sciences many senses that are not easily distinguished from each other have been packed onto familiar words. If one looks closely at the many meanings of such words as 'power', 'integration', 'development', 'role', 'consensus', 'ideology', 'bureaucracy', 'class', 'culture', etc. one will find that it is, indeed, difficult to identify their different senses and to indicate in context which meaning is intended.

### 1.1 Innovation by explication

This fact – and we have good evidence that it is a fact<sup>2</sup> – leads scholars into a trap that generates – often unconsciously and unintentionally – a growing number of marginally differentiated senses of familiar words. The process occurs precisely because writers want to use a word overloaded with meanings, unambiguously. However, they lack a convenient reference tool, such as a systematic glossary, and they also find that the extensive literature search required to identify all the relevant meanings of a word is beyond their means. Moreover, sensing that the meanings of 'dependency' would not be apparent to their readers, these authors decided to offer their own definitions. Such definitions, insofar as they differed from those previously used, actually created new concepts, but these concepts were so similar to previous meanings of the word that it became increasingly difficult to distinguish the various possible senses of the term from each other. A massive demonstration of this problem can be found in the book on "culture" by Kroeber and Kluckhohn which sets forth over 150 different definitions of the word written by anthropologists<sup>3</sup>.

Conceptual innovations that arise from this process may be called "explicative" in the sense that the explication of a word in use so as to illuminate its meanings typically results in the stipulation of a new definition thought by the author to be more useful than any previously written. This process of innovation by explication is also creative insofar as it evolves new meanings that bud off, in a way, from the previous meanings of a word.

### 1.2 Innovation by design

By contrast, there is another mode of conceptual innovation that is more self-consciously enactive. As research in specialized subject fields goes forward, scholars often find need for new concepts. Such concepts can be established by definition even though they lack a term. There are, of course, different ways to discover or invent new concepts. One that frequently occurs in the social sciences is well illustrated in Lasswell and Kaplan's book, *Power and Society*<sup>4</sup> where different variables are used to create a matrix, each cell of which constitutes a distinct concept that can be defined by the variables that form the matrix. An example is shown in Figure 1 (from p. 209). Here we see such coined terms as "demosocracy", "virocracy", "ideocracy", and "ethocracy", which were invented by Lasswell and Kaplan in order to designate forms of rule in which the elite rely, respectively, on "affection", "well-being", "enlightenment", and "rectitude". We also find such well-known words as 'bureau-

cracy', 'aristocracy', and 'technocracy' defined arbitrarily, and in a parallel way. Whether the words themselves are old or new, the definition precedes the selection of the them, whose meaning therefore cannot be determined by explication, but only by the design of the stipulative matrix.

Table 1: Copy of Table 8 from Lasswell and Kaplan, *Power and Society*, p.209

<i>Forms of Rule by Composition of Elite</i>			
<i>Base Value</i>	<i>Elite</i>	<i>Rule</i>	<i>Rulers</i>
Power	Officials	Bureaucracy	Bureaucrats
Respect	Nobility	Aristocracy	Aristocrats
Rectitude	Righteous	Ethocracy	Ethocrats
Affection	Popular	Demosocracy	Demosocrats
Well-Being	Virile	Virocracy	Virocrats
Wealth	Wealthy	Plutocracy	Plutocrats
Skill	Skill Specialists	Technocracy	Technocrats
Enlightenment	Symbol Specialists	Ideocracy	Ideocrats

In the natural sciences and technology, new concepts also arise, whether from discovery or invention, but much more often than in the social sciences the terms chosen to designate them are coined for the purpose – as are the first four given above. Such words are, carelessly, called "neologisms", although this word needs to be used carefully because its several senses are easily confused with each other. Words like 'radar' and 'laser' come to mind as well-known examples. However, it is also possible to coin a new term by combining familiar words, as in the examples given by Baldwin, where 'sensitive dependency' and 'vulnerable dependency' are actually neologisms. In Table 1 we also find 'skill specialists' and 'symbol specialists' which are also neologisms in a two-word form.

Such terms are, indeed, quite common. Interestingly, there is no generally accepted term for an expression that is best described and defined as though it were a single word, although it is composed of several word-forms. Among the many different terms that have been used to designate such expressions, we find 'multiword lexical unit' and 'syntheme'. Both are clearly neologisms – they will not be found even in an unabridged dictionary. The first of these terms is itself a syntheme, being composed of three familiar word-forms, while the second is a particular kind of neologism – more precisely, a "neoterism". The word, 'neoterism', is not itself a neoterism, since it can be found defined in this sense in *Webster's Third International Dictionary* (W3). One of the senses of 'neologism' is precisely a neoterism, i.e. a newly coined word.

To coin a term for a new concept, then, is a deliberate act of terming or naming, whether or not the new term is a neoterism, a syntheme, or a familiar word to which a new meaning has been added. It is important for us to distinguish this process of terming new concepts *after* they have been identified (typically by a defining text) from the process of *re-defining* a familiar word so as to create a new concept (whether intentionally or not). We have already referred to the latter process as conceptual innovation by "explication". Let us now designate the former process, by contrast, as conceptual innovation by "design". Put differently, to identify new concepts that have arisen from the process of explicating the meaning(s) of familiar words, we will speak of "explicated terms". However, when terms are created in order to designate

new concepts – as illustrated in Table 1 – we may refer to them as “designed terms”. This language permits us to note that in the social sciences much conceptual innovation occurs in the form of explicative terms, whereas in the natural sciences and technology, we find many more designed terms. It is important to separate this distinction from the notion of neoterisms vs. familiar words. In this paragraph we have engaged in conceptual innovation by design, using the *synthemes*, ‘explicated term’ and ‘designed term’ to represent the new ideas. We could also coin neoterisms for these concepts, e.g. ‘expli-term’ for the former, and ‘desi-term’ for the latter. It might also be possible to use a familiar word for each concept by assigning it these new meanings, e.g. ‘explication’ for the former, and ‘designation’ for the latter. However, if we were to do this, we would have to warn our readers that these words already have other meanings, and we would also risk “corruption” of the language. My guess is that both the neoterisms and the familiar words would be resisted by most social scientists – but they might be willing to accept the *synthemes*.

### 1.3 Designed terms: Neoteric or neosemantic

The distinction between designed terms and neoterisms is implicit (but not explicit) in the following exhortation by Fritz Machlup: “. . . when a writer creates or modifies a concept he ought also to coin a new word to denote it, rather than corrupt the language and spread confusion”<sup>5</sup>. To put this injunction in the vocabulary used above, we might say that Machlup prefers designed to explicative terms – a preference I strongly support. However, he also advocates the use of neoterisms rather than familiar words to be used as terms for new concepts. Is this preference realistic in the social sciences? A small experiment will test the reader’s own preferences. We have now spoken several times about familiar words being used as terms for new concepts, thereby giving them new meanings. It would be convenient to have a term for this concept so that we need not continue to use this long phrase. A neoterism coined by someone else might be used: the word is ‘neosemanticism’<sup>6</sup>. Using this term, we can now say that designed terms may be neoteric or neosemantic. Machlup wants us to underline the intention behind concept design by using neoterisms: “The usual practice of social scientists, which he opposes, involves the use of neosemanticisms. If we recognize *synthemes* as a type of neoterism in which the constituent words are familiar, it may be possible to have the best of both worlds – expressions like ‘vulnerable dependency’ and ‘designed concepts’ are as unambiguous as a neoterism, but as easy to remember as a neosemanticism.

Actually, I see no need to insist on choosing between neoterisms and neosemanticisms. It is often useful to employ both. If we narrow the definition of ‘neoterism’ so that it covers only newly coined word-forms, then we can treat *synthemes* as a separate category. Usually, I suspect, we will want to coin both *synthemes* and neoterisms to designate designed concepts, and we will be very cautious before we accept a neosemantic term. To illustrate, consider that expressions like ‘vulnerable dependency’ could be called not only *synthemes* and multiword lexical units, but also “expressions” or “terms”. To do so, however, would be to give a new meaning to

words that are already well loaded with senses. If we wanted to do this, however, we could easily use several forms in a single sentence to clarify our intended meaning. We could, for example, use the following sentence:

(1) ‘vulnerable dependency’ is a *syntheme* (multiword lexical unit, or expression).

In this example, three different terms have been used synonymously. The first two, ‘*syntheme*’ and ‘multiword lexical unit’ are univocal, but the first is a neoterism, and the second is itself a *syntheme*. The third is a neosemanticism, and for this reason is probably also multivocal, though not necessarily so. Some justification for using the different terms together arises from the fact that ‘*syntheme*’ is convenient and precise, but may not be easy to learn, while the terms in parentheses are easy to learn but either cumbersome or equivocal. One might choose to use them together a few times, trusting that readers would soon learn the meaning of ‘*syntheme*’ so that it could, subsequently, be used alone. Alternatively, if the concept were to be used infrequently, one of the more cumbersome or ambiguous terms would probably suffice. Having several synonymous terms to choose among increases flexibility while enhancing clarity of communication.

## 2. Glossaries

To overcome the kinds of problems identified by Baldwin and Machlup, we can use a tool and process that will be called, neosemantically, a “glossary”. According to W3, a glossary is “a collection of terms limited to a special area of knowledge”. By contrast, a “dictionary” is defined, in W3 – according to one of its senses – as a “reference book containing words usu. alphabetically arranged along with information about [them] . . .”. Although dictionaries usually provide information about the words used in many fields of knowledge, they can also be limited in scope. Similarly, although glossaries are often arranged alphabetically, they may also be organized systematically. The formal distinction between alphabetical and systematic works is the one I want to stress. Accordingly I want to narrow the definition of ‘glossary’ to use it, as a neosemanticism, in this context, to mean “a collection of terms that is both limited to a special area of knowledge and also arranged systematically”. By contrast, the word ‘dictionary’ will be used for any collection of words that is arranged alphabetically, whether its scope be narrow or broad.

Both glossaries and dictionaries contain paragraphs which provide information about words and their meanings – or concepts and their terms. Such paragraphs, in a dictionary, are called “entries”, and each entry begins with an entry word, and is followed by various kinds of information, including definitions for all the relevant senses of the entry word. By contrast, the paragraphs found in a glossary may be called “records”, and each record contains the definition of one, and only one, concept together with the various terms that are used to designate it. Fundamental structural differences follow from this distinction. It will help us to keep them in mind if we use ‘entry’ only for the paragraphs contained in the body of a dictionary, and ‘record’ for the paragraphs given in a glossary – bearing in mind that both of these words are polysemous and have various other

meanings in fields of interest to possible readers of this paper.

Glossaries have other properties that are important for present purposes. Since they are, by definition, restricted to a specialized subject field, we can say that glossaries typically contain a relatively small vocabulary and set of concepts — at least small by contrast with the contents of most dictionaries. Glossaries also require indexes so that users can quickly locate the records they may want to find. I believe that if glossaries with these basic properties were generally available, they would enable us to solve many of the problems posed by Machlup and Baldwin — for reasons to be discussed later. Here let us say a bit more about the process of preparing glossaries.

### 2.1 *The Glossographic process*

Whereas dictionaries are typically prepared by specialists (lexicographers) for sale to an audience (market) and appear as publications which are relatively costly, glossaries are compiled by experts in the subject fields which they cover, and are relatively inexpensive. If one invests in a copy of the *Oxford English Dictionary* or W3, one will not soon want to buy another copy, nor can publishers afford to revise and update big dictionaries at frequent intervals.

By contrast, glossaries can be frequently revised and distributed. However, because their compilers are subject specialists, they lack expertise in the structure and design of glossaries as such. Consequently no profession of “glossography” has arisen that could be compared to the profession of lexicography<sup>2</sup>. This means that “glossographers” (those who actually prepare glossaries) lack guidance regarding the methodology of glossary preparation. They know a great deal about the concepts and terms used in their own subject fields, but they have little or no knowledge about the preparation of glossaries, a different kind of field that we may call “glossography”.

### 2.2 *The Relevance of terminology*

Fortunately, however, there is a body of experience that is relevant to our needs — it provides much of the data and guidance required for the development of glossography. This experience has been gained by a technical committee on “terminology” of the International Standards Organization (ISO/TC37). Unfortunately this experience has not been appreciated by social scientists because they resist the norm of “standardization” implicit in the fact that anything sponsored by the ISO necessarily presupposes some kind of effort to “standardize” things.

Social scientists will find, nevertheless, that they can use a great deal of the work sponsored by ISO/TC37 and made available through the good offices of INFOTERM, a UNESCO-sponsored clearing house for terminological information located in Vienna. TC37 offers standards for the preparation of glossaries. These standards normally presuppose the importance of having “preferred terms” for any given concept, but this is not a necessary condition. Indeed, glossaries suitable for use in the social sciences should, in my opinion, focus primarily on the distinctive concepts of a subject field and report all the terms in use for each such concept. It is suspected that the availability of such glossaries will, by an evolutionary pro-

cess, lead users to agree among themselves on the most convenient terms to use for any given set of concepts. However, there is certainly no need to impose on users the preferences of a glossary’s compilers.

### 2.3 *Continuing Process*

We must not think of a glossary as simply a kind of publication — a book or document that may be held in one’s hand. Rather, it is a continuing process that leads to the frequent revision of texts, and hence to a succession of editions that permits the addition and deletion of concepts and terms so as to reflect the requirements and practices of a discourse community. Consequently, any glossary should evolve in close communication with a user community that also generates its contents.

The technology of glossary production should be up-to-date, making use of modern facilities for rapid information retrieval as they are found in automated terminology banks. This is not the place to discuss the details of structure and operation of terminology banks. INFO-TERM, and the newly created network of terminology banks, TermNet, can provide both the information and guidance that we require. However, if a glossary is rooted in a terminology bank, then it becomes possible (in principle) by means of remote access to computing centers, via utilities such as TELENET, to interact with the data base by means of any office terminal. No doubt there are still practical and legal obstacles to be overcome, but I believe all the technological problems have been solved. Accordingly, if we know what we want and provide convincing arguments for it, we should be able to gain access to the necessary technology and resources, at least on a pilot project basis.

The availability of a terminology bank for a glossary would, of course, enable interested specialists to keep up, on a day-to-day basis, with innovations and revisions. Others, whose interest might be more marginal, should be able to interact more or less actively by receipt of frequent print-outs from a terminology bank that would, in effect, create new “editions” of a glossary — perhaps also in various formats.

### 2.4 *Interactive Design*

Another essential feature of glossary design requires the identification of an interested discourse community. The usual published format of a dictionary presupposes, by contrast, the marketing of a commercial product to a self-selecting audience. Glossary design, however, starts with a recognition that large numbers of organized discourse communities in the social sciences already have their own communications channels, providing thereby the requisite framework for interactive glossary development. The organs of communication available to such communities include organized associations, conferences and seminars, journals and newsletters. An effective glossary program should evolve in such contexts. Above all, newsletters and journals reflect and create the most strategic networks. Their editors should by all means play a leading role in the development of glossary projects or programmes for their fields of specialization.

The value of glossaries, indeed, depends on their being continually interactive, preferably though not necessarily based also on the use of an automated termino-

logy bank. The most important element, however, is the continuing relation of glossary users with those who take responsibility for maintaining the system. Unfortunately, the word 'glossary' occurs only as a noun, but we need a word-form that is a verb in order to express the kinds of activity identified above – an activity that would produce a continuing series of glossaries as its manifest function.

If we can agree to use 'glossography' as the name for an activity leading to the production of glossaries, and 'glossographer' as the name for persons engaged in this activity, then a suitable designed term for the process is 'glossograph': to glossograph is to engage in the continuing interactive process of recording and developing the concepts and terms used in a subject field. By analogy, this word can be used both as a noun and a verb, just as we use 'photograph', 'autograph', and 'lithograph' in both parts of speech. What we require, then, is not just the production of glossaries but rather, and more ambitiously, the institutionalization of glossographing as a continuous program for scholarly associations. Every Association belonging to the International Social Science Council – plus associations in other fields, such as the information sciences – could surely benefit from the organization of glossographic programmes.

### 3. Utilization

Let us now examine more closely the claims made above concerning the relevance of glossaries (glossographing) to the solution of problems such as those identified in the writings of Baldwin and Machlup.

Consider, first, that the semantic overloading of key words used in the social sciences is more an effect than a cause. When we treat this phenomenon of term overloading as a cause of confusions and of ambiguity in scholarly communication we find ourselves trying to handle the problem by sorting out the established meanings of words – a process referred to as "reconstruction" in many COCTA exercises. Although this approach no doubt has remedial effects after the damage has been done, it sometimes also unintentionally adds to the overload problem by inventing new concepts through term explication. Like an aspirin, it may alleviate the headache without treating its causes.

#### 3.1 Concept innovation

When we look at term overloading as an effect, not a cause, we have to ask what scholarly activities lead to this phenomenon. Then we see that the emergence of new and more precisely defined concepts in any specialized subject field necessarily generates a need for new terms. However, we do not think of concept generation as a "problem" because, especially if these concepts help us formulate and test useful and important propositions, they are welcomed. Indeed, without new concepts, science could not grow. Moreover, as the social sciences seek to broaden their scope to cover all the countries or societies of the world, they need new, less culture-bound concepts for general use – plus more culture-specific terms for each country or region under analysis.

The problem, therefore, arises not so much from the generation of new concepts as such, but rather from the

difficulties involved in finding suitable, unambiguous terms for each concept. As noted above, when the terms for new concepts are designed, as they typically are in the natural sciences and technological fields, they usually take the form of neoterisms rather than of neosemanticisms. Although this presents a learning problem for the novice, it leads to unambiguous communication and the ready recognition of new concepts by specialists.

Although Fritz Machlup calls for this procedure to be used also by economists (and other social scientists) the fact is that they typically eschew neoterisms and resort instead to neosemantic solutions for the communications problems posed by concept innovation. The result, of course, is to multiply the meanings of familiar words, leading to what Machlup calls the "corruption" of language and resulting "confusion". Explication, of course, is a further consequence of this phenomenon. As the explication of terms generates even more new concepts (however unconsciously) the ambiguity of words used in specialized senses increases, and the need for further explication grows, thus giving rise to a vicious circle. We can now see why the attempt to cope with term overload by explication is more likely to aggravate than to solve the problems caused by an inadequate supply of terms for a growing number of concepts.

#### 3.2 Special/Ordinary Language Relations

A further complication arises from the use of neosemantic terms that needs to be understood. To explain this point, we need to make a distinction between "ordinary" and "special" languages. The English language, as reported in Webster's dictionary, is an "ordinary" language. Such ordinary languages – German, French, Russian, Japanese, Arabic, etc. – provide the framework within which special languages evolve. These are the languages used by specialists to communicate the carefully defined concepts required in their work. The distinguishing property of a special language is its technical terms, i.e. words that communicate a carefully defined sense when used in that language<sup>8</sup>.

Sometimes the sense of a technical term in a given special language is almost the same as a sense of that word in ordinary language. In this essay, for example, I am using 'glossary' in a sense that is consistent with, but narrower, than its ordinary language use – a result of adding to its dictionary definition a restriction that the contents of a glossary must be classified. One could, of course, call the same concept a "classified glossary", but its opposite, an "alphabetical glossary", is a dictionary. Since we need to use this concept frequently, it seems worth the effort of re-definition in order to have a simple term, a neosemanticism, for the central concept of the paper. Any reader who dislikes this terminological solution and prefers a neoterism, is invited to suggest one. I am afraid that if I offered one, it would be even more strongly resisted. Of course, the syntheme, 'classified glossary', is intrinsically acceptable, but so cumbersome that its frequent repetition would surely prove wearisome.

The passage of an ordinary language word, like 'glossary', into a special language, where it acquires a more narrowly defined meaning, is a common phenomenon. Another example is 'explication' which has been given a

more restricted meaning in the context of this paper than it would have in ordinary usage. Of course, words also pass from special into ordinary language usages. 'Bureaucracy' is a good example. Coined, originally, to designate the concept of a political system dominated by officials — in parallel with monarchy, aristocracy, and democracy — the word came, in popular usage, to refer to the deprecated characteristics of officials as a class. Subsequently, in some sociological usages, the derivative ordinary language meaning of 'bureaucracy' re-entered the vocabulary of specialists as a technical term for bad administration<sup>9</sup>.

Words also ricochet between ordinary and special languages in the other direction. 'Culture' is a good example — it started in ordinary language, but entered the special language of anthropology as a neosemanticism. However, it has now bounded back into ordinary language to such an extent that the average English-speaker is as likely to use 'culture' in one of its anthropological senses as in its original meaning. Another example is 'rationalize' that has rebounded from psychology to ordinary language, from which it was originally taken for use as a neosemantic term.

We could refer to this phenomenon of the transfer of meanings between ordinary and special language uses as "semantic passing". Clearly, the more specialists rely on neosemantic rather than neoteric solutions to the problem of term design, the more they encourage semantic passing. Much of what Machlup calls the "corruption" of language can be attributed to this process.

If specialists could keep their discourse to themselves, they would not contribute to this problem. Moreover, to the degree that they employ neoterisms rather than neosemanticisms, the possibility of passing is substantially reduced. For this reason, of course, the text of articles published in journals of chemistry or physics, while opaque to non-specialists, seems precise and intelligible to specialists. (Some specialists appear to dislike the idea of glossaries, in principle, because they think that if their neosemantic terms are sufficiently baffling to outsiders, they can privatize their own special language. However, I find this an unacceptably elitist solution.)

By contrast, the special languages used by social scientists cannot be insulated from ordinary language. Above all, since their subject matter concerns human behavior, many words found in ordinary language appear at first to be suitable candidates for redefinition to name the new and carefully defined concepts of a given social science field. Hence reliance on neosemantic terms seems preferable to the use of neoterisms. However, just because these re-defined words are familiar, non-specialists are likely to think that they should be able to understand material published in journals of sociology, political science, economics, or psychology. This sense of confidence is enhanced not only because the words in use are familiar, but also because the phenomena treated by social scientists lie within the experience of ordinary readers. One result is the increased passage of words between special and ordinary language, and their unavoidable "corruption" in the process.

Another result is the sense of growing frustration and alienation experienced by readers who think they should be able to understand a text whose words are familiar, but find they cannot because these words are used in

new senses, i.e. as neosemanticisms. A different kind of frustration afflicts social scientists who find their re-definitions of words do not stick — they slide around elusively and seem to defy stabilization.

### 3.3 Glossaries as a solution

If this analysis of the roots of the problem can be sustained — and I think it can — then we may discuss possible solutions. I propose that glossaries — especially in the interactive form of a glossographing program — will provide, if not a definitive solution, at least a giant stride in the right direction. Let us assume that, through glossographing, we will generate frequently updated reference tools that can be used by anyone seeking to write, read, or retrieve information in a given subject field. For the non-specialist reader, this tool will facilitate the interpretation of words whose sense, in context, appears to be out of focus. Frequent use of the glossary of the subject field should enable users to learn the precise meaning of technical terms — whether or not the words are familiar. If the definition of a term makes use of words that also have special meanings in the field concerned, the user must be guided to their definitions — an important reason for collocating closely related concepts (by a classification scheme) rather than scattering them at random according to the alphabetical order of their terms.

More importantly, however, glossographing meets the needs of creative scholars who must design terms for new concepts. The first question to arise whenever anyone claims that a concept is new concerns the validity of the claim. If no glossary is available, the only way to establish the newness of a concept is to make a literature search. This can be very costly in time and energy but, more importantly, how does one ever prove to skeptics that the search has, indeed, been thorough and that some writer has not already put forward the allegedly new concept? Perhaps a term for it has already been coined. (I needed the concept of a "neosemanticism" before Henry Burger called my attention to a source showing that someone else had already conceived of the concept and coined a term for it — but I would not have found this source by my own efforts.)

By contrast, if an authoritative glossary for a subject field is available, then it becomes a simple matter to demonstrate the newness of relevant concepts for use in that field. *Prima facie* proof of a concept's novelty in a field can be supplied by showing that it is not included in its glossary. Acceptance of the new concept by members of the innovator's discourse community is also enhanced when it becomes possible to submit information about it as an addition to the glossary's terminology bank. As this information is reviewed by others working in the subject field, it also becomes possible for anyone to submit supplementary information indicating when and where the concept has previously been introduced to the literature, if indeed it has. As new glossary print-outs appear, all specialists in the subject area concerned quickly gain access to the new concept and its justification.

The problem of naming concepts can also be tackled glossographically. Before proposing terms for a new concept — perhaps both in the form of a neosemanticism

and a neoterism – the author would review the stock of terms currently in use for other concepts used in the same semantic field or special language. Consequently authors could avoid using established terms for new concepts that are only marginally differentiated from those already in use. Thus the problem of term overloading could be solved.

### 3.4 Using univocal and multivocal terms

The technical meanings of a term can be disambiguated in any given context of use. The consequences of this fact have an important bearing on the design and use of glossaries. When the same word is used in different fields for closely related concepts, one may specify the field of use in order to disambiguate the term. A simple example will clarify this point. 'Digit' occurs in arithmetic to designate any number used as an element in an integer. In library science, however, this concept has been modified to include the elements in a notation, and since both letters and numbers are so used, a "digit" can be a letter. In some contexts of use it would be important to know whether or not a letter could be counted as a digit, and one could easily disambiguate the word by specifying that it is being used in a "mathematical" or "classificatory" sense.

So long as the concepts included in a glossary are distinctive for its field, terms can be used unambiguously within that field regardless of how many meanings they have in other fields or in ordinary language. Thus within the context of mathematics, or of library science, 'digit' is equally unambiguous, although the word has different meanings in each field. Sometimes, however, a technical term has more than one meaning within the same subject field. To illustrate, let us first consider the example of a word – 'stem' seems appropriate – that has a technical meaning in lexicography. Although this word is a polyseme, having many meanings, it has only one meaning in a special language and so it can be called "univocal" in that language.

By contrast, a word like 'base' has more than one meaning in lexicography. No doubt lexicographers can easily determine which of its technical meanings is intended from its contexts of use – but care must be exercised, and it might be advantageous to have a synonymous term that is univocal for each of the meanings of 'base' in lexicography. I shall refer to technical terms like 'base' as "multivocal", meaning that they have more than one sense within a special language or subject field.

Note the important distinction between "polysemous" and "multivocal" that is made here. Any word that has more than one sense, in all possible fields, is polysemous, but it is multivocal only if it has more than one meaning in a given subject field. Consequently a polyseme may be multivocal in one field, but univocal in another. Words that have only one possible meaning, in all fields of use, are "monosemous" – but precious few words have only one meaning. Certainly there is no need for a univocal term to be monosemous. For our purposes, thinking about special languages and the design of glossaries for them, what is important is the univocal/multivocal distinction. Whether a word is monosemous or polysemous is quite irrelevant.

The importance of the distinction becomes evident when we think about the various terms that can be used, synonymously, to designate a single concept. It often happens that a simple and very familiar word can be used, conveniently, to represent more than one concept in a given field. Accordingly, this word is a multivocal term. Any term that might be used to designate only one of the concepts (a univocal term) would, perhaps, be awkward, cumbersome, or hard to remember. However, if such a term were available, then it would be easy to disambiguate the multivocal term by substituting the univocal one.

To illustrate this point, consider the material we have taken from Baldwin's essay on 'dependency'. We have seen that it has two important senses in political science. Consequently this word is multivocal. However, the more cumbersome syntheses, 'sensitive dependency' and 'vulnerable dependency', can be used univocally for each sense. Accordingly, when the context shows which of the senses is intended, it is convenient and unambiguous to use the multivocal form, 'dependency', but when the appropriate meaning is not apparent, then one of the longer (univocal) terms can be substituted.

This may all sound somewhat simple-minded when spelled out, yet in practice the lack of glossaries makes this advice difficult to follow since one cannot easily determine what senses, in a given field, have already been assigned to a given term. The availability of a glossary, however, makes the facts known, thereby enabling anyone proposing a new concept for use in the glossary's subject field to avoid using a word-form that has already been assigned another meaning in the same field. This also makes it possible to protect the status of univocal terms. In general, one might, suppose that new meanings can be assigned to multivocal terms – using them neosemantically – but only on condition that a univocal synonymous term is provided. By contrast, if a given term is used univocally in a special language, then it should not be appropriated for a new meaning since, in doing so, it would become multivocal, and one would then have to find a new univocal term for the concept that had been "ambiguated", if we may coin this term to refer to what happens when a term that has only one meaning gains another that can easily be confused with the first.

To summarize, let me say that one of the objections frequently raised against glossaries is that they may freeze the vocabulary of a field and hamper innovation. Actually, I believe, a glossographic program should have exactly the opposite result: it should greatly facilitate the introduction of new concepts within a given field of knowledge, and make it easier to choose appropriate terms for them (both multivocal and univocal terms, incidentally) without corrupting the special language concerned by the process of giving new meanings to its univocal terms.

### 3.5 Additional benefits

The most important function of glossography, then is the support it gives to the invention and recognition of new concepts and terms. This provides a foundation for scholars doing research and writing within a specialized field of knowledge. I believe this is the essential and core function of glossography. However, glossaries have a

multi-purpose character, and we need to acknowledge their other uses.

We have already noted that glossaries can provide better access to the literature of a field by anyone seeking to learn its secrets, and it can be useful to outsiders attempting to interpret (or "translate") a given text. Let us now mention some other important uses of glossography.

One of them arises in the field of information retrieval. Clearly, the more unambiguously writers convey their ideas, the easier it will be for indexers to describe them in retrievable form. This will be true whether one indexes by key words in context, or by means of a controlled vocabulary.

When indexing terms are taken directly from texts by means of an uncontrolled vocabulary, it will surely be important to determine if possible which of various possible senses of a word is intended. When authors within a given subject field use an accepted glossary as a daily reference tool and we assume that they want to communicate as unambiguously as they can to members of their own discourse community, then we may also assume that their intended meanings can be construed by reference to the glossary of their field. Moreover, users of a retrieval system who know this fact can find in the glossary the different synonymous terms for each concept, and they can all be used in any given search. Otherwise a search on only one of the terms used by specialists for a given concept will surely miss important documents.

If a controlled vocabulary is used, then glossaries will also facilitate their preparation. Let us first suppose that a thesaurus is being prepared to guide the indexing of documents in a given subject field. A thesaurus can include all the terms presented in a glossary. However, when several terms are used synonymously for the same concept, one of them may be selected for indexing purposes, but all the others should be cross-referenced. Also, each index term should be univocal. Specialists will then know that any accepted term that they use for a given concept will clue them to the one that has been selected for use in the controlled vocabulary. The authors of a glossary might well indicate which term for a given concept they prefer to have used for indexing purposes, but I do not think that this is necessary. Indeed, any univocal term for a concept should prove acceptable. Multivocal terms do not provide acceptable indexing terms, but they should be crossreferenced to each of their senses, within the field concerned. For example, a thesaurus entry for 'dependency' might read:

(2) dependency; use 'sensitive dependency' or 'vulnerable dependency'.

Users of the retrieval system would then be forced to select one, or both, of these univocal terms, and indexers would also have to decide whether to use one or both of them to index a given document.

Normally, of course, a thesaurus is designed for use in the indexing of many subject fields at once. Consequently, the potential ambiguity of terms becomes extremely troublesome. Information about the hierarchic position of a term — its hyperonyms and hyponyms — can be clarifying but not decisive. To the degree that terms are univocal in a specifiable subject field, as shown in a glossary, specification of the relevant field permits more

precise retrieval. If — to use again the example of 'digit' — the scope of a thesaurus were to include both mathematics and librarianship, then the index term 'digit' could be entered twice, once marked as a term in mathematics, and again as a related term in librarianship. The use of code numbers or abbreviations would simplify such marking.

Another important use of glossaries can be added. Outsiders — such as foundation officers, university administrators, and potential students of a field — sometimes want to assess the status of work in a given subject field, asking how well developed it is. No doubt they will need to rely on many sources of information, but it would surely help them to have access to a good glossary by means of which they could judge how clearly its special concepts have been defined, and how much agreement exists on the terms used to designate them. In general, we would expect that the more mature a subject field, and the greater the agreement among its specialists on the approaches or paradigms appropriate for the field, the greater would also be the agreement among these specialists on the terms to be used for its concepts. A glossary of the field provides telling evidence, therefore, of the current status of work in that field.

#### 4. Multi-lingual and Multi-field Dimensions

The scope of any single glossary is restricted, by definition, to a single subject field. I believe it should also be monolingual if the glossographical approach recommended in this paper is to prove feasible. However, questions will properly arise about the relation of a monolingual and mono-field glossary to the handling of comparable data in other languages and fields.

The answer, I believe, can be found in the design features of a glossary. A study of the design of glossaries is available separately<sup>10</sup>. Here only one feature of the design has to be explained. This concerns the structure of glossary records. In the usual alphabetical arrangement of dictionary entries, a headword or entry word comes first, followed by one or more definitions for the different senses of the word. This is also true of specialized dictionaries, even when they are called "glossaries". By contrast, the record structure suitable for (classified) glossaries reverses this sequence. First, there is a defining text that identifies one and only one concept, followed by a set of terms that can be used to designate that concept, i.e. its "synonymous terms". This structure permits one to identify, systematically, not only the terms that can be used univocally for a concept, but also, and separately, those that are multivocal. This format also permits a glossary to specify "related terms", i.e. those that can be used to designate similar, but not identically the same, concepts<sup>11</sup>. An indexing number or notation is also required for every glossary record so as to facilitate both retrieval and the systematic arrangement of records. An alphabetical index is needed so that users can quickly and easily locate every term presented in the glossary — including both synonymous terms (whether univocal or multivocal) and also related terms, of which there are two important kinds: translational and multifield.

##### 4.1 Translational terms

Among the related terms, we should emphasize translational equivalents. In an English language glossary, for

example, the definition of "vulnerable dependency" would be followed, in the related term category, by whatever expressions in French, German, Russian, Japanese or any other relevant language, had the most similar meanings. Users familiar with a particular language — German, for example — would then go to a corresponding monolingual glossary (or dictionary) to determine the precise meanings of this translational equivalent.

The ultimate ideal toward which we should be working, I believe, involves groups of scholars working in parallel, in different languages, on glossographic programs for any given subject field. To give a concrete example, let us suppose that there is interest in a field such as "ethnic studies" among scholars working in English, French, German, and Russian. Those interested in this field in each language would, working independently, start constructing a glossary for the concepts used in their own research. As they progressed, they would share their results. This would permit those working in English to discover what terms in German, French, and Russian come closest to expressing the concepts they have identified in their own language. They might well discover, of course, that no equivalent concept exists in one or more of the other languages — and they will surely also discover that there are, in these languages, concepts not included in the English-language glossary.

At the next stage of operations, this information would be exchanged, and specialists in each language would have an opportunity to decide whether or not missing concepts ought to be added — but only if the scholars working in the language in question actually found them to be useful. If not, they could nevertheless include, as a footnote, the information that a concept which had so far not been used in the English-language inventory had been used in the Russian or German records. Becoming acquainted with this fact, some users of the English-language glossary might decide to introduce the new concept into their own work — especially if they could also read the materials published in the other language where the concept had been used. There is, incidentally, a body of theory and practice relevant to the selection of new terms for concepts already established in a foreign language. This theory would be helpful in work on multi-lingual glossographic programs, but we cannot take up the subject here. Suffice is to add that, at every stage of operations in continuing multi-lingual-cooperative glossography, each mono-lingual glossary would immediately prove valuable to specialists in the field concerned — even though they knew it was an interim text, subject to continuous revision.

#### 4.2 Multi-field linkages

A similar procedure should be adopted for glossaries in related fields. Suppose, for example, that we were preparing one glossary for international economics, and another for international (political) relations. In both fields a concept might be designated by the word, 'interdependency'. Presumably the concepts would be similar or closely related — as they are, in this case, according to Baldwin (p. 477–486). However, the precise connotation of the economic concept of "dependency" is not just the same as the cognate concept of political "dependency". Accordingly, if we had glossaries in these two

fields, it would be useful to add to the international economics glossary, in the space for related concepts that followed the definition of "economic dependency", a term for the nearest equivalent concept in international politics, perhaps "political dependency". If we assume, now, that separate glossaries for international politics and international economics are available, any user wishing to compare these usages could easily do so. Meanwhile, however, it would also be clear that, without reference to what economists mean by "dependency", political scientists could be clear when communicating with each other about what 'dependency' means to them.

#### 4.3 Ordinary language connections

For the general reader a different order of questions may arise. Anyone who knows what 'dependency' means in ordinary English should exercise great caution when approaching the literature written in a special language. Words of this kind are likely to have special meanings, whether by explicative or designed innovation, but they will usually not be so marked as to call attention to this fact. However, if a specialized glossary of the field in which a document is written could be found, it would help the outsider discover what specialists mean when they use ordinary language words as technical terms, i.e. neosemantically. Clearly the risks of ambiguity are much less in the natural sciences and technology where outsiders would find neoterisms that are completely unfamiliar, and would therefore have to consult a glossary, dictionary, or text-book in order to learn the meanings of the unfamiliar words.

Social science writings, by contrast, appear to outsiders to be written in a kind of "aesopian" language, namely a language in which many familiar words have a hidden meaning. Until glossaries are available, and unless the outsider is willing to seek help in the interpretation of social science texts, scholarly work in the social sciences will continue to exasperate and baffle non-specialists to a much greater degree than do works written in the natural sciences and technology where the use of neologisms immediately alerts non-specialist readers to the need to learn new concepts and terms.

This point requires some qualification because of the understandable tendency of some social scientists to write essays designed to explain their findings to non-specialists. No doubt natural scientists also do this but it is easy to distinguish between their "popular" writings that are prepared for non-specialists, and their "technical" writings intended only for intra-community use. Social scientists who want to reach non-specialists should avoid using ordinary language words in a special language sense if they want to be understood by a popular audience. However, they will face difficulties that have to be better understood.

For example, although it is true that many new concepts can be explained in ordinary language words, the explanation takes space and a technical term saves space. To illustrate, as we have seen, the idea of "a term that consists of more than one word" can be designated by a single word, 'syntheme'. If one were writing for a popular audience and found that the concept of a syntheme had to be used frequently, then it might be worth while to introduce and define this novel term. Of course, if it

only came up a few times, then the explanation of the idea could be used each time.

If, instead of a neoterism, like 'synthème', a familiar word (a neosemanticism) had been used for a new concept, then more subtle problems might arise in a popularizing context. To take a related example, lexicographers use 'word' – as in "headword" and "entry word" – rather broadly in a sense that includes not only word-forms, but also multiword lexical units (synthèmes), and bound forms, like 'anti-' and 'hyper-'. I suspect that even if a writer were to explain that 'word' would be used in this broad sense, contrary to ordinary language usage where it usually means only a word-form or a paradigm, it would be difficult for most readers to remember the unusual meaning arbitrarily assigned to the word, 'word'. (I expect social scientists will have trouble with this sentence because for most of them a new, special language meaning of 'paradigm' has replaced its ordinary language senses.)

My reason for calling attention to these special traps that lie in wait for scholarly popularizers is merely to indicate that glossaries could serve an additional useful function if they were to include a third category of related terms. This would be a kind of "translational" equivalent in ordinary language. The question to be answered would be what expression, already available in ordinary language, comes closest to designating the defined concept. Anyone accustomed to using the technical terms of a subject field may not readily think of the nearest equivalent term in ordinary language – hence the addition of approximations would probably also be helpful.

If ordinary language approximations were included in glossaries, this would help scholars write for general audiences. However, if glossaries became so widely available that writers could count on their being available, at least to the "educated reader", then another technique could be used. One might announce at the beginning of an essay that its contents were intended to be intelligible to any well informed person who also had access to the glossary of the field in question. Then, even though some of the words used in the work had been invested with a special language meaning, they could be so marked that readers would be alerted to this fact and, if they did not already know the word's special meaning, they would be able to look it up in the glossary. We may assume that libraries would buy glossaries, just as they now buy dictionaries and other reference works. Readers could consult these copies, but if they found themselves making frequent use of works in a given special language field, they might well want to secure a personal copy of its glossary, and we may assume that the cost would be so modest as to make this quite feasible.

Having said all of that, I want to close by reasserting the basic position of this paper. Glossaries are fundamentally important because of the contribution they can make to good scholarship, to the development and clear

presentation of ideas in unambiguous language. A special reason for glossographic activity arises from the need to accommodate conceptual innovation, and to support such innovation by design, while discouraging unconscious explicative innovation. Many additional uses and benefits from glossography will follow from the establishment of glossaries. I hope that this essay will contribute toward this goal.

## References and Notes

- 1 David A. Baldwin: "Interdependence and power: a conceptual analysis". *International Organization*. 34.4 Autumn 1980, p. 471–506.
- 2 Giovanni Sartori (Ed.): *Key Concepts in the Social Sciences*. [tentative title] will contain essays demonstrating this fact in some detail. I have prepared a paper on the many meanings of 'development' to be included in this symposium.
- 3 A.L. Kroeber and Clyde Kluckhohn: *Culture: A Critical Review of Concepts and Definitions*. New York: Vintage, 1963.
- 4 Harold D. Lasswell and Abraham Kaplan: *Power and Society: A Framework for Political Inquiry*. New Haven, Conn.: Yale University Press, 1950.
- 5 Fritz Machlup: *Essays on Economic Semantics*. Englewood Cliffs, N.J.: Prentice-Hall, 1963. p. 12.
- 6 'Neosemanticism' is admittedly a neoterism, but not my coinage. I owe the term to Henry Burger, who called my attention to an essay in *American Speech* (55. 1980. 184) which introduces it.
- 7 This point is discussed at some length in my essay, "The Design of glossaries: an example from 'networking'". Copies are available from the ERIC Clearinghouse on Information Resources, Syracuse University, School of Education, Syracuse, N.Y. 13210, U.S.A. – or from the author. See also the report to UNESCO on the INTERCONCEPT pilot project, entitled, *Toward a New Paradigm for Social Science Glossaries*. UNESCO. 1981, and my paper "COCTA-glossaries: the \*ana-semantic\* perspective". In: *Proceedings of the CONTA Conference*. Bielefeld 1981 (in press).
- 8 Juan C. Sager, David Dungworth and Peter F. McDonald: *English Special Languages*. Wiesbaden: O. Brandstetter Verlag, 1980.
- 9 "Shifting meanings of the term 'bureaucracy'" *International Social Science Journal*. 31.4, 1979, p. 563–584.
- 10 See "The Design of glossaries", op. cit. note 7.
- 11 The concepts of "synonymous term" and "related term", as used here in a glossographic context must be distinguished from the meanings of "synonym" and "near-synonym" as used in lexicography. In the latter usage, words, as lexical units that have the same or similar meanings, are designated. By contrast, in the former context, one refers always to a single defined concept (meaning, sense). If different words can be used in appropriate contexts to designate precisely the same concept, then they are synonymous terms. Thus, in a glossographic context, the words, 'expression', 'synthème', and 'multiword lexical unit' can be used as synonymous terms for a concept defined above in section 1.2. They need not be treated as synonyms, however. When words can be used in a glossographic context to designate concepts that are similar to each other – but not identical – then we may call them "related terms". Paradoxically, the same word-form can appear as a related term in a different subject field or special language. For example, 'digit' in mathematics is a related term to 'digit' in classification. To refer to the different senses of a single word, like 'digit', as "synonyms" or "near-synonyms" would just be confusing.