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I

It may seem strange that I should be querying in my title the amount of attention given to vocabulary work in LSP. After all, lexical study has been central to the massive qualitative and quantitative development of LSP that has occurred over the last decade or so, and this centrality of lexis is clearly reflected in the papers presented to this year's CILA Colloquium. Further, there are quite a number of distinguished specialists working in LSP and in allied fields such as technical translation, terminology and special purpose lexicography whose primary professional concern is with lexis. And from another viewpoint, there is, I believe, a general consensus that lexis is central to variety differentiation; everybody agrees that «special languages» can be differentiated on the lexical level, however much individuals may disagree as to whether specific language varieties may be also marked by special syntactic, rhetorical or discoursal features. It might seem then that my complaint about «neglect» is misplaced. In fact, I would not wish to claim that lexis has not been studied – studies of specialist lexis as part of the linguistic system (or as identifiable sub-systems) remain an important component of Applied Linguistics research, especially on the continent of Europe. However, I would observe that a predominating characteristic of such studies is that they are *language-centered* in research and *product-centered* in their public expression. The aim of this type of work is to produce documents, such as specialized glossaries or displays of lexical fields, and these documents are evaluated primarily in terms of the contribution they make to our store of linguistic knowledge. There exists then a well-established scholarly tradition of lexical studies; what is missing is a parallel vocabulary research tradition, equally appropriate for Applied Linguistics, that is *learner-centered* rather than language-centered and that is *process-centered* rather than product-centered. Apart from pioneering investigations such as OPRZ's «Technical Dictionaries: Testing the requirements of the Professional User»¹, the European tradition in this field has tended to be insufficiently interested in interactions between reference works and their potential customers. As a consequence, there has grown up a belief – and a belief not entirely untinged with both vanity and piety – that by simply *producing* an LSP reference work most of the vocabulary problems of that LSP group of learners can be solved. We are in danger of deluding ourselves that static, non-interactive and typically long and

complex presentations of lexical content, such as lists of scientific prefixes and suffixes, are our best or our only weapon in the pedagogical vocabulary battle (apart, of course, from the teacher's role as a self-propelled missile-launcher firing off at any unknown lexical object the instant it appears). Even if we attempt to structure our classroom vocabulary work within a Presentation-Practice-Production methodology², this attempt is often suborned by the sheer volume of lexical data available at the presentation stage so that we tend to lose sight of the LSP learners' capacities and, more particularly, of their continuously evolving needs and expectations. I further suspect that the rather onesided interest that I have been alluding to is a consequence of identifying vocabulary studies as being within the field of Applied Linguistics seen as an independent rather than an inter-disciplinary study, and not as Linguistics applied to the realities of the problems facing the different groups of specialized communicators with whom we are professionally involved.

However, if I have just confessed to some disappointment at both the paucity of methodological experiment and initiative and the neglect of user interests in the European tradition of LSP vocabulary work, this is a minor emotion compared to the dismay I feel when we turn to the products of the Anglo-American/Third World LSP tradition, for here we tend to find that the lexical level itself has been neglected. As readers will know, one of the two major ESP enterprises of the Seventies was the *Focus* series edited by ALLEN and WIDDOWSON³ and these volumes can be reasonably taken as representative of the prevailing notional-functional approach to teaching materials. If we examine the *Focus* series, we can see that comprehension work on individual lexical items is largely devoted to developing in the learners the ability to process items such as *it*, *this*, *them* and so on. Although we can appreciate the innovatory character of this emphasis on reference and other discourse-cohering devices, we can now see that it was included at the expense of neglecting to ensure that the learners had a level of content vocabulary sufficiently high for them to undertake the relatively advanced reading tasks required of them. Indeed, there must be doubts as to whether anaphoric references are an FL *teaching* problem. After all, there is some reason to believe that all languages have roughly the same sort of devices, such as pronominal systems, for making anaphoric references, etc., and all languages use these devices to a roughly equivalent extent. Thus, if the interpretation of an instance of *this* or *it* is problematic, then it may well be so for all readers, whatever their knowledge of the language; i.e., the obscurity is as much a reflection of the lack of clarity in the text itself as of inadequate reading skills.

If we move forward and consider the two major multi-volume ESP courses to be produced in the last year or so, *Reading and Thinking in English*⁴ and *Skills for Learning*⁵, we can see that vocabulary development remains unfashionable. *Reading and Thinking in English* was developed in Colombia and the lack of attention to vocabulary in that context may be justified by the high percentage of cognate technical and semi-technical vocabulary between Spanish and English. However, this circumstance does not justify its continued omission in the International Edition, when long experience indicates that it is counter-productive to attempt to develop advanced reading skills on texts that contain even a single-figure percentage of words that are not known by the readers. Similar observations can be made about *Skills for Learning*. Although in this case, the «vocabulary problem» was eventually recognized, the relatively late incorporation of vocabulary work in the over-all design has meant that it is not fully integrated.

As Michael SWAN has remarked, the major protagonists in Anglo-American tradition seem to believe that ESP classes are composed of «linguistically-gifted idiots»; «linguistically-gifted» because the learners are supposed to know the meanings of all the words already, or to have magical powers of correctly guessing the meanings of words they do not know, whereas they are treated as «idiots» because their attention is continually being drawn to such points as that the initial sentence in the text they are studying is making an introductory statement. On the other hand, I suppose that if we give our LSP learners an elaborate special language reference work and then presume that thereby any vocabulary problems will disappear, we are treating those learners as «linguistically-backward geniuses».

II

In the remainder of this paper I would like to review some recent work on developing vocabulary knowledge in an effort to see how and where it might be used or adapted in LSP. The review is informed by the following assumptions:

- (1) Most LSP learners have, because of their profession or level of study, minds that are capable of analysis and classification. This capacity for mental organization should be utilized in lexical work both as a motivating factor and also because there is psychological evidence that schematized data is easier to learn and retain than data that appears arbitrary and disordered;

- (2) Most LSP learners have considerable insight into the cognitive and organizational structures of the subject or field they are learning a foreign language for, and this fact should again be utilized by the LSP teacher or course-designer;
- (3) The acquisition of a foreign language at beyond an elementary level at least can often be facilitated by presenting the learners with problems of various kinds;
- (4) The teaching of LSP lexis may be more successful if the acquisition of segments of technical or semi-technical vocabulary can be shown to have an immediate communicative purpose; in other words, there are «best times and places» for dealing with certain sorts of vocabulary issue.

If we consider the fourth assumption first, we can see that «best times and places» can be understood in a wide variety of ways. For example, we know that many LSP learners require a foreign language in order to conduct relatively stereotyped sets of procedures or transactions, such as in Air Traffic Control, or in sequences of commercial correspondence initiated by an enquiry and terminated by receipt of payment, or in processing instructions in Technical Manuals. Therefore, when HÜLLEN⁶ provides us with a componential analysis of the English verbs used in Air Traffic Control (*roll, taxi, drift*, etc.) we can see he is providing an analysis of greater potential rather than actual use for the ESP practitioner, for we can see that transforming this research into a sequence that reflects the algorithmic procedures used by air Traffic Controllers may suit our pedagogical purposes rather better. Similarly, we can see that impressive work by LEHRER⁷ on cooking terms may benefit from a comparable adaptation so that the Instructional verbs involved in (say) the humble gastronomic process of producing the British mashed potato are encountered in the order in which they are required:

peel-rinse-immense-boil-simmer-drain-mash-serve

A different kind of optimal placement can occur if we look for and utilize correspondences between lexis and transactions within the differing *genres* of a specialist field. If, for instance, we take the genre of the scientific paper and concentrate on the Introduction, research seems to show that about half of these introductions follow a four-part schema:

- Part 1: *Introducing the Research Field* (Lexis is an important aspect of LSP.)
- Part 2: *Describing Previous Research* (Previous research has described many aspects of lexical structuring.)
- Part 3: *Indicating a Gap in Previous Research* (However, few researchers have been interested in leading the learners to that structuring.)
- Part 4: *Introducing Present Research* (The aim of this paper is to do this.)

If we now examine how the Part 3 Negative Evaluation is realized in the corpus of Article-Introductions, it may come as something of a surprise to find that only about a fifth of these «Gap-Evaluations» are expressed by negative elements within the Verb Phrase, i.e. by *not* or its variants. Below are some typical (although simplified) realizations:

- (however), *little* work has been done on C.
- , *little* attention has been given to C.
- , *few* studies of C have been reported.
- , *hardly any* of the researchers in the field have investigated C.
- , most previous studies have *concentrated on* A and B.
- , research so far has *failed* to consider C in any detail.
- , the majority of the published papers have been *content* to examine A and B only.
- , previous researchers have *largely restricted* their enquiries to A and B.
- , C has been *neglected*.
- , *more* information on C is required.
- , our present knowledge about C is *very limited*.
- , there is a *conspicuous absence* of research on C.
- , the *lack* of information about C is serious.

This type of research finding offers excellent opportunities for communicative language teaching. In my own courses on Project and Thesis Writing, this is the «time and place» I choose for both revising the uses of *little, few, a few*, etc. but, more relevantly for this paper, for introducing and discussing «the lexis of negative import» because here we find the prime occasion in the difficult and complex communicative task of constructing a scientific paper for producing a well-considered and lexically-subtle⁹ negative or quasi-negative evaluation of research work.

A third way of integrating the learner's acquisition and appreciation of lexis into the content of functional and/or communicative language teaching is to consider the role of lexis as an instrument of cohesion. I have already referred (somewhat disparagingly) to the emphasis in the *Focus* series on anaphoric pronominal reference, but there is an aspect of cohesion that is essentially lexical, that is particularly prevalent in the expository and informational texts found in LSP situations, and which has been largely neglected (as far as I know) in ESP work, and, indeed, is given remarkably little attention in HALLIDAY and HASAN¹⁰ – lexical superordination or «summary words». Consider this passage¹¹:

«The students said they wanted more tests. *This demand* surprised the staff, but it was proposed that the number of tests should be doubled and given additionally at weekends. *These measures* went ahead and were watched with curiosity by the authorities. *This interest* sharpened when it was found that the students were eating very much more than usual. The discovery of *this phenomenon* caused people to ask whether the large increase in the intake of food was due to energy loss brought about by the continual test sessions, or to the fact that more tests were made for keener students with healthier appetites. *This speculation* continued for several days as more

tests produced greater consumption, but suddenly the situation worsened when the students began to attack the kitchens. The authorities answered *this crisis* by doubling the number of meals and increasing daily living allowances, but *these moves* in no way reduced the assault on all available foodstuffs. *This failure* to control matters caused great consternation, and rumours of food poisoning added to the panic. Finally, *the whole unfortunate chain of events* resolved itself, when the students fell into a deep exhausted sleep.»

Although the passage is obviously contrived, it does clearly illustrate the use of a subject noun-phrase beginning with «this» as a device for «getting out of one sentence and into another». Further, we can see that this device requires decisions along two dimensions. On one dimension, the writer has to decide how much of a «pick-up» from the previous discourse his or her reader is going to need. Compare, for example, these variations on the opening clause in the second sentence:

This surprised the staff
 This demand surprised the staff
 This demand for more tests surprised the staff
 This demand for more tests by the students surprised the staff².

Apart from this degree of «descriptive consideration» for the reader, the writer also has to select along the evaluative dimension by choosing an item from a lexical set that captures the precise interpretation of preceding events (either physical or non-physical) that he wishes to convey. We can see this if we now consider a second set of versions of the clause discussed above:

This request surprised the staff,
 This demand surprised the staff,
 This statement surprised the staff,
 This ultimatum surprised the staff.

Thus, I would claim, we have established a context in which we can demonstrate the importance of choice of «summary word» – and so increase motivation for the «Cinderella» aspect of language learning; in addition, we have found a context in which it is relatively easy to develop exercises and activities that will sharpen appreciation and expand knowledge. (For instance, are *measures* and *moves* interchangeable in the passage? If not, why not?) Moreover, there is some evidence that the sort of abstract vocabulary that typically occurs in lexical superordination is the sort of vocabulary that can be particularly problematic for many ESP/EAP learners¹³.

III

If we now turn our attention to the three other assumptions listed in the previous section, we can see that they will lead us to two suppositions. First, the LSP practitioner will find something of interest in such areas as collocational analysis and in componential analysis and lexical set theory; second, it is unlikely that the fruits of such research will be most effectively harvested if they are applied directly to LSP learning situations, notwithstanding the original researchers' instructions and expectations to that effect. In particular, there would seem a case for assigning a more creative role to learners or groups of learners so that they are directly engaged in analysing and classifying tasks.

A single instance from the collocational field must suffice. SPENCER for his handbook entitled *Noun-Verb Expressions in Legal English*¹⁴ established the relatively higher frequency of «collocational nominalizations» in legal textbooks than in other subject areas¹⁵. It is known that legal writers have a strong tendency to avoid – for reasons that need not concern us here – simple verbs like *state* and *apply* and to opt for nominalizations like *make a statement* or *make an application*. SPENCER's research showed that many of these nominalizations were sufficiently collocational or idiomatic to present a problem for inexperienced users of legal language. Thus we can attest *deliver a statement* and *submit an application* but not the converse. SPENCER's handbook contains an extensive but somewhat indigestible semantic categorization and listing of these expressions. The teacher of Legal English can mine this rich vein in many possible ways, only one of which follows:

Rewrite the following, replacing *make* by an appropriate verb from the box on the right. Work in pairs. Consult *Spencer* if in difficulty.

1. to make an accusation
2. to make an objection
3. to make a restriction
4. to make a rule
5. to make an application
6. to make a complaint
7. to make an order
8. to make a case for

impose
issue
level
lodge
lay down
present
raise
submit

The virtues of componential analysis – if handled discreetly – can be illustrated by a simple componential display that I have been using for about fifteen years (although for more than half that time I was not aware

that it *was* componential analysis!). Many of my students over these years have had problems with the correct usage of *at last*, *lastly* and *finally*, but I have had some success in categorizing the differences with the following instant matrix:

	Time	Series
At last	+	-
Lastly	-	+
Finally	+	+

However, when we turn to more elaborate componential displays matters tend to go awry – to such an extent that one might be forgiven for believing that utility is inversely proportional to complexity. An instance of elaboration beyond pedagogical necessity is the *Longman Dictionary of Scientific Usage* by GODMAN and PAYNE¹⁶, a work of impressive intellectual endeavour and of which I had high hopes when it first appeared. Here follows a typical example of their method of summarizing the network of English verbs used in a particular semantic field:

head term	increase						
by agent	expand					amplify	
by agent or addition		extend		add			
by addition			lengthen	augment			
by agent or addition		enlarge					
by agent		magnify		multiply			
by natural process	swell	dilate (v.i.)					
by agent and beyond natural limit	distend	dilate (v.t.)	elongate	prolong			
by gas	inflate						
	volume	area	length	time	number	energy	rate or magni.

increase & related terms

Unfortunately very few of even my best post-graduate students can cope with such a complex display, and perhaps the LSP profession should have taken greater heed of Adrienne LEHRER's observation on her own roughly-comparable work that «perhaps the analysis is only understandable if the reader knows the meanings of all the words already», which is hardly likely to be the position of our own students – or, if it is, we should be teaching them something else. Further, in my experience, GODMAN and PAYNE over-generalize in two important respects. They sustain their belief in the highly systematic nature of scientific vocabulary («purged of all ambiguity», etc.) by restricting their illustrative contexts to the directly physical. Secondly, they offer such grids as operating across such core disciplines as mathematics, physics, chemistry and biology; in response to this belief, I can only observe that the various mathematicians, physicists, chemists and biologists in my classes discover differences in the ways these vocabulary items are used in their different subjects. I have therefore embarked upon a dual process of selecting segments of GODMAN and PAYNE's displays and of offering my groups of students opportunities to complete the residual lexical fields themselves (the latter, I confess, partly motivated by a wish to try and learn something about interlanguage lexical configurations). Here is an example:

INCREASE		Where would you put: –	
↓		elongate	
		extend	
		lengthen	
		prolong	
+ beyond natural limit		n.b. Two of the six boxes should remain empty.	
area	length	time	

A recent publication of comparable relevance to the *Dictionary of Scientific Usage* is *The words you Need* by RUDSKA, CHANNELL, PUTSAYS and OSTYN¹⁷, although it is not directed to an ESP market. Both the «semantic and collocational grids» for a function that can be of relevance to ESP students are illustrated below.

Knowing and telling in advance

	predict	forecast	foretell	prophecy
tell of some future event	+	+	+	+
only for events having large-scale effects		+		+
without a sound factual basis			+	+
imply mystic inspiration				+

	forecast	predicted	foretold	prophesied	
Meteorologists	+				stormy weather with bright periods.
Biologists	+	+			a decrease in the bird population due to pollution.
Politicians	+	+			that another war would break out.
Agriculturalists	+	+			a bad harvest.
Economists	+	+			massive unemployment.
The old farmer	+	+	+	(+)	a dry summer.
Mme Soleil, the French clairvoyant		+	+		Nixon's downfall.
The gypsy		+	+		that we would have a daughter.
Their religious leaders		+	+	+	the end of the world for April 1, 1969.
The prophet Isaiah			+	+	Jesus' death on the cross.
The astrologer			+		his rise to stardom.
The old lady			+		the death of their son.

The Words You Need is the first of the texts that I have considered which follows «the display» with comprehension exercise work, and the existence of such practice material is obviously a positive feature. The difficulty lies rather in the displays themselves and follows, I believe, as a consequence of the authors' decision to offer an analysis that aims to

encompass a wide variety of registers and styles of the English language. I hope I have succeeded in my intention to choose a section from the work that is representative of the whole, because I would wish to restrict my remarks to the illustrated data. A glance at the grids will reveal that *predict* and *forecast* are «scientific» whereas *foretell* and *prophecy* are not. Thus, the first five subjects in the collocational grid require one or both of the former pair, whilst the last six do not engage in forecasts, «the old farmer» being the only subject to be afforded the privilege of operating in both the scientific and parascientific modes. The distinction thus drawn between the two pairs of words is clearly a useful one, but, for our LSP purposes, we would doubtless have wished for attention to have been focussed on the differences and similarities, both semantic and collocational, between *forecast* and *predict*. (The book can also be faulted for having explanatory material – e.g. «imply mystic inspiration» of a greater level of complexity than the point it is aimed at elucidating, and for offering decisions about usage with which many native speakers would disagree, but as these sins are endemic in LSP teaching materials, there is no case for singling out these authors for particular opprobrium in these respects.) Thus, the *Words You Need* would seem to be another useful reference work for the ESP practitioner, but again one that he or she might wish to mediate for LSP learners; by concentrating on disentangling *forecast* and *predict*, and perhaps by getting his classes to (ostensibly) do some of the work.

I would like finally to offer up an example of vocabulary material of my own and subject to a scrutiny similar to that directed elsewhere. This final extract also allows us to consider what we may do at a somewhat less elevated level than we have discussed hitherto, as it is taken from a course for paramedical technicians.

Here are some more instructions about liquids. As before, they are in the imperative. Choose the correct verb for each instruction. *Use each verb once only.*

- | | | | | |
|---|--|-------------|-------------|---------------|
| | <i>Heat</i> | <i>Cool</i> | <i>Boil</i> | <i>Freeze</i> |
| 1 | the liquid from room temperature to 60°C. | | | |
| 2 | the solution for ten minutes over a Bunsen burner. | | | |
| 3 | the water from room temperature to 4°C. | | | |
| 4 | the liquid in the ice-box of a refrigerator. | | | |
-
- | | | | | |
|---|---|-------------|------------------|---------------|
| | <i>Pour away</i> | <i>Fill</i> | <i>Half-fill</i> | <i>Decant</i> |
| 5 | Take an empty test-tube and ——— it to the top with water. | | | |
| 6 | After the test, ——— the solution. | | | |
| 7 | the burette with distilled water. | | | |
| 8 | When the red cells have settled at the bottom, ——— the supernatant plasma and store it. | | | |

- 9 ——— *Add* the acid with distilled water.
 10 Put your thumb over the end of the test-tube and ——— *Stir* vigorously.
 11 ——— the solution in the beaker with a glass rod.
 12 ——— a few drops of methyl orange indicator to the alkali in the flask.

- 13 ——— *Wash* the eye with 5% sodium carbonate.
 14 ——— *Rinse* the test-tubes under a tap.
 15 ——— *Soak* your hands thoroughly with soap and water.
 16 ——— *Bathe* the glassware for 24 hours in a disinfectant solution.

Exercise 3(a) Look at the table below.

All sixteen verbs in Exercise 2 have a place in the table. Write each verb in its correct column. (How many verbs will you have in each column?)

Mixing liquids	Cleaning with liquids	Transferring liquids	Changing the temperature of liquids

Exercise 3(b)

In which column would you put the following verbs? Write them in the correct column.

shake deliver warm invert steep

In part, the three exercises illustrated answer some of the criticisms I have been proposing in this paper – at least in the sense that the role of the LSP learner as an active participant in solving problems of lexical structuring is not entirely neglected – but, in retrospect, I feel that the extract goes neither far enough, nor fully meets the criterion of «the most appropriate time and place». On the first point, *Exercise 3* could have had two further parts, such as:

Exercise 3(c) Can you, working as a group, add any verbs to the chart?

Exercise 3(d) Prepare a chart for «verbs dealing with liquids» in your own language. Will the headings of the chart be the same? Are there the same number of verbs in each column?

Alternatively, or additionally, the approach should be transformed from the analytic to the procedural, so that vocabulary acquisition can proceed in step with well-established paramedical operations such as Soak-Wash-Rinse-Dry and so on.

It is often said that the day-to-day problems of LSP learners are frequently lexical. I can certainly assert that the day-to-day problems of LSP teachers are also frequently lexical, and I would be surprised if that

were not also the case for specialized lexicographers and lexicologists. Perhaps it is only when we come to realize that these three groups are unlikely to resolve their difficulties by working in isolation, and would do better by collaborating in experiment and trialling, that vocabulary work in LSP will cease to be a case of neglect.

Language Studies Unit
 University of Aston in Birmingham
 GB Birmingham B4 7ET

John SWALES

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