

SENSE: THE FINAL FRONTIER

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When different organizations come together, as for the present conference, it is only natural to ask what shared preoccupations have motivated the union. Each day may bring different answers to this question, but for a Language Day the answer, to my mind, is very clear. When we are dealing with literacy, language teaching, and libraries, the common ground has to be on meaning, or sense. We have only to think of the ways in which these notions turn up in our daily dealings in each of these domains. A random selection from the first two would include: reading 'for meaning', 'talking and writing sense', referring to something as 'not making sense', meeting 'hard words', dealing with the notion of 'comprehension', and asking 'do you understand...?' Enter the third domain, and we immediately make another close encounter with meaning, in the form of the structuring and retrieval of knowledge, as captured within library classification systems, Internet subject categories, and book indexes. Although often labelled differently, as 'information' or 'data', we are nonetheless dealing with the world of sense, the domain of semantics.

Sense is the driving force behind almost everything we do, in the world of language. We try to make sense of everything, and refuse to say that something is nonsense, except as a last resort. We read a sentence in a newspaper article which doesn't make sense, and conclude that there must be a misprint. We read a poem which does not make immediate sense, and conclude that we need to work at it - at least, this is what we tell our students. Given enough effort, it will yield its sense up, we believe. And, given that effort, people can and do make sense of even the most impenetrable of utterances. Indeed, in philosophy and linguistics, there is a long tradition of trying to think up a grammatical but genuinely nonsensical sentence. 'Quadruplicity drinks procrastination' was one such, but it was very easily contextualized one day in a lecture by the late William Haas, professor of linguistics at Manchester, who asked us only to imagine four world powers meeting after a major war and persistently delaying in their decision-making, thus motivating that metaphorical headline. And the famous linguistic example devised by Chomsky, 'Colourless green ideas sleep furiously' has been successfully contextualized many times.

We seem to have an innate drive to make sense of the language being used around us, and we might therefore be tempted to sympathise with the Lewis Carroll dictum, 'Take care of the sense, and the sounds will take care of themselves' (*Alice in Wonderland*, Ch. 9). It is unfortunately not as simple as that, as anyone knows who has had experience of essay-marking, where we may find errors of spelling, punctuation, and grammar in an otherwise imaginative piece of work. But the emphasis is undoubtedly correct. We need to place sense at the centre of our linguistic concerns - which means we must be able to locate it, organize it, grade it, and teach it. And to my mind, there is no more unsettling certainty than the fact that we do not yet know how to do any of these things well. We have made dramatic progress in so many areas of language in the last few decades. We now know a lot about the factors governing language acquisition, the way phonology is involved in reading, the grading

of grammatical structures, the importance of metalanguage, the nature of audience... Indeed, every area of language structure and function seems to have been thoughtfully and searchingly probed - except sense. It is, truly, the final frontier.

Focusing on vocabulary

So, let us boldly go. And, in order to suit the constraints of a conference presentation, let us begin by narrowing the field. For sense enters into all areas of language. It is, to begin with, inherent in vocabulary. We can change the sense of a sentence simply by changing a word within it: *I see the starship* vs. *I see the alien*. So much is obvious. Just as obviously, we can change the sense by changing its grammatical structure: *I see the alien* vs. *The alien sees me*. Less obviously we can change the sense by changing the sound of the sentence (e.g. the intonation): *The alien is friendly, isn't it!* vs. *The alien is friendly, isn't it?* Even less obviously, we can change the sense by changing the spelling: *This is a really big issue* vs. *This is a Really Big Issue*, or *Look - a tea shop* vs. *Look - a tea shoppe*. And of course we can change the sense by changing the way we expect a discourse to work: *Can you tell me the time? It's 3 o'clock* vs. the less cooperative *Can you tell me the time? I can*. But of all of these, it is vocabulary which most people immediately associate with the notion of sense. Words and their meanings. If we think of language as a mountain to be climbed, then grammar is the foundation on which the language rests, and most of the mass of the mountain is taken up with vocabulary - or the *lexicon*, as it is often called (thus providing us with the convenient adjective *lexical*). So we will concentrate our efforts there.

But vocabulary within sentences, always. It is the interaction between words and sentence structure which actually conveys our 'sense of sense'. Words by themselves do not 'make sense'. Only when they are used within a sentence do they 'make sense'. That is what sentences are for. Sentences are there to 'make sense'. That is why sentence study is the foundation of grammar. Dictionaries, of course, tend to give the opposite impression. Indeed, if we do not know the meaning of a word, we say to ourselves that we will 'look it up in a dictionary'. But it is easy to show that a word, by itself, has no sense - or maybe it is that it has too much sense. A brief experiment can demonstrate this. If the sense of a word is self-evident from the word alone, then it will be possible to say what I mean as soon as you hear the following utterance: *table*. Try it. But you cannot interpret this utterance yet. You do not know whether I mean the item of furniture, or a graphic display in a book, or some other sense. 'Put the word into a sentence and then we will know', you ask. And that is precisely the point. *I am sitting on a table*. *There's a misprint in the table*. It is the sentence which provides the context within which it is possible for a word to make sense. And the best dictionaries always provide sentence-based examples to show this happening.

There is a second reason why a reference to dictionaries is somewhat misleading. There are many aspects of lexical sense which are typically not to be found within the pages of a dictionary. For example, idioms will not always be well-treated there. *I laughed like a drain* may be found under *laugh*, or under *drain*, or under both, or it may be missing altogether. Lots of figurative expressions may be absent, as will proverbial phrases and catch phrases. And even if we restrict the point to individual words, you are unlikely to find in a dictionary a thorough treatment of the way words relate to each other in sense - such as synonyms and

antonyms - or cluster into thematic groups, such as we typically find in a thesaurus. Recently published dictionaries are at least aware of the need to build in these areas of meaning as special features; but it is important to appreciate that even the biggest and best dictionaries give us only a partial view of the way vocabulary structures the sense of a language. And the huge indexes and statistically governed principles which control the way in which we search for topics on the Internet give us no sense of semantic structure at all.

The chief reason that sense, and vocabulary, has received so little systematic attention is that everyone thinks they know what it is. What is the point in analysing something if it is obvious? As a consequence, vocabulary is left to fend for itself. So, traditionally in foreign language teaching textbooks, for example, there will be a section or chapter dealing with a carefully graded point of grammar, and associated with that chapter will be a collection of 'vocabulary' items to be learned. But no attention will have been paid to motivating or grading that set of items. From my bookshelves I pull down at random a language-teaching text, and open it at random, and find the following list of words to be assimilated (in Lesson 10 of *Teach Yourself Russian*): *grandmother, attentive, foreign, handkerchief, smooth, pure, tasty, tired, grass...* and so on - the list, from a semantic point of view, equally random. You can see the reasoning: the difficult things to be learned are the sounds and the grammar. To get these right, we need words - to pronounce and to fit into sentence patterns - but that is their only function. Vocabulary can be taken for granted. It is not a priority. In any case - so the traditional approach suggests - there is so much of it that it can't be taught in a systematic way. Or maybe the best way to pick it up is in relation to the subject-matter of what we happen to be talking about or reading. It can, in short, be left to chance. Vocabulary is the bulk of the language mountain, and yet we are being given no tools to climb it. An unsettling certainty, or what?

My Russian book was first printed in the 1940s, but things have not greatly changed in the contemporary educational approaches or publications which claim to be introducing language ideas systematically into schools. For example, the UK National Curriculum, a breakthrough in many respects in mother-tongue English-language teaching, has a great deal to say about the importance of all areas of language - with the exception of vocabulary. To demonstrate this, I have gone through the main curriculum publications, looking for vocabulary references. The first point to note is that vocabulary is given no special attention in the overviews of language which these publications include. In the influential Figure 1 of the *Kingman Report* (HMSO, 1988), for example, called 'Forms of the English language', there are separate boxes on speech, writing, grammatical structure and discourse structure, but for anything related to vocabulary we have only a box on what are called 'word forms', and this consists only of three issues: the grammatical aspects of word formation, idioms, and metaphors. Vocabulary as a domain of language is missing. Or, to take another example, in *English for ages 5 to 16* (DFE, 1993), Attainment Target 3 for Writing recognizes three domains as relevant - spelling, grammar, and handwriting - then sub-classifies into Composition, Forms of Writing, Grammar, Punctuation, Spelling, and Handwriting. Prowess in vocabulary, it seems, is not necessary for Writing. And, just in case you are thinking that ignoring vocabulary is a peculiarly British occupation, let me quote from *A guide to teaching in English* (Department of Education, Queensland, 1994), which also makes use of an

overview diagram (Fig. 4), where the 'assessment of underlying elements' makes no separate reference to vocabulary. It would be the same wherever we went.

As a consequence of this lack of focus, there are far fewer references to vocabulary in the curricular expositions than there are to other areas of language: grammar and spelling, evidently, have been the flavours of the decade. In the recent 'back to basics' political movement in the UK, these are the only two topics to attract the headlines. Moreover, the references to vocabulary, when they do occur, are vague in the extreme. They are also highly repetitive, displaying little sense of development or direction. In the Appendix I give all the references to vocabulary in a curriculum document of the mid-1990s aimed at the whole age range in English language study. You will note that the specificity of the references does not much increase as the children grow. The vagueness of the exposition is little different at age 5 and age 16. And teachers are given no help whatsoever about how they should approach the task of teaching vocabulary. Indeed, the pupils 'should be taught to use a wide-ranging vocabulary', 'encouraged to use words with precision', and so on - but how?

It is about time we recognized, boldly, that we know very little about how vocabulary is learned and how it should be taught. Certainly there is nothing to be gained by curricular powers waving a finger at us and telling us to do better until we have a better grasp of what the principles which govern the lexicon are, and how they are best implemented developmentally in reading materials and syllabuses, as well as structurally in knowledge classifications and information retrieval procedures. The extent of our ignorance about the nature of vocabulary can be quickly demonstrated. Even quite elementary and basic questions about vocabulary receive very disparate answers, such as:

How many words do you think the average English-speaking child knows at age 1, 2, 3, 5... ?

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At what age would you expect children to be using the words *microphone*, *lieutenant*, *apricot*?

Even language specialists have no clear intuition about the answers to these questions. Most people wildly underestimate the figures for active/passive use. There are very few research norms to refer to, after the first 2 years of life (by contrast with pediatrics, for example, where norms of growth for height, weight, head circumference, and so on, are well established over several years). These are not easy areas to research, after all. For example, in relation to the counting task, do we count all words used, or only those words correctly used? The problem is especially acute in relation to estimates of comprehension. Arriving in a class one day, I observed a 5-year-old child using *brontosaurus* for all the dinosaur pictures in his book, including pterodactyls, diplodocuses, and other non-brontosaurian reptiles, just one of which he was prepared to describe as a *dinosaur*. These were clear cases of over-extension of meaning (in the first instance) and under-extension (in the second). But if you were doing a word-count of the words that this child was supposed to know, would you include *brontosaurus* and *dinosaur*? The temptation is to say yes, because he did actually use the words; but if we are trying to evaluate the child's ability to control the senses of his

language, then maybe the correct answer is no. Certainly, we always tend to overestimate the comprehension levels of children in class - and of other adults, as a matter of fact. We hear someone use an impressive word, such as *jejune*, and we are impressed, giving them credit for it. Whether they actually know the meaning of the word is a moot point, and we do not usually ask. (And what does *moot* mean, exactly?)

We are similarly vague about other quantitative questions, such as:
How many English words do you think you actively use?
How many English words do you think you know?
How many words are there in the English language as a whole?

Then there are more specialized questions, such as:

What are the differences between spoken and written vocabulary?
What are the differences between formal and informal vocabulary?
How many new words ought a child to learn per year, per month, per week?
How many new words ought a child to see in a reading programme, per book?

And the qualitative questions, such as:

What is the order in which new words should be introduced?
If word-choice is important, then what are the factors which affect our choice of words?
What does it mean to say that vocabulary should be challenging or adventurous?
What does it mean to say that someone has a wide-ranging or varied vocabulary?

From words to lexical items

So, how do we get to grips with vocabulary? The answer is: in exactly the same way as we would any other area of language. In spelling, we identify the basic units, the letters, and plot the patterns into which they fall. In pronunciation, we do the same thing, but for sounds rather than letters. In grammar, we do the same thing, only we talk about sentence constructions. And so it has to be with vocabulary. What are the basic units of vocabulary, the units of sense, and into what patterns do they fall? We must first identify them before we can list them, grade them, teach them, assess them.

But when we raise the question of how we identify units of sense, things start to get interesting. This is where Old World becomes New World, Ptolemy becomes Copernicus. In my opinion, the move to thinking of vocabulary as 'units of sense' - variously called 'lexical units', 'lexical items', or 'lexemes' - is the most difficult conceptual leap anyone working with the traditional view of language will ever have to make. As far as I know, it has never been introduced systematically into the classroom, in the form of a systematic approach to the teaching of vocabulary. Nor have I ever seen a book in which vocabulary is presented along these lines. The problem is that the semantic approach asks you to give up one of the most dearly held concepts in language, one you have known as long as you can remember, and one I have used so far throughout this paper without comment - the concept of word.

Give up, I mean, in relation to the study of vocabulary. Of course, you can carry on using this notion when you are studying grammar, or pronunciation, or spelling. It is a very useful notion in such areas. We can talk about 'word order' in sentences, and the way 'words are spelled', and where the 'stress in a word' falls, and so on. But when we want to talk about sense, the concept of 'word' suddenly starts to fall apart. Here is an example to bring the point home.

How many words are there in this sentence?

Mary heard that a new type of washing machine had been invented in New Zealand.

Most people answer this question by treating a word as a graphic unit - something with spaces on either side. If you do this, you will answer 15. Does it therefore follow that there are 15 units of sense? 15 units where it would be possible to say 'X means such-and-such'? Plainly not. There are some words which seem to have no sense at all. It is not easy to say what *that* means or what *a* means. Some of the words seem more to do with the grammar than with the vocabulary, as can be seen if the sentence were printed thus:

--- that a --- of --- has been --- in ---.

There is no sense here. The sense seems to be chiefly located in the other words, and indeed you would get the gist of the sentence if I were to print it thus:

Mary heard invented new type washing machine New Zealand.

So let us concentrate on these.

The problem is easy to show, less easy to solve. Is *New Zealand* a unit of sense? (This is a linguistic question, I should perhaps add, not a political one.) Obviously it is. It is a single name which happens to be made up of two words. It really ought to be printed *Newzealand* - as it sounds. We do not pronounce it as two separate words. Nor do we split it up and say *I've just been to New, you know, Zealand*. It is a single lexical unit. A unit of sense. And the same applies to *washing machine*, whose existence as a single sense-unit is actually often represented in writing by adding a hyphen: *washing-machine*. But there is no real difference between *washing-machine* and *New-Zealand*. They are both units of sense. 'What does *washing machine* mean?' an alien might ask. I could tell it. 'What does *New Zealand* mean?' Likewise.

So, from a vocabulary point of view, there are just seven units of sense in this sentence - seven lexical items. Seven places where a child could begin to impress people with a more 'adventurous' choice of words:

... *an original type of washing machine had been devised...*

- or, of course, depress them by doing the opposite:

... *a new sort of thing had been made...*

The fact that the sentence has 15 orthographic words is neither here nor there. Indeed, you can increase the number of words without altering the sense of this sentence

It was Mary who had heard that they had invented a new type of washing machine in New Zealand.

19. Or decrease them:

Mary heard they'd invented a new type of washing machine in New Zealand.

13. The number of words, it seems, isn't critical.

So before we can even begin to work with vocabulary, we need to bear in mind the two basic don'ts.

- *Don't be distracted by the grammar*

All words contribute to the sense of a sentence, but only some are a part of vocabulary. Several words - the so-called *grammatical words* - are there only to make the sentence work grammatically. That means you mustn't be distracted by pronouns, prepositions, conjunctions, auxiliary verbs, determiners, or the forms of the verb *be* when it is being used as a linking verb (as in *John is a doctor*). Some other words are there only to make the discourse work properly, and these should be ignored too: the reaction noises (such as *mhm*) and emotional noises (such as *coo*),

None of this is part of vocabulary, in the sense in which the curriculum uses the term. Vocabulary there deals only with the units that are full of sense (the 'content words') - the nouns, main verbs, adjectives, and adverbs. These are the lexical items.

This is straightforward enough - but there are two caveats. First, beware words which have two uses - one grammatical, one lexical.

I have seen your new bike.

Have is an auxiliary verb, with no separate meaning.

I have a new bike.

Have is a lexical item, meaning 'own' or 'possess'. There are several such words waiting to catch out the unwary linguistic traveller.

Secondly, ignore the way in which the grammar makes changes in the structure of a word. Consider *take, takes, taking, took, taken*. Would you say that a child has learned five different lexical items here? Obviously not. They are five different word-shapes, but we would usually say that these are five 'forms of the same word' - five forms (or variants) of a single lexical item, *take*. Similarly, we would say that *cat* and *cats* are two forms of the same item, *cat*, and *big, bigger* and *biggest* are three forms of the one item, *big*. This all seems obvious, but there are traps again. Beware the irregular forms: *good, better, best* are three forms of the one item, *good*.

Does this point really matter all that much? It can certainly make a significant difference to how you judge such notions as a 'large vocabulary' or a 'wide-ranging vocabulary'. For instance, if you ask how many words there are in Shakespeare, and include *take, takes, taking*, and so on as separate words, you'll get a total of over 30,000. If you count them as variants of one word, you'll get less than 20,000.

- *Don't be distracted by the writing system*

In identifying units of sense, you have to forget a great deal of what you have learned about the way words are written down. The writing system simply cannot be trusted. It is no guide. The same lexical item can often be written as two separate words, or as two hyphenated words, or without a space or hyphen: *flower pot*, *flower-pot*, *flowerpot*. It is the same lexical item, whichever way it is written. And it is just a *single* lexical item, whichever way it is written. In any vocabulary count, a child would score one for this, not two. All compound words in the language present this problem.

But once you start thinking of word-sequences in terms of the sense they express, rather than the spaces within them, you open the floodgates. There are thousands of word-sequences in the language which actually act as single sense-units. Consider all the multi-word verbs, such as:

come in, go into, pass out, come up with, look forward to

One clue that they are units of sense (apart from any grammatical reasons) is that you can often find a single word with the same or very similar meaning:

enter, investigate, faint, devise, anticipate

Or consider such multi-word prepositions as *in aid of* or *in view of*. These are the same. They ought always to be mentally hyphenated. They are, if you like, idioms, and indeed all the idioms of the language have to be thought of afresh, when you start thinking of vocabulary from a semantic point of view. The traditional definition of an idiom is a group of words whose meaning cannot be derived from the meaning of the constituent parts: *kick the bucket*, meaning 'die' cannot be arrived at by adding up the meanings of *kick* and *bucket*. *Kick the bucket* may have three words, but it is a single unit of sense. All idioms are single units of sense.

Teaching vocabulary

What are the implications of all this for the teaching of vocabulary, whether in relation to listening, speaking, reading or writing? What would a lexical syllabus look like? I take it that the main aim of such a syllabus would be to provide routes which would foster vocabulary in the child. We are entering a brave new world here, so all steps must be tentative, and my examples in this paper are merely illustrative. But there are certain pathways which are likely to provide insights.

I begin by gleaning what I can from the curriculum documents, and indeed the Appendix does give us some clues about the way in which we might proceed. By collating the relevant words and phrases used in the publication analysed, we can deduce that the teaching of vocabulary has five aims:

- To increase size of vocabulary: 'wide-ranging', 'extended', 'enriched', 'imaginative', 'adventurous', 'growing', 'challenging', 'simple', 'more complex', 'unfamiliar'

- To improve precision in vocabulary use: 'precision', 'clarity', 'more than one meaning', 'accurate', 'level of detail', 'emphasis', 'meaning beyond the literal', 'fine distinctions'
- To promote awareness of the way vocabulary is organized: 'groups of words', 'similar and opposite meanings', 'word families', 'words relevant to a topic'
- To develop awareness of use/audience: 'different contexts', 'specific occasions', 'characteristic', 'adapt', 'formal', 'appropriate', 'effective', 'standard', 'dialectal', 'different types of text', 'interest of listener', 'apt', 'varied'
- To generate interest in vocabulary: 'word games', 'roots', 'origins', 'change over time', 'borrowings', 'coinages', 'experiment'

A recurrent theme is that of *choice* between alternative words or meanings, and this is very sensible, for indeed the whole of meaning in language is grounded on the notion of contrast - of choosing between alternative forms. In speech and writing, *pin* contrasts with *bin*, both in sound and in spelling; in grammar, *cat* contrasts with *cats*, *you can swim* contrasts with *can you swim*; and it is the same in vocabulary, except that here there are tens of thousands more contrasts than operate at the other levels of language. It is for this reason that we need to bring in the notion of *structure* as soon as possible: to give us a means of seeing some pattern among the lexical items.

Structure is present from the beginning of language learning. When we acquire a new lexical item, we do not simply tack it on to the end of a list of already-learned items. Rather, the new item has to find its place within the lexicon we have already acquired. Let us imagine we encounter the item *sponsorship* for the first time: this becomes part of the set of items we already have for types of money-giving, such as *donation*, *award*, *grant*, *fee*, *endowment*, *gift*, *scholarship*, *honorarium*, *subsidy*, and *annuity*. It does not become part of the items we already know for types of fruit or types of vehicle. And in joining the relevant set, it has to elbow its way in: we may have to change our mind about the sense of other items already there. 'They're offering us a sponsorship', you might say, then learn that what you have been offered is really a *donation*, because of the different tax implications, and thereafter the meaning of *donation* is narrower for you than it was before you learned *sponsorship*. When you learn a new word, you always make at least two gains in precision, not one.

This example shows the interdependence of the first three aims in the above list: increasing the range of vocabulary inevitably increases precision, as long as the acquisition of the new item is properly integrated into the existing lexicon, and this requires that we recognize the crucial role of structure. Structure here means semantic structure: the way the senses of lexical items relate to each other. Lexical items are bound together by a network of sense relations in what is usually called a *semantic field*. Learning a new item is a matter of showing how it fits into this field. And this is how it is from the very outset of lexical learning. *There dog*, says the child, pointing to a cat. *No darling*, says the mother, *that's a cat, not a dog*. But few mothers would stop there. *Cats go miaow, dogs go woof*, one might say. Another might draw attention to the differences in shape, or touch, or size. And when other animals come into view, yet other distinguishing features will be mentioned - whether they can be eaten, whether they live on the farm, or in the jungle, whether they are dangerous. To learn a set of lexical items is to learn the features which distinguish or relate the items, thereby building up

primitive definitions: 'a cow is a thing that goes moo, gives milk, lives on a farm', and so on. Later, the child learns the name of the semantic field that cows are part of: *animals*. And gradually we learn how to define: 'an X is a Y which has the features A,B,C...' It isn't done all at once. To build up a solid definition can take years. For a long time, one of my children misunderstood the word *factory*. 'It's a place where you make things', she had been told. So the kitchen, for example, she would call a factory. This was so cute that we kept it going as family slang for ages. Only in school did she learn the bitter truth - that factories involve mass production for selling - and we got thoroughly told off for our persisting domestic usage when she eventually found out.

Is a semantic field the same as the notion of *word family* in the curriculum documents? It is one kind of word family, certainly. *Donation, gift, sponsorship*, and so on is certainly a word family, in one sense. But the term *word family* is used in other ways which are very different. For example, here is a different kind of word family: *ancient castle - beautiful princess - wicked witch - seven dwarfs...* This is a selection of items chosen according to topic, or story. They do not comprise a semantic field: rather, the story is made up of a sequence of items selected from many semantic fields. *Ancient* comes from the field of age; *castle* comes from the field of buildings; *beautiful* comes from the field of (let us call it) physical attributes, *seven* comes from the field of numerical quantity, and so on. You could even tell this story replacing the salient items by their category labels: 'Once upon a time, there was a certain type of royal person with a certain physical attribute who lived in a certain type of building of a certain age...' Your skill in using vocabulary can then be judged by just how well you can choose items to fit these categories: 'there was a beautiful princess who lived in an ancient castle...' is presumably going to be rated higher than 'there was a nice person who lived in an old building'.

We can draw several conclusions from these examples, which are full of implications for lexical teaching. To make better lexical choices, students need to have an array of items available, and to some extent the more items the better. It is like supermarkets: in the town where I live, the local store has limited choice, so many people travel out of town to a place where there is more choice. But note that if there is too much choice people get confused. They ask 'what's the difference?'. They find they need to consult consumer magazines. It is the same with language. The consumer magazines are there, telling us exactly what all the differences are: they are called dictionaries. But dictionaries contain too much lexical information; the information is ungraded, in terms of difficulty; and there is no organization other than A to Z, which has nothing to do with sense at all. In a dictionary, *aunts* and *uncles* are almost as far away from each other as it is possible to be. There needs to be an intermediary (or, to be fashionable, interface) between the developing lexical intuition of the student and the target lexical world of the language. It is called a teacher.

And teachers take guidance from syllabuses. A lexical syllabus, accordingly, should do four things. First, it should give a child the chance to work systematically through the language's semantic fields. In the early days, there might be a focus on such fields as size, colour, food, clothing, animals, and vehicles. In later years the focus could be on such fields as payment, business organizations, diseases, and the law. Some of these fields are already well treated in reading materials, in the form of colourful books on cars, colours, animals, flowers, and so

on. But there is nothing systematic about the way publishers work here; the focus is on the subject-matter, not the language. It is possible to find, in a book aimed at 5-year-olds, some quite advanced vocabulary. Even alphabet books fall into this trap, especially when they have to get round letter X - *xylophone, X-ray...* - and some alphabet lists seem to delight in finding obscure items, hoping for salvation from the illustrations. Eric Carle's *All About Arthur* is a typical example of a book which goes (lexically) well over the top: his treatment of I reads *In an inn in Indiana he met an intelligent ibex named Ivan and an inquisitive iguana, Isabel. Both had an interesting idea. Let's imitate Indians.* This is great fun, but do not let ourselves be fooled into thinking that we are helping vocabulary to grow, when we read from such books - and certainly not at the age when letter recognition is supposed to be being established.

This leads to the second principle: within each field, a lexical syllabus should select and grade sets of lexical items so that they meet the developing needs of the child. Every field will contain some items which are within the range of a 5-year-old and some which ought to be left to later ages. Within the field of 'buildings to live in', for example, early items would probably include *house, cottage, caravan, and castle*; later on we might expect to find *bungalow, cabin, and palace*; then *hall, villa, chateau, estate, manor, mansion*; later *domicile, residence, abode, dwelling*. My list is intuitive: there are no developmental studies to rely upon. You may disagree with the location of the individual items, if you wish. But the principle is indisputable - that there is a long developmental journey here, which any syllabus ought to reflect. Moreover, such lists are for guidance, not control. Anyone writing a reading scheme would be wise, for the early books, to use such items as *cottage* and *castle* rather than *residence* and *domicile*. In the world of real books the unexpected always happens: Mr Toad can have a residence. But you have to be as confident a writer as Kenneth Grahame or Roald Dahl to get away with that kind of thing.

This leads to a third principle: when you choose an item from all the ones belonging to a semantic field you are trying to find the best one to suit what you are wanting to express, and this presupposes that you can tell the difference between them. Telling the difference - identifying what two items have in common and what makes them different - is what we call a *definition*. A lexical syllabus needs to give guidance about definitions, and about how lexical items are related in meaning to each other. The good news is that the curriculum documents are aware of this, and actually refer to two types of sense-relation a great deal: synonymy and antonymy. The bad news is that these are the two least useful types of sense-relation.

- Synonyms are not very useful because they are so unusual. In fact it may be impossible to find in a language two words with exactly the same meaning. Why should a language waste its resources in this way? Invariably there is some difference - regional use (*tap* vs *faucet*), stylistic level (*house* vs *domicile*), and so on. Two items may be synonymous in one sentence (*a nice range/selection/choice of furniture*) but not in another (*a mountain range*, but not *a mountain selection* or *choice*). Items may seem the same on first encounter (*kingly, royal, regal*), but on closer examination display many individual nuances (we say *royal mail*, not *kingly/regal mail*; the queen looks very *regal* not *kingly*).

- And antonyms are also unusual. Most of the lexical items in the language do not have opposites. There are indeed several types of oppositeness, and they have been well studied: *big vs small*, *single vs married*, *employer vs employee*, and so on. But most items are not like this. What is the opposite of *furniture*, *oboe*, *compete*, *Tuesday*, *however*, *horizon*, *fax*? Knowing about opposites is important, but it tells only a tiny part of the lexical story of a language.

Far more important are the sense-relations of hyponymy and incompatibility - impressive names for everyday notions - which the curriculum documents say next to nothing about. When introducing children to a new lexical item, we would automatically use both. *What's a pterodactyl, Miss?* Answer: *It's a kind of dinosaur, but it can fly*, or, more succinctly, *It's a flying dinosaur*. *A pterodactyl is a kind of dinosaur* is an example of hyponymy: the relationship of inclusion. 'An X is a kind of Y'. It is the basic principle of dictionary definition. *Flying* tells us in what respect this particular dinosaur is different from ('is incompatible with') others. A more everyday example would be *clarinet*, which is a type of woodwind instrument: it is incompatible with the other woodwind instruments - *oboe*, *bassoon*, *flute*, etc. If pressed, we could define the exact features which make these instruments incompatible - their size, tone, how they are played, and so on. That would be to go into their definitions.

This example also shows a fourth lexical principle: definitions are learned bit by bit, by adding features of meaning to the account. Don't expect total accuracy first time. To say that *a pterodactyl is a flying dinosaur* is actually a half-truth. To be precise it is a particular type of flying dinosaur. To be really precise, it is 'a member of the order Pterosauria of extinct flying reptiles of the Jurassic and Cretaceous periods that had a featherless membranous wing that extended from the side of the body along the arm to the end of the greatly enlarged fourth digit' (says the *Longman Dictionary of the English Language*). *Thank you, Miss*. Half-truths are best, if we want people to learn. We build up to the total reality gradually, as need requires. In many cases, we stop well short of reality: only palaeontologists, I imagine, need to be aware of every aspect of that definition. But maybe one day I shall encounter another flying dinosaur which is not a pterodactyl - at which point I shall need to develop my awareness of what it is that makes pterodactyls incompatible with other dinosaurs.

Of course, the best semantic explanations give more information than the bare minimum about a new lexical item, showing how it relates to other items within a semantic field. What does *engrossing* mean? All four of the sense-relations discussed so far can be helpful (I quote some real responses):

hyponymy: *it's a kind of feeling...*

incompatibility: *it's like when you're interested in something, only more so...*

synonymy: *it means fascinating, gripping, enthralling...*

antonymy: *it's when you're not bored...*

And of course as a teaching procedure it is possible to work the other way round, presenting a set of sense-relations and seeing whether the student is aware of the lexical item which

best captures them. For example, one dictionary definition of *walk* is: '(of people and creatures with two legs) a natural and unhurried way of moving on foot in which the feet are lifted one at a time with one foot not off the ground before the other touches'. There are several features of meaning here: 'natural', 'unhurried', 'one foot at a time', 'one foot always on the ground'. By focusing on these features in turn, we can generate several incompatible terms. What would it be to move in a 'natural' and 'hurried' way, with 'both feet off the ground some of the time'? *Run*. To be 'unhurried' but 'not natural'? *Totter*, maybe. And if you want, you can find concepts for which there is no lexical item in the language at all. For instance, there seems to be no single lexical item to express the notion of 'hurried movement backwards with one foot always on the ground'. Maybe that's a good thing.

We are approaching the world of language play. It is easy to see how all kinds of semantic games could be devised which would focus the student's attention on the nature of a semantic field, semantic features, sense relations, and definitions. Humour is the great facilitator. Take, for example, the thorny question (which we discussed earlier) of what counts as a compound word. How can we show that the *hot dog* you eat is a compound? By inventing a sentence like *The hot dog was eating a hot dog*. What is the difference between the two *hot dogs*? The stress pattern is different, of course ('hot 'dog vs 'hot dog), but so is the semantic structure: a 'hot 'dog, the animal, is different from a 'cold 'dog. If your 'hot dog goes cold, it is not a *cold dog*, but a 'cold 'hot dog.

Once the basic structural concepts underlying the way vocabulary works are known (by the teacher), it is possible to use them to be critical of the way our materials introduce children to vocabulary. For example, if children assume that a word is a unit of sense, should we include multi-word units in early reading materials? And if we do (and we do), should we not be alert to the comprehension problems they present? Or again, what are we telling children if we present them with sloppy definitions? For example, in *Chambers First Picture Dictionary* (which I choose as typical of its genre, and not because it is below average) we are given the following definitions:

clarinet A clarinet is a musical instrument. You blow into it to make it play a tune.

oboe An oboe is a long, thin musical instrument. You play it by putting one end in your mouth and blowing.

flute A flute is a long thin musical instrument. When you play a flute you hold it to one side, not straight in front of you. You make sounds by covering the holes with your fingers and blowing.

recorder A recorder is a musical instrument which you blow into to make a sound.

Fortunately there are pictures, for it would be difficult to learn very much from the lexical account. Indeed, any thinking child would have a right to conclude, on this basis:

- that clarinets and recorders are not long and thin;
- that only a clarinet plays a tune - flutes and recorders make sounds - and the oboe makes nothing at all;

- that there are two distinctive features about a flute: (a) it is the only one to be played sideways (correct) and (b) it is the only one where you need to cover the holes with your fingers (wrong).

It would not be difficult to fix these definitions so that they are clearer - but this of course presupposes that we have diagnosed the problem correctly, which is only possible if we are thinking about vocabulary from a semantic point of view.

Finally, lexical semantics can also motivate us to explain or foster the use of more interesting effects, especially in reading and writing. The seven dwarfs story - or any story - can be viewed as a sequence of sense-related items, as we have seen. But there are certain items which have a special impact if used at certain points in the story - atmosphere-setting items, character-building items, items which add to a story's climax, and so on. We could even imagine a lexical story-board, in which 'key-words' act as place-holders for salient points - a development of the technique in which we might start children off on an essay by giving them the opening sentence. So:

three little pigs --- big bad wolf --- build --- house --- straw --- etc. Simple or familiar stories can lead to more interesting ones:

three little pigs --- big bad wolf --- build --- house --- straw --- cup of sugar ---.

Cup of sugar? Why not? The True Story of the Three Little Pigs does it, and that's a prize-winning story (Sczieska, 1989):

Everybody knows the story of the Three Little Pigs. Or at least they think they do. But I'll let you in on a little secret. Nobody knows the real story, because nobody has ever heard *my* side of the story.

I'm the wolf. Alexander T. Wolf.

You can call me Al.

I don't know how this whole Big Bad Wolf thing got started, but it's all wrong.

Maybe it's because of our diet.

Hey, it's not my fault wolves eat cute little animals like bunnies and sheep and pigs. That's just the way we are. If cheeseburgers were cute, folks would probably think you were Big and Bad, too.

But like I was saying, the whole Big Bad Wolf thing is all wrong.

The real story is about a sneeze and a cup of sugar....

Other directions

This paper has not been a complete account of the semantic approach to vocabulary. I have not gone into the way vocabulary interacts with grammar - for example, using prefixes and suffixes as elements of word-building (*nation, national, nationality, nationalism, nationalize, nationalization, denationalize, renationalize, international, multinational, supernation,*

antinationalization...)- one of the major means of building a large vocabulary. I have not gone into the way in which we use context to select a sense: we know, for example, that *mouse* in the context of computing is different from the other use of *mouse*. And, indeed, the whole gamut of contextual factors which affect our choice of words (such as regional background, formality, occupation, cultural origin, aesthetic properties) must be left for some other occasion. Nor have I examined the vocabulary from a historical point of view, as the curriculum documentation would have us do. For me, these are side issues, dependent on progress being made in the central task: the handling of semantic structure.

Sorting out the world of vocabulary is a task which urgently deserves the attention of everyone professionally involved with words. Within language study, it is actually one of the more attractive tasks. Unlike pronunciation, there is no problem of training oneself to cope with subtle differences of sound. Unlike grammar, it is not encumbered by vast amounts of off-putting technical terminology. The chief barrier is the leap you have to make to thinking semantically, but once you have done that there is very little new conceptual apparatus to be acquired. Sorting out vocabulary, however, is a mountain of a task which demands the involvement of many people, if it is to be scaled. No one research team could ever hope to handle it.

On the front cover of my *Cambridge Encyclopedia of the English Language*, there is a picture of the starship *Enterprise*. It is there because of the split infinitives, which receive some discussion in that work. But the reality is deeper, for printed in outline above the spaceship is the word LEXICON. So let us resolutely, fearlessly, courageously, heroically, gallantly, valorously proceed, advance, move on, progress in getting to grips with vocabulary. In short, let us boldly go.

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Appendix

References to 'vocabulary' in the English programme of study from the UK National Curriculum

General requirements

- p. 2 To develop effective speaking and listening, pupils should be taught to... use the vocabulary and grammar of standard English...
To develop as effective writers, pupils should be taught to use... a wide-ranging vocabulary...
- p. 3 ... standard English is distinguished from other forms of English by its vocabulary...
- p. 4 Pupils should be encouraged to... [choose] words with precision...

Key Stage 1

In relation to Speaking and Listening

- p. 5 Pupils' vocabulary should be extended through activities that encourage their interest in words, including exploration and discussion of:
- the meaning of words and their use and interpretation in different contexts;
 - words with similar and opposite meanings;
 - word games;
 - words associated with specific occasions, eg greetings, celebrations;
 - characteristic language in storytelling, eg. Once upon a time.

In relation to Reading

- p. 6 The literature read should cover... stories and poems that are particularly challenging in terms of length or vocabulary.
- p. 7 Word recognition, focusing on the development of a vocabulary of words recognised and understood automatically and quickly. This should extend from a few words of personal importance to a larger number of words from books and the environment. Pupils should be shown how to use their sight vocabulary to help them read words that have similar features. They should discuss alternative meanings of words and phrases.

In relation to Writing

- p. 9 Pupils should be helped to make choices about vocabulary...
- p. 10 Pupils should be introduced to the vocabulary... of standard English... to develop their understanding of... how word choice and order are crucial to clarity of meaning.

Pupils' interest in words and their meanings should be developed, and their vocabulary should be extended through consideration and discussion of words with similar meanings, opposites, and words with more than one meaning.

Key Stage 2

In relation to Speaking and Listening

- p. 11 Pupils should be given opportunities... to reflect on how speakers adapt their vocabulary...
They should be taught... to use vocabulary and syntax that enables the communication of more complex meanings.
- p. 12 Pupils' appreciation and use of standard English should be developed by involvement with others in activities that... demand the range of... vocabulary characteristic of spoken standard English.... Pupils should be taught how formal contexts require particular choices of vocabulary...
- p. 12 Pupils should be taught to use an increasingly varied vocabulary. The range of pupils' vocabulary should be extended and enriched through activities that focus on words and their meanings, including:
- discussion of more imaginative and adventurous choices of words;
 - consideration of groups of words, eg word families, the range of words relevant to a topic;
 - language used in drama, role-play and word games.

In relation to Reading

- p. 13 They should be encouraged to respond imaginatively to the... vocabulary... in literature.
- p. 14 Pupils should be taught to... use dictionaries, glossaries and thesauruses to explain unfamiliar vocabulary... note the meaning and use of newly encountered words. They should be encouraged to use their knowledge gained from reading to develop their understanding of the... vocabulary... of standard English.

In relation to Writing

- p. 15 They should be encouraged to make judgements about when a particular... choice of vocabulary is appropriate.
- p. 16 In spelling... they should be taught... the relevance of word families, roots and origins of words.
Pupils should be taught to distinguish between words of similar meaning, to explain the meanings of words and to experiment with choices in vocabulary. Their interest in words should be extended by the discussion of language use and choices.

Key Stages 3 and 4

In relation to Speaking and Listening

- p. 17 They should be given opportunities to consider their choice of words and the effectiveness of their expression.
- p. 18 Pupils should be taught to be fluent, accurate users of standard English vocabulary... In role-play and drama, the vocabulary... appropriate to such contexts should be explored.
Pupils should be given opportunities to consider the development of English, including
- how usage, words and meanings change over time;
 - how words and parts of words are borrowed from other languages;
 - the coinage of new words and the origins of existing words...
 - the vocabulary... of standard English and dialectal variations.

In relation to Reading

- p. 21 [Re literature] Pupils should be taught to: extract meaning beyond the literal... analyse and discuss... unfamiliar vocabulary...
- p. 22 Pupils should be taught:... to consider features of the vocabulary... of standard English that are found in different types of text, eg technical terms in reports.

In relation to Writing

- p. 24 Pupils should be encouraged to be confident in... using the... lexical... features of standard English... to be given a range of opportunities to use the... vocabulary characteristic of English in formal writing... and to distinguish varying degrees of formality, selecting appropriately for a task.
Pupils should be encouraged to consider apt and imaginative choices of vocabulary and the precise use of words, including consideration of synonyms and double meanings. Pupils should be given opportunities to use dictionaries and thesauruses to explore derivations and alternative meanings.

Level Descriptions

If a level is not mentioned, it is because it makes no reference to vocabulary. There are eight numbered levels within each Attainment Target, plus a level of exceptional performance.

Attainment Target 1 (Speaking and Listening)

- 1 They convey simple meanings to a range of listeners...
- 2 ... they use a growing vocabulary.
- 3 They begin to adapt what they say to the needs of the listener, varying the use of vocabulary and the level of detail.
- 4 They use appropriately some of the features of standard English vocabulary...

- 5 Their talk engages the interest of the listener as they begin to vary their expression and vocabulary.
- 6 Their talk engages the interest of the listener through the variety of its vocabulary and expression.
- 7 They use vocabulary precisely...
- 8 They... use apt vocabulary...

Exceptional performance

Pupils... vary... their vocabulary and expression confidently for a range of purposes.

Attainment Target 2 (Reading)

- 2 They use more than one strategy... in reading unfamiliar words and establishing meaning.

Attainment Target 3 (Writing)

- 2 Pupils' writing communicates meaning... using appropriate and interesting vocabulary
- 3 .. words are chosen for variety and interest.
- 4 Vocabulary choices are often adventurous and words are used for effect.
- 5 Vocabulary choices are imaginative and words are used precisely.
- 6 Pupils use... varied vocabulary to create effects.
- 7 .. vocabulary [is] accurately and effectively used.
- 8 The use of vocabulary... enables fine distinctions to be made or emphasis achieved.

Exceptional performance

Narratives use... vocabulary for a range of imaginative effects...